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China's Credit Boom: New Risks Require New Reforms

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The Chinese financial system has undergone almost continuous reform since the dismantling in the 1980s of the Soviet-style system where only one state-controlled bank existed. Government efforts to create a financial system that adheres to international best practices of commercial lending accelerated in the 1990s (box 1). Reforms progressed quickly during this period, but they were accompanied by excessive credit growth and a massive increase in nonperforming loans, threatening the solvency of some banks and the financial stability of the entire economy. The risk of these weaknesses was dramatized by the 1997 Asian financial crisis, in which several nearby countries were crippled by plunging currency values, rising interest rates and difficulties servicing their foreign-held debts.

Seeking to avoid a similar fate, the Chinese government bailed out and restructured the banking system. The government removed nonperforming loans from the balance sheet of banks and transferred them to asset management companies. It also brought in foreign expertise and capital to improve corporate governance and lending practices. Large banks received major capital infusions by listing themselves on the stock exchange. These efforts continued for more than a decade, culminating in the listing of the last large state-owned commercial bank in 2010, the Agricultural Bank of China.

The banking cleanup achieved considerable success. The bad debts and shoddy lending practices in the 1990s have been replaced a decade later with record profits, healthy levels of capital, and low levels of bad assets. Mixed with this progress, however, has been a policy of allowing large-scale interest rate distortions. Low rates for borrowing and lending artificially stimulated economic growth and made the economy more dependent on a bank-dominated financial system. Despite these distortions, throughout much of the 2000s, bank lending was of better quality than before the bailout, a testament to the tough structural reforms imposed upon the banks.

The global financial crisis of 2008–09, however, aggravated the difficulties of the financial system, reversing recent progress and reform while creating new problems in risk management and credit allocation. For example, the government's stimulus in response to the crisis was largely through bank loans rather than through direct government spending. To stop the decline in growth, the government loosened credit controls, removed home purchase restrictions, and approved a large infrastructure program. The result was a massive increase in the stock of loans. Bank loan growth moderated in subsequent years, but non-loan-financing channels, such as entrusted loans, corporate bonds, bankers' acceptance bills, and trust loans, have continued to grow rapidly. The banks are still deeply involved in many of these non-loan-financing methods, and regulators have struggled to control them without generating financial distress. Post–global financial crisis, China's financial sector once again appears vulnerable to large-scale credit misallocation and spiraling bad debts. The Chinese financial system will require a new round of restructuring and reform to reduce the risks that have accumulated over the past several years.

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Box 1 Partial Steps toward Creating a Modern Financial System, 1993–98

In 1993 the State Council promulgated the Resolution on Financial System Reform, which established the People's Bank of China's responsibility for maintaining the currency policy, implementing macroeconomic adjustments, supervising financial institutions, and maintaining financial stability (People's Bank of China 1993). The reform also separated policy lending from commercial lending, calling for the reorganization of state-owned commercial banks and creation of policy banks for policy lending.[1] This was a decisive move away from the financial system of the past, where banks were directly part of the Ministry of Finance's budget outlay process.

More reforms aimed at creating a modern banking system followed. In 1993, the policy of relending, whereby banks borrowed from the central bank and used the funds to make policy-directed loans, was recentralized. This reduced the influence of local governments on loan decisions, and the overall amount of relending declined from 37 percent of total loans in 1993 to 17 percent by the end of 1995 (Lardy 1998). In 1994, China established working relations the Bank for International Settlements and was admitted as full member in 1996. In 1995 the Commercial Bank Law was passed, formalizing the commercialization of the state-owned commercial banks while maintaining that lending should take place under the guidance of national industrial policy (People's Bank of China 2003). In 1995, formal credit quotas were abandoned in favor of guidance by the People's Bank of China. The China Foreign Exchange Trading System and National Interbank Funding Center were introduced in 1994 and 1996, respectively, creating national foreign exchange and interbank funding markets.

The mechanisms for dealing with nonperforming loans were also reformed. Before 1995, banks faced a limit on the number of nonperforming loans they could carry on their books, regardless of the actual amount of bad loans.[2] In 1995, the People's Bank of China set forth a new three-tier system for nonperforming loans, eliminating the previous administrative limits.[3] However, the new system fell short of international standards. The shortfalls included assessing nonperforming loans based on payment rather than risk, delays in the classification of nonperforming loans, evaluating multiple loans from the same borrower separately, counting only the portion of the loan not paid was classified as overdue, and overly strict limitations on writing off bad debt (Lardy 1998). In 1997, the State Council announced its intention to follow international principles on the disposal of bad loans.[4] In 2002, the People's Bank of China required the policy banks, state-owned commercial banks, joint stock banks, and city commercial banks to follow the five-category loan classification system common in advanced economies (People's Bank of China 1999). These measures, however, came too late to stem the increase in nonperforming loans.

Low interest rates and loose lending standards fueled credit growth during this period. Total credit expanded from 87 percent of GDP at the end of 1992 to 107 percent of GDP by the end of 1998 (BIS 2013). This expansion in credit was not primarily the result of financial deepening as China's financial markets remained distorted. The growth of nonbank financial institutions did not keep pace with that of banks.[5] In 1993, nonbank financial institutions accounted for 16.8 percent of non–central bank financial assets (Kumar et al. 1997). Their share of the financial system declined to 13.4 percent by 2003. The state-owned commercial banks, which dominated the financial system, lent mostly to enterprises and offered few services to consumers (Lardy 1998). Credit cards, home mortgages, and car loans were all underdeveloped. Large industrial enterprises, many of which were state-owned, received most of the credit during this period.

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1. The policy banks subsequently created in 1995 are the Agricultural Development Bank of China, China Development Bank, and the China Export-Import Bank.
2. The following limits were set for banks: A maximum of 2 percent of loans could be classified as unrecoverable debt, a maximum of 5 percent of loans could be classified as still making interest payments but with principal three years overdue, and a maximum of 8 percent of loans where principal was one year overdue.
3. The new nonperforming loan categories were (1) "bad debts," where no repayment was possible after liquidation, (2) "doubtful loans," where payments were two years overdue or additional loans had been extended to the borrower, and (3) "past due loans," where a payment had been missed.
4. "State Council Notice on Deepening Financial Reform, Rectifying Financial Order and Guarding Against Financial Risk," *People's Daily*, December 6, 1997, http://cpc.people.com.cn/GB/64184/64186/66688/4494459.html (accessed on September 9, 2013).
5. Nonbank financial institutions here include rural credit cooperatives, urban credit cooperatives, trust and investment companies, finance companies, leasing companies, money brokers, and auto and consumer finance companies.

Box 1 Partial Steps toward Creating a Modern Financial System, 1993–98 *(continued)*

Interest rate controls that set artificially low rates created excess demand for loans. The artificially low cost of funding encouraged companies to borrow as much as possible. Figure 1 shows the decline in real lending and deposit rates during the 1990s. Low interest rates by themselves, however, are not enough to spur excessive credit growth. Weak internal controls at banks allowed the buildup of massive amounts of nonperforming loans. Though banks had begun to corporatize and adopt modern lending systems, many of the past bad practices remained. Local governments continued to demand loans for favored state-owned enterprises, despite the fact that these enterprises had little ability to pay back the loans they had already taken out. Banks disguised the true extent of their bad loans by booking accrued interest as earnings, even long after the possibility of repayment had gone. Another method employed by banks was to extend new credit to borrowers in order to pay off old loans, commonly referred to as loan evergreening. These shoddy lending practices resulted in the accumulation of significant bad debts. By 1997, 24 percent of loans at the large state-owned commercial banks were nonperforming, creating implied losses that were greater than the banks' net assets (Huang 1998).

Figure 1 Real lending and deposit rates, 1989–98

Source: Wind Information; author's calculations.

BAILOUT AND RESTRUCTURING IN THE WAKE OF THE ASIAN FINANCIAL CRISIS, 1998–2008

Although capital controls spared China the worst of the Asian financial crisis, Chinese policymakers were nonetheless concerned about the stability of the economy. Countries whose growth models China had used to guide its own development, such as South Korea and Thailand, faced full on debt crises, which derailed economic growth for years. China's leaders wanted to avoid a similar fate and recognized that structural reforms and better regulation were necessary to tackle growing systemic risks in the financial system (Zhou 2013). Toward the

end of 1997, the State Council issued the Notice Concerning Deepening Financial Reform, Rectifying Financial Order and Preventing Financial Risk, which outlined the risks facing the financial system and established the Central Finance Working Committee as a coordinating group for implementing reform. The same year, premier-in-waiting Zhu Rongji convened an emergency session of the Central Finance Conference to focus on financial risks (Shih 2013). Chinese policymakers then embarked on an ambitious financial restructuring program, which spanned a decade and required more than 4 trillion renminbi in fiscal commitments, an amount equivalent to half of GDP at the beginning of the process in 1998.

The banking cleanup began in 1998 when the Ministry of Finance issued a 270 billion renminbi bond, which was sold to the four big state-owned commercial banks. This immense fiscal commitment was equivalent to 55 percent of the central government's revenue (Okazaki 2007). The proceeds from the bond were used to buy equity in the banks, increasing their capital base. The same year, the four large state-owned banks began a sustained effort to increase efficiency and cut costs. They laid off 556,000 employees between 1998 and 2002 (People's Bank of China 2004), which increased per employee profit by 21 percent, and closed more than 40,000 branches.[1]

In 1999, four asset management companies were set up to dispose of the nonperforming loans held by the large state-owned banks.[2] The first round of bad asset disposal involved transferring 1.4 trillion renminbi in nonperforming loans, 20 percent of the total loan balance. The nonperforming loans were transferred from the books of the banks to the newly created asset management companies at par value. The asset management companies paid for these loans by selling bonds to the banks and with support from the People's Bank of China (Ma and Fung 2002).

In 2003, responsibility for regulating banks was moved from the People's Bank of China to the newly established China Banking Regulatory Commission. The same year Central Huijin, a government-owned holding company, was established to exercise the government's shareholder rights in the large state-owned commercial banks. That year Huijin made a capital investment of $45 billion in China Construction Bank and Bank of China, acquiring almost all of their equity (Walter and Howie 2011). A similar transaction was made in 2005 with Industrial and Commercial Bank of China for $15 billion and half of the bank's equity. The Ministry of Finance allowed its entire equity in China Construction Bank and Bank of China to be wiped out through loan loss writeoffs and increased provisioning (Ma 2006).

Another round of bad asset disposal began in 2004 when the People's Bank of China purchased 320 billion renminbi in dubious loans from China Construction Bank and Bank of China at 50 percent book value and transferred them to the asset management companies at a loss. In 2005 the People's Bank of China purchased 460 billion renminbi of loans from ICBC for par value and transferred them to the asset management companies at a loss. At the same time new equity was injected into the banks. In 2004 the Bank of Communications was recapitalized with 35 billion renminbi, through a mix of government funding and a strategic investment by HSBC. The People's Bank of China and local governments contributed a total of 336 billion renminbi to restructure rural credit cooperatives (Ma 2006). New and existing shareholders contributed another 104 billion renminbi to increase capital. City commercial banks received 36 billion renminbi in new equity financing from local governments.

As part of the banking cleanup, the large state-owned commercial banks reorganized as shareholding companies, and foreign investors were brought in to assist in establishing modern corporate governance structures. Altogether foreign banks contributed $17 billion for shares between 2002 and 2006 (Leigh and Podoiera 2006). After the reorganization, the large state-owned commercial banks were listed on the stock exchanges in Hong Kong and Shanghai, resulting in large capital infusions. In 2005 China Construction Bank raised $17 billion on its listing. Bank of China and Industrial and Commercial Bank raised $13 billion and $22 billion, respectively. The Agricultural Bank of China was listed in 2010, netting $22 billion. In total, the public offering of the large state-owned commercial banks raised $74 billion (Turner, Tan, and Sadeghian 2012).

By 2006 authorities were looking to wind down the restructuring process. The 2006 Financial Stability Report outlined the steps for modernizing the asset management companies, authorizing them to develop investment banking and traditional asset management businesses in addition to disposing of nonperforming loans and operating increasingly on market principles (People's Bank of China 2006). The 2007 Central Economic Work Commission called for the phasing out of mandatory nonperforming loan transfers from state-owned commercial banks to the asset management companies. Subsequent transfers were supposed to be voluntary and priced at market-determined rates. The last large transfer of bad assets occurred in 2008 when the Ministry of Finance and

1. *Almanac of China's Finance and Banking 1999 and Almanac of China's Finance and Banking 2003*, China Finance Society, Beijing.

2. Each asset management company was matched with a partner bank: Cinda and China Construction Bank and China Development Bank, Great Wall and the Agricultural Bank of China, Huarong and Industrial and Commercial Bank of China, and China Orient and the Bank of China.

Huijin restructured 816 billion renminbi of Agricultural Bank of China's loans by transferring them to comanaged accounts (Zhang and Wen 2008).

The cleanup and restructuring of China's banking system lasted for more than a decade, in the late 1990s through the 2000s. The enormous quantity of nonperforming loans generated by distorted interest rates and poor lending practices required a significant commitment of public resources to keep the banks from collapsing. This bailout came through capital injections, the transfer of nonperforming loans at above market value, and writedowns in government equity. Simultaneously, banks adopted modern corporate structures, improved risk screening, integrated modern information technology into their operations, and downsized staff and branches. These reforms helped improve the allocation of credit in China, leading to a significant decline in new nonperforming loans and a decrease in the credit-to-GDP ratio. This was quite remarkable given the significant distortion of interest rates at the time.

The financial distortions during the mid-2000s stemmed from the central bank's efforts to maintain both price stability and an undervalued exchange rate. Large-scale currency intervention requires offsetting sterilization to avoid inflation. To accomplish this, the People's Bank of China required the banks to purchase large amounts of central bank bills and continually raised the required reserve ratio (Goldstein and Lardy 2006). These actions created an implicit tax on the banks, tying up a large share of their assets in low-yielding government accounts. To avoid imposing a large financial cost on banks, the central bank kept real deposit rates extraordinarily low, on average negative in real terms. The People's Bank of China kept a ceiling on deposit rates and a floor on lending rates, giving banks a guaranteed net interest margin. With China's high saving rate, banks had access to a huge source of low-cost funding, and correspondingly lending rates were artificially low. Without the tight controls on banks put in place during the post–Asian financial crisis clean up, credit and nonperforming loans might have again increased rapidly. Instead, the health of the financial system improved throughout the 2000s.

THE GLOBAL FINANCIAL CRISIS AND THE CREDIT BOOM, 2009–13

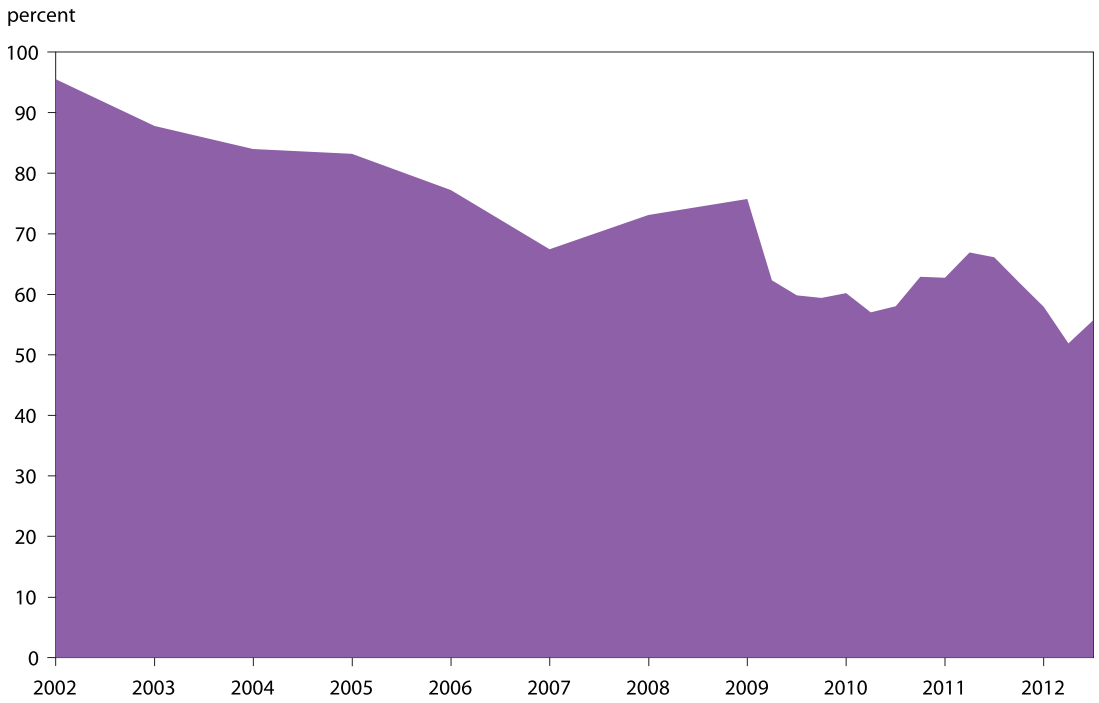
Though the epicenter of the global financial crisis was in the United States, the crisis had significant ramifications for the Chinese financial system. Faced with a slowing economy and a dramatic fall in external demand, the Chinese government approved a large stimulus in the fall of 2008 to support the economy. Most of the stimulus came not in the form of direct fiscal outlays but through an explosion in new lending. Between December 2008 and December 2009, new bank credit increased by 11 trillion renminbi, increasing the credit-to-GDP ratio by almost 25 percentage points (BIS 2013). Another 2.5 trillion renminbi of credit was extended through nonloan channels such as entrusted loans, trust loans, banker's acceptances, and corporate bonds. In short, the government unleashed a massive wave of new credit into the economy to prevent a financial downturn.

Measured conventionally, the Chinese stimulus was quite successful. While much of the world fell into recession, the Chinese economy continued to grow rapidly, dipping to 9.2 percent in 2009 before accelerating to 10.4 percent in 2010. Demand remained weak in global export markets, but a surge of investment helped maintain rapid domestic growth. The stimulus also helped avoid massive layoffs. A large number of migrant workers lost employment in 2009 and returned to their villages, but by 2010 fast economic growth was again pulling in labor from the countryside. Due to the massive infusion of credit during this period, China was able to avoid a sharp drop in growth and dislocation in the labor market that it feared would increase social instability.

The boom in credit post-2009 has been driven by the growth of nonloan financial products, including entrusted loans, corporate bonds, bankers' acceptance bills, and trust loans.

The effects of the economic stimulus on the financial system were less benign. The credit consolidation that occurred during the 2000s was undone in 2009. The ratio of bank credit to GDP had declined steadily throughout the early to mid-2000s. Although the distorted Chinese economic model posed many problems during this period, reliance on excess credit growth was not one of them. Before the financial crisis the economy managed to grow rapidly without increased reliance on borrowing. After the credit boom of 2009, the relationship between credit and economic growth changed. Credit continued to grow rapidly while economic growth moderated in 2011, 2012, and the first half of 2013. Appendix A applies four methods of measuring periods of excess credit growth in China. All four methods show that credit in the postcrisis period grew rapidly. Two of the methods, the credit-to-GDP gap and the debt service ratio, show that credit grew excessively, at levels highly correlated with subsequent financial

Figure 2 Loan share of social financing, 2002–2013H1



Source: Wind Information; author's calculations.

distress. The boom in traditional bank loans occurred mostly in 2009, with loan growth tapering off in the following years. Figure 2 shows the share of loans as percent of total social financing. Rather, the boom in credit post-2009 has been driven by the growth of nonloan financial products, including entrusted loans, corporate bonds, bankers' acceptance bills, and trust loans.[3]

Regulatory arbitrage is primarily driving the growth of these nonloan forms of credit. The constraints and safeguards put on banks in the aftermath of the banking cleanup have left very little leeway for banks to resume their bad behavior of the 1990s. The China Banking Regulatory Commission has committed to fully implementing Basel III standards and has required banks to implement capital adequacy standards in excess of Basel guidelines. Beyond capital requirements, Chinese banks face a conservative loan-to-deposit ratio requirement, which is currently set at 75 percent. These regulatory guidelines, combined with increased scrutiny by audit firms and investors, have discouraged banks from relapsing into many of the poor lending practices, which almost brought down the financial system in the late 1990s.

Instead, nonloan methods of credit extension have taken off. Banks are still at the center of many of these transactions, but most take place off balance sheet in order to avoid regulatory restrictions on capital and interest rates. New entrusted loans—corporate-to-corporate lending where the bank acts as the middleman—grew by 200 percent on an annual basis between end 2008 and 2012. New trust loans—financing extended by nonbank trust companies—grew 310 percent during the same period. Banks cooperate with trust companies to arrange financing for companies that cannot receive new loans. New corporate bonds grew by 307 percent in the same period. Banks often purchase corporate bonds as an alternative method of extending credit. In 2012, banks accounted for 56 and 33 percent of medium-term notes and corporate bond purchases, respectively. Banks also sell off–balance sheet wealth management products and invest the proceeds in corporate bonds. Bankers' acceptances— short-term debt instruments guaranteed by commercial banks—grew by an astonishing 887 percent between end 2008 and 2012. In contrast, the amount of renminbi-denominated bank loans increased only by 67 percent during the period.

3. These activities are frequently lumped together with informal lending to calculate the aggregate amount of shadow banking activity. The term shadow banking is somewhat problematic given that banks are actively involved in many of these activities. Nevertheless the term is useful in distinguishing traditional loan-based credit extension from new forms of nonloan and direct finance.

Mirroring the growth of new credit assets during this period has been the growth of new credit liabilities. Wealth management products—short-term financial products offered as an alternative to traditional deposits—have grown tremendously since 2008. These products pay an interest rate above the deposit rate, allowing banks to attract and hold on to funds that otherwise might exit deposits in search of a higher return.[4] Most wealth management products are off balance sheet and are frequently timed to convert into deposits before regulatory checks, improving banks' loan-to-deposit ratio. Banks also charge fees to purchasers of wealth management products and pocket any gains beyond the advertised rate of return. These factors, combined with looser regulatory oversight, make wealth management an attractive source of funding for banks, particularly small and medium-sized banks with weaker deposit bases. The outstanding amount of wealth management products grew from 1.7 trillion renminbi in 2009 to more than 9 trillion renminbi by the first half of 2013, equivalent to 20 percent of savings deposits.

China's response to the global financial crisis has had two main effects on the financial system. First, there was a large one-off increase in the stock of loans during 2009. Second, throughout this period regulators allowed nonloan financing to grow rapidly, resulting in large increase in the amount of overall credit. Though the stock of loans has not returned to previous levels, relative to GDP, the growth rate of new loans has moderated. The growth of new financing channels outside the traditional banking system has continued almost unabated since the financial crisis. The linkages between these new financing channels and the traditional banking system have created new risks that threaten to undo the hard wrought progress of the past decade.

NEW RISKS, NEW REFORMS

Credit booms like the one China has experienced since 2009 are strongly correlated with subsequent financial distress. Not all credit booms end in financial crisis, but most financial crises are preceded by credit booms. There are several reasons to believe that the credit boom China is experiencing will require a significant cleanup, perhaps approaching the bailout and restructuring of the late 1990s.

First, the growth of credit outside traditional lending channels means that a tremendous amount of borrowing has taken place outside well-regulated modes of financial intermediation. Entrusted loans, corporate bonds, trust loans, and bankers' acceptances are less regulated than traditional loans (Chalk and Syed 2013). Rapid credit growth combined with weak financial regulation is an almost sure recipe for financial distress.

Second, state-owned enterprises are most likely to generate bad loans in both loan and nonloan financing due to declining profitability. Since 2007, state-owned enterprises have seen a drop in both their return on assets and interest coverage ratios relative to private firms (Lardy 2014). Private firms now enjoy a return on assets more than two and a half times that of state firms, 13.2 percent versus 4.9 percent. Similarly, the capacity of private firms to pay the interest on their debt is two and half times greater than state-owned firms. With a return on assets significantly below borrowing costs, state-owned enterprises are likely to produce an increasing number of nonperforming loans.

The Chinese financial system will require a new round of restructuring and reform to reduce the risks that have accumulated over the past several years.

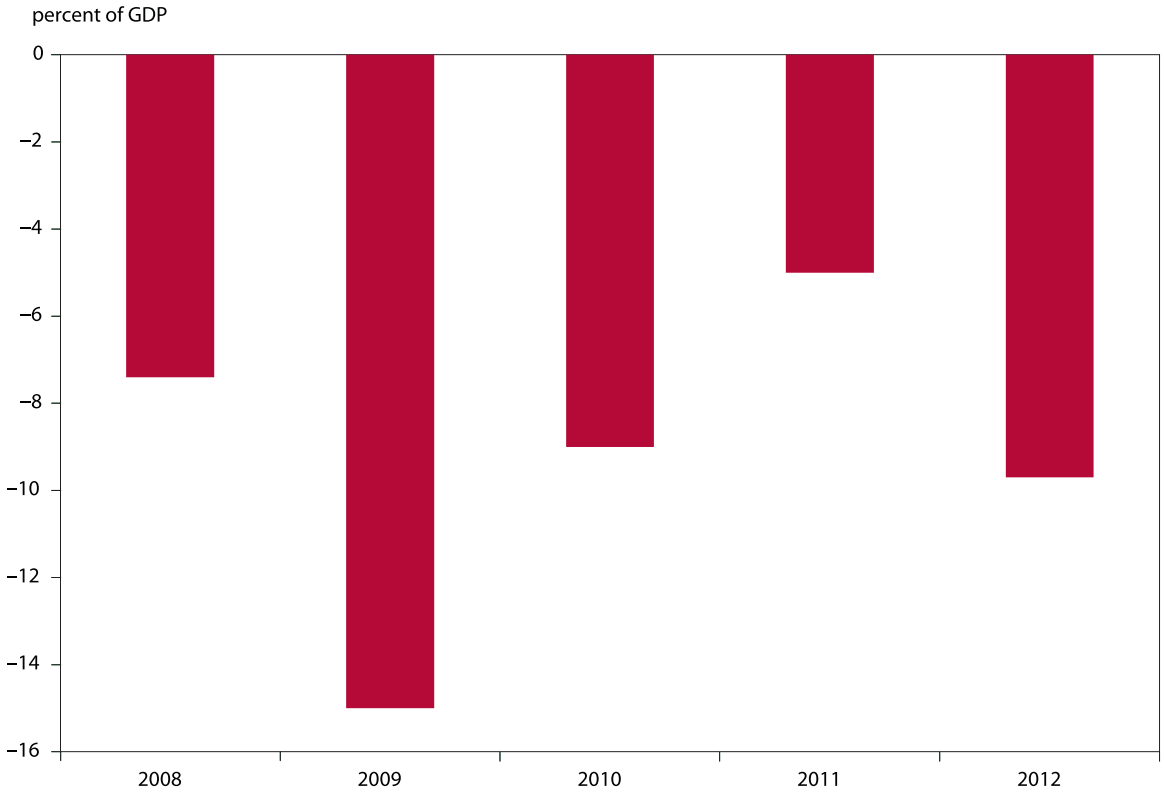
One way to estimate the level of corporate financial distress likely to occur is to use the implied nonperforming loan measurement. This measurement takes a firm's earnings before interest, tax, depreciation, and amortization (EBITDA) and compares it with the firm's interest expense (Heytens and Karacadag 2001). If EBITDA is less than interest expense, absent new extension of credit, outstanding loans will be in default and therefore classified as nonperforming.[5] These data are available only for listed firms in China, an imperfect proxy for all firms. Still, the implied nonperforming loan ratio for listed firms was 13 percent at the end of 2012, significantly higher than the 1 percent reported for total nonperforming loans at commercial banks.[6] Though the implied nonperforming loan ratio cannot substitute for the official nonperforming ratio, it is useful as a forward looking indicator of financial distress (Xiong and Cai 2012). The current level of

4. The net effect of the growth of these new credit assets and liabilities on bank profits seems to largely offset each other. The net interest margin and return on assets of commercial banks has remained steady over the past several years.

5. This approach has some limitations. In the short term firms can sell assets or draw upon other accounts to pay interest expense, thereby avoiding default. This is one reason why implied nonperforming loans may overestimate actual nonperforming loans.

6. The implied nonperforming loan rate for listed state-owned companies is 12 percent, slightly lower than the average for all listed firms. However, a number of listed firms, both state and private, reported no loans or bonds despite having an EBITDA to interest expense ratio of less than one. This is likely due to reporting issues and a reason why the nonperforming loan ratio of listed enterprises cannot be precisely estimated.

Figure 3 Augmented fiscal deficit, 2008–2012



Source: International Monetary Fund.

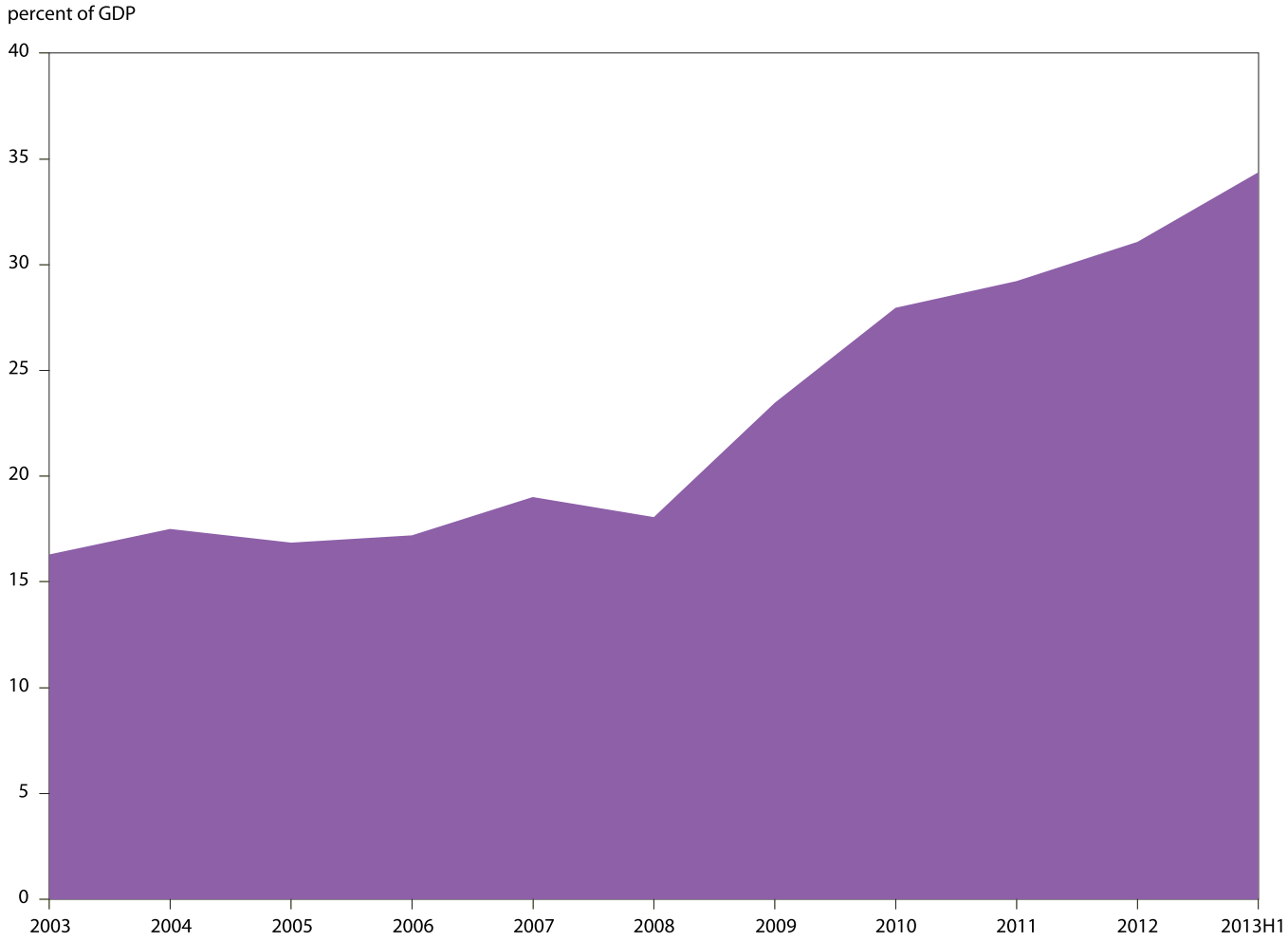
the implied nonperforming loan ratio suggests that corporate financial distress will be significantly higher in the future. If large-scale bankruptcies occur, the government will likely provide financial support to both state-owned enterprises and local and national champion firms.

Third, Chinese local governments have dramatically increased their borrowing to finance projects without sufficient cash flows. Prohibited from borrowing directly, local governments established affiliated companies to serve as special purpose vehicles, which borrow and invest on behalf of local governments. These financing platforms received a large amount of government bank loans during the stimulus. A 2011 survey by the National Audit Office revealed that local government debts stood at 10.7 trillion renminbi, equivalent to 25 percent of GDP at the time. Despite efforts by the central government to decrease local government borrowing, such as prohibiting new bank loans to financing platforms, local governments continue to incur debt. Figure 3 shows China's augmented fiscal deficit, an International Monetary Fund measurement that combines the small central government fiscal deficit with an estimate of local government borrowing and net proceeds from land sales.[7] Throughout the crisis period, China has run a large augmented fiscal deficit that is on average greater than 9 percent of GDP.

Many of the projects being financed by local government borrowing will have long-term benefits. China continues to need large investments in public transportation, basic infrastructure, and urban development. However, the financing of these projects lacks transparency and contains significant maturity mismatches. Many of these projects will not generate short-term cash flows, and some will have no cash flows whatsoever. In 2010, over 50 percent of local government debts had an estimated maturity of three years, wildly out of step with the 60 percent of infrastructure investments with a 10-year maturity (Hu 2013). Local government financing platforms are also vulnerable to a correction in the real estate market given much of their collateral is in the form of land. Lower land collateral valuations could lead to banks recalling loans or halting debt

7. Net proceeds from land sales refer to land revenue minus development and resettlement costs. Net land proceeds are included in the augmented fiscal deficit measurement because they are a financing item akin to privatization.

Figure 4 Household debt, 2003–2013H1



Source: CEIC; author's calculations.

rollovers, worsening the existing maturity mismatch (Iorgova and Lu 2013).

The central government is currently mulling over fiscal reforms to solve the problem of local government debts. Local governments are responsible for 80 percent of government expenditures but collect only 50 percent of revenues.[8] Given the funding mismatch and the overindebtedness of some local governments, a government bailout will likely be necessary. Projects that are seen as unnecessary to public investment or are tainted by corruption may not receive government assistance at all.

Fourth, household financial distress may increase significantly. One of the bright spots in Chinese financial development after the financial crisis has been the accelerated growth of loans to households. This is a stark change from the 1990s, when the financial system largely ignored households. In recent years households have been borrowing large amounts for home and consumption loans. In the first half of 2013, loans to households accounted for 34 percent of total loans outstanding and 40 percent of the flow of new loans. While increased access to credit for households is a positive development, there are some causes for concern. The rapid growth in household credit has occurred as household income growth has declined. In December 2007, household disposable income grew at over 12 percent but slowed to 6.5 percent in the first half of 2013, a rate significantly slower than GDP. Figure 4 shows the rapid increase

8. The central government does remit a considerable amount of revenue to local governments every year. These remittances, however, are still insufficient to cover local government expenditures.

in household debt as a share of GDP over the past decade. Since the global financial crisis, household debt to GDP has increased by more than 16 percentage points. The growth has been driven by mortgage and household business borrowing. Low deposit rates and lack of alternative investment options have prompted households to invest in real estate. Both mortgages and household business borrowing are highly vulnerable to an economic downturn and thus increased financial distress can be expected if economic growth continues to moderate.[9] Banks retain significant exposure to real estate through loans, 20 percent of which are to real estate developers or mortgages, and through land offered as collateral by borrowers.

While bad debts to state-owned enterprises continue to be a problem, households, local governments, and nonloan financial products have emerged as new areas of risk.

The sources of risk in the Chinese financial system today are more diverse than in the 1990s. While bad debts to state-owned enterprises continue to be a problem, households, local governments, and nonloan financial products have emerged as new areas of risk. As before, the solutions for cleaning up the financial sector will be a mix of bailouts and restructuring.

The large asset management companies will play a role in disposing of nonperforming loans. Rather than shutting down after the first wave of loan disposal as many expected, the asset management companies have grown in size and scope. Two of the companies, Cinda and Huarong, are moving forward with plans for public listings. The asset management companies continue to receive significant financial support from the central government and thus their activities constitute an indirect subsidy to banks. The companies were initially financed by issuance of a large amount of bonds to the banks. These bonds were due to be repaid in 2009 but were rolled over due to the inability of the asset management companies to generate sufficient cash flow. However, over the past several years the outstanding amount of these bonds has decreased by several hundred billion renminbi (China Economics Seminar 2013). The revenues of these companies are insufficient to pay down debt at this rate. Huarong reported a net profit of only 5.9 billion renminbi in 2012. The Ministry of Finance is likely paying for the debt decrease.

To address local government bad debt, the Ministry of Finance and the China Banking Regulatory Commission have permitted several provinces to create their own local asset management companies. The province of Jiangsu is the first test case and its local asset management company will focus on cleaning up the rash of bad debts amongst the province's solar panel producers and steel traders (Li and Tian 2013). Local asset management companies will play a role in taking over the bad debt of local enterprises, including local state-owned enterprises and local government financing platforms, and resolving them over time to avoid disorderly bankruptcies. Like the national asset management companies, local asset management companies are likely to receive large direct and indirect subsidies from local governments to make their operations feasible. Two other avenues for cleaning up local government debts are direct fiscal support by the central government and asset liquidation by local governments.

The most important reform to reduce risk in the financial system is to improve the regulation of non-loan-financing channels. The primary driver of excess credit growth in the postcrisis period, these financing channels boomed because they offered banks an avenue to engage in regulatory arbitrage. Arranging entrusted and trust loans for clients, issuing bankers' acceptances, and purchasing corporate bonds offered banks a way to extend more credit without violating their prudential safeguards. Low interest rates fuel excess demand for borrowing. The supply of credit remains high given China's high national saving rate and capital controls. Banks thus have plenty of incentive to find new ways to extent credit and capture market share. A conflicted regulatory response has allowed these nonloan financing products to grow rapidly. While some financial regulators have warned about the large increase in nonloan financing, others have praised it as financial innovation and representative of financial deepening.[10] This division among regulators has prevented action to slow and regulate the expansion of nonloan credit.

Better information and supervision can improve the largely unplanned and loosely regulated nonloan credit expansion. Banks' involvement in these activities, regardless of whether they are on or off balance sheet, should be made apparent to both regulators and investors. The links between banks, trust companies, wealth management products, and entrusted loans

9. One mitigating factor is that high downpayment standards have resulted in a loan to value ratio in China that is lower than what was seen in the United States during the recent housing crisis. This should make China less vulnerable to mortgage defaults.

10. The argument that nonloan credit expansion represents financial deepening is belied by the fact that much of this credit is being extended by banks to enterprises, including state-owned enterprises and local government financing platforms. If nonloan credit expansion were true financial deepening, both the entities extending and receiving credit would be different than in the traditional financial system.

remain opaque. Adding much-needed transparency to these activities will help provide an early warning for overexposed banks. Supervision can also be improved by increasing the resources and staff available to the China Banking Regulatory Commission. As obstacles to better supervision the International Monetary Fund (IMF 2012) identified headcount constraints,

The most important reform to reduce risk in the financial system is to improve the regulation of non-loan-financing channels.

which have not kept pace with the growth of the banking industry, and pay limitations, which make it difficult to attract necessary expertise. Perhaps due to these constraints, the share of financial institutions receiving on-site examinations by the China Banking Regulatory Commission declined by more than half between 2007 and 2012.

Better supervision by itself, however, is unlikely to significantly reduce the growth of nonloan credit. Two important structural reforms are needed. The first structural reform is to ease the controls on interest rates, principally the ceiling on deposit rates, until interest rates reach market clearing levels. Removing interest rate distortions will have several benefits. First, it will help reduce the excess demand for borrowing that has driven banks to engage in regulatory capital arbitrage and find new ways to extend credit. Second, it will provide an avenue for banks to succeed by improving risk analysis rather than by blindly focusing on increasing market share. Third, removing interest rate controls will improve the effectiveness of open market operations for monetary policy and allow the People's Bank of China to end reliance on quantitative credit targets. Fourth, it will improve distribution of funds among banks. Currently many small and medium banks face tight liquidity because they have weaker deposit bases than those of the large state-owned commercial banks. Unable to offer higher deposit rates, these banks are at a structural disadvantage relative to the large banks, which have nationwide branch networks.

The other structural reform needed is the controlled introduction of default risk into the financial system. This will help reduce the tremendous amount of moral hazard present throughout the financial system, which contributed to excess credit growth. More risk is needed in three major areas. The first is bank loans. The use of nonperforming loan targets distorts bank incentives, encouraging banks to shift nonperforming loans off balance sheet and resort to debt rollovers (Iorgova and Lu 2013). This masks the true amount of risk facing banks and gives insolvent borrowers access to more credit. The China Banking Regulatory Commission's guidance to banks to continuously reduce both the aggregate number of nonperforming loans and the nonperforming loan ratio should be deemphasized as a measure of performance in favor of other indicators. The second area where more risk is needed is for investors. The almost complete lack of defaults in the bond market and on wealth management products has distorted risk perceptions amongst investors. In cases of near default, financial institutions have been either bailed out or given more credit rather than allowing them to incur losses. The widespread belief that large financial institutions enjoy an implicit government guarantee compounds this problem. Investors therefore underestimate the true amount of risk in many financial products and contribute to their rapid growth. To correct this, policymakers should create a deposit insurance system paid for by an ongoing tax on bank deposits and allow more defaults on financial products. Finally, financial institutions need more exposure to liquidity risk to deter unsafe funding practices. Progress was made in June 2013 when the central bank engineered a spike in interbank lending rates, punishing banks that were over reliant on interbank borrowing. Nevertheless, market and funding liquidity in China remain thin and it will take more such instances to deter banks from scraping by at the margins every quarter to meet their regulatory checks.

The Chinese financial system currently stands at a crossroads. The response to the global financial crisis eroded some of the hard-earned discipline put in place during the 2000s. As a result, significant financial risks have accumulated during the past few years. Reducing these risks will take a new wave of concerted action. Bailouts will be necessary to deal with the bad debts that have accumulated, and structural reforms are needed to address the underlying distortions that have driven the rapid growth of credit. Chinese policymakers were willing to discipline banks during the post–Asian financial crisis cleanup. Banks received public funds and also undertook significant restructuring and efficiency-improving measures. Though banks continued to receive support through the country's interest rate policy and nonperforming loan transfers, the quality and health of the Chinese financial system significantly improved during the 2000s. In contrast to the Asian financial crisis, the global financial crisis did not spur a new wave of financial reform. Absent better regulation, the tremendous growth of non-loan-financing channels allowed after the global financial crisis has the potential to result in large-scale financial distress. Policymakers may not have the luxury of waiting for another external crisis before taking action to address the current risks in the financial system.

APPENDIX A MEASURING CHINA'S CREDIT BOOM

Measuring excess credit is difficult because there is no universally agreed upon methodology. The most common method is the private sector credit-to-GDP ratio, which looks at the total amount of bank and nonbank credit to the private sector relative to GDP. There is a strong positive relationship between credit and per capita GDP, with rich countries having higher credit to GDP ratios than poor countries. If credit levels in a country are low relative to its level of economic development, rapid credit growth may just be an instance of "catch up" financial deepening. This explains why not all instances of rapid credit growth are bad. Catch up financial deepening, however, is not an explanation for the current spurt of credit growth in China, as its level of credit is very high relative to peer countries. Figure 5 shows the credit to GDP levels and per capita GDP levels for China and several other countries. China has been an outlier for several decades, and the discrepancy between its per capita income and credit level was even more severe in the past given the country's extremely low per capita income in the early reform period.

Two main factors are at work behind the discrepancy between China's per capita income and credit level. First, China has a bank-dominated financial system with underdeveloped equity markets. In general, countries with small equity markets have higher levels of credit. This is because new financing goes through credit rather than equity channels. Thus, for any given level of financing demand in an economy, credit will increase more in countries with underdeveloped equity markets.

The second factor behind China's persistently high levels of credit is misclassified fiscal costs. In the 1980s, state-owned enterprises stopped receiving direct grants from the government and instead borrowed from the newly created commercial banks. These state-owned enterprises provided a wide array of social services including schools, housing, and healthcare. In most countries these expenses fall under the government's purview and are financed with fiscal resources. However, in the Chinese system these expenses fell to state-owned enterprises and were financed in large part through borrowing. This distortion was reduced when state-owned enterprise reform began in the late 1990s and state-owned enterprises significantly cut the amount of social services provided to workers.

However, over the past decade a new source of misallocated fiscal costs has arisen in the form of local government financing platforms. Because these entities borrow as corporations, their debt is included in the credit-to-GDP statistics. If China's fiscal system were rationalized, most borrowing to finance these projects would be done directly by local governments and therefore would not be included. If local government financing platform loans and bonds are reclassified as government debt, then China's private sector credit-to-GDP ratio would fall by around 20 percent.

Given China's multidecade status as an outlier on credit to GDP, looking at the level of credit will not be very useful. Instead, measuring the growth rate of credit rather than the absolute level will be more instructive. The economics literature shows that measuring excess credit growth is one of the most reliable indicators of future financial distress. Credit booms in emerging markets are associated with subsequent banking crisis 75 percent of the time (IMF 2004). Identifying credit booms therefore is an absolute necessity for preserving financial stability. There are several different ways to ascertain whether credit has been growing excessively fast. This appendix looks at four common methods: the credit-to-GDP gap, the real credit per capita gap, the real credit growth gap, and the debt service ratio.[11] All four methods show that in the postcrisis period credit growth has been elevated and two of the measurements show credit has grown at a boom pace. That all these measurements are the same in direction if not degree provides evidence that China faces an elevated risk of financial distress in the near future.

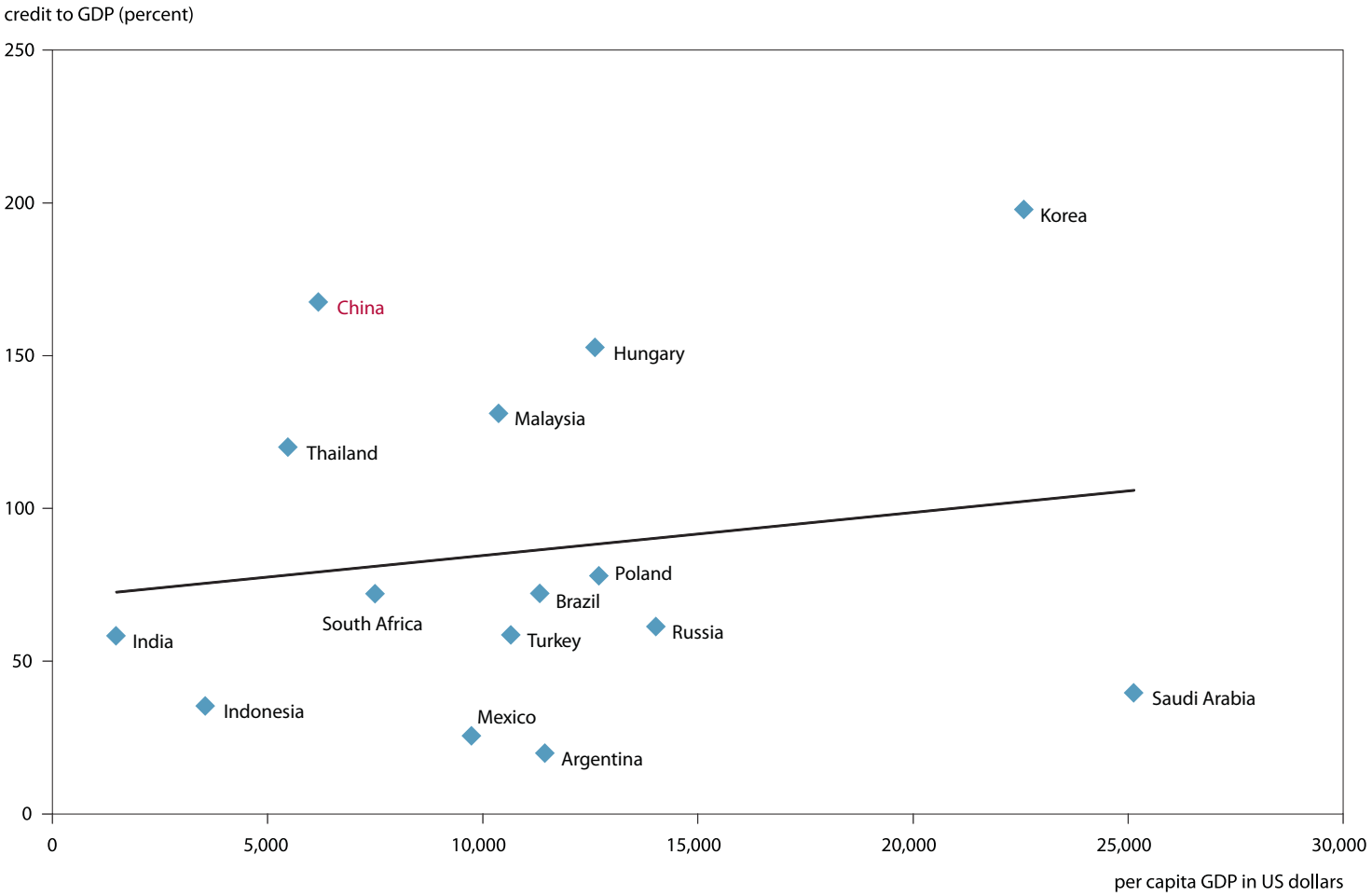
CREDIT-TO-GDP GAP

As part of the Basel III process, the Basel Committee released new guidelines for the creation of countercyclical capital buffers (BIS 2010), intended to be built up during times of excess credit growth to serve as cushion for the financial stress that often follows. Researchers at the Bank for International Settlements (Drehmann et al. 2010) identified the credit-to-GDP gap as the best overall predictor of financial distress for its accuracy, ease of calculation for many countries, and having a comparatively low rate of false alarms.

The credit-to-GDP gap is calculated by creating a total credit to annualized quarterly GDP series. Ideally this series will extend back several decades in order to accurately incorporate long-run changes. From these data a trend line is calculated using the Hodrick-Prescott filter, a smoothing mechanism that calculates a long-run trend but allows for

11. The stock of credit for all of these analyses is taken from the Bank for International Settlements Long Series on Credit to the Private Sector. The data for this series ends in December 2012. Two methods, the credit-to-GDP gap and the debt service ratio, are measured on a quarterly basis up through the first half of 2013. Credit stock for the first two quarters of 2013 is estimated by adding net new social financing to the 2012 year-end number.

Figure 5 Private sector credit and per capita GDP in 2012, selected countries



Source: Bank for International Settlements; World Bank; author's calculations.

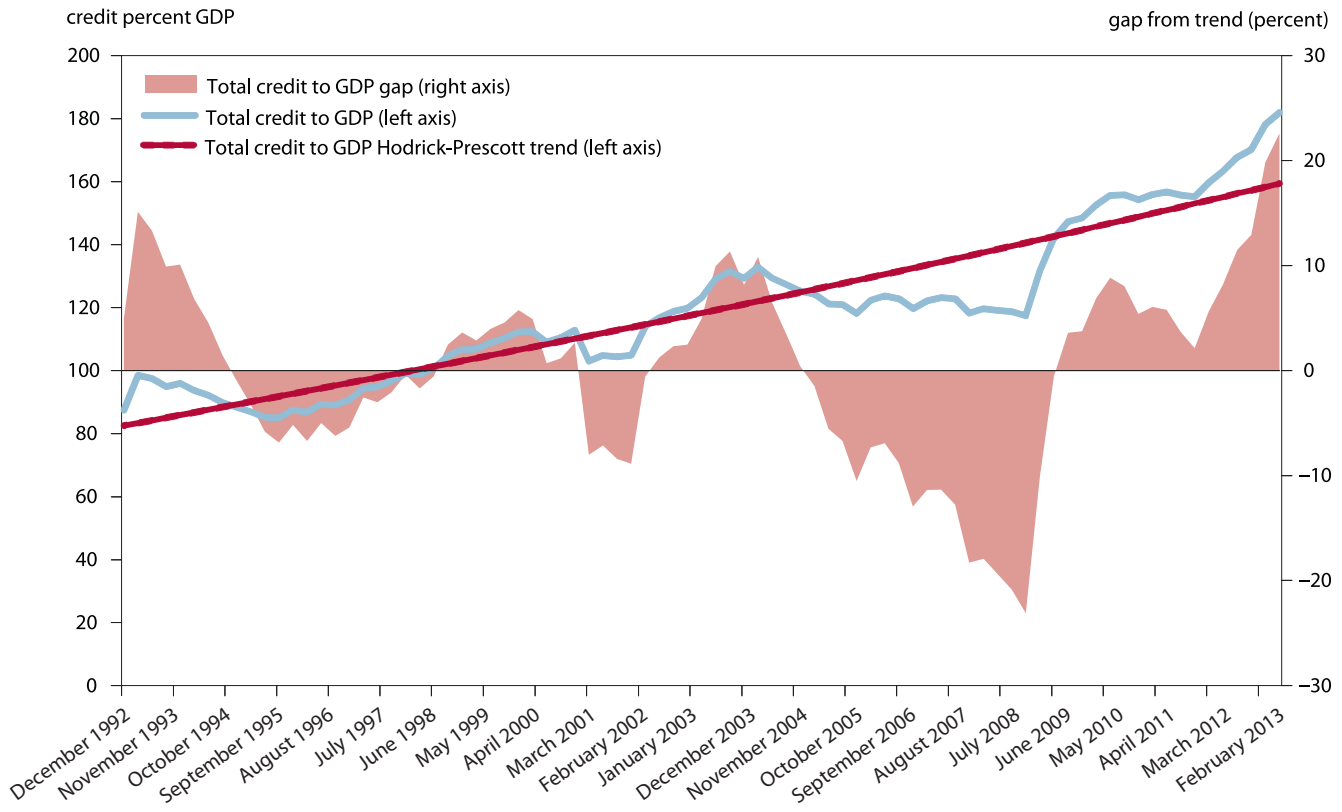
that trend to shift over time. The current credit to GDP is then measured against the calculated trend line to determine the level of excess growth. As a general rule of thumb, if the credit-to-GDP gap is above 2 percent the economy is experiencing moderately excessive credit growth. If the gap is above 10 percent, then the risk of financial distress is high. Looking at a sample of G-20 and OECD economies, the BIS researchers found that the credit-to-GDP gap at 10 percent or above predicted over two-thirds of financial crises with a low signal-to-noise ratio.

Using this methodology to analyze China, several interesting observations come to light. Figure 6 shows a credit boom in the early 2000s and another boom in the postcrisis period. Moreover, over the past two years the credit-to-GDP gap has been in the double digits, a level that is highly correlated with subsequent financial distress. Most of the excess growth in bank credit in the current period is attributable to nonloan financing. The excess growth of bank lending during the past two years was one percentage point and two percentage points for the entire crisis period. In comparison, total credit growth was in excess by 11 percent over the past two years and 7 percent for the entire crisis period.

REAL CREDIT PER CAPITA GAP

Another method of measuring excess credit growth is to look at the growth of real credit per capita. In line with theories of financial development, credit per capita should increase as a country grows richer. Advanced economies display higher levels of credit per capita than developing countries. However, if the growth rate of credit relative to per capita income grows too rapidly it can be a warning indicator of excessive credit growth.

Figure 6 Credit-to-GDP gap, 1992–2013



Source: Bank for International Settlements; National Bureau of Statistics of China; author's calculations.

Researchers at the IMF and University of Maryland analyzed a large sample of countries to identify periods of excessive credit growth using the real credit per capita gap method (Mendoza and Terrones 2008). Similar to the methodology in measuring excess growth in credit to GDP, the real credit per capita measurement uses the Hodrick-Prescott filter to determine a long-run trend of log real credit per capita and then identifies significant deviations from that trend (i.e., the gap). A credit boom is identified by credit growth of 1.75 times the standard deviation of the long-run trend. Once a boom is identified, its duration is measured by the amount of time the credit growth gap is greater than one standard deviation. The researchers conclude that while not all booms end in crisis, the majority of recent emerging-market crisis were associated with credit booms.

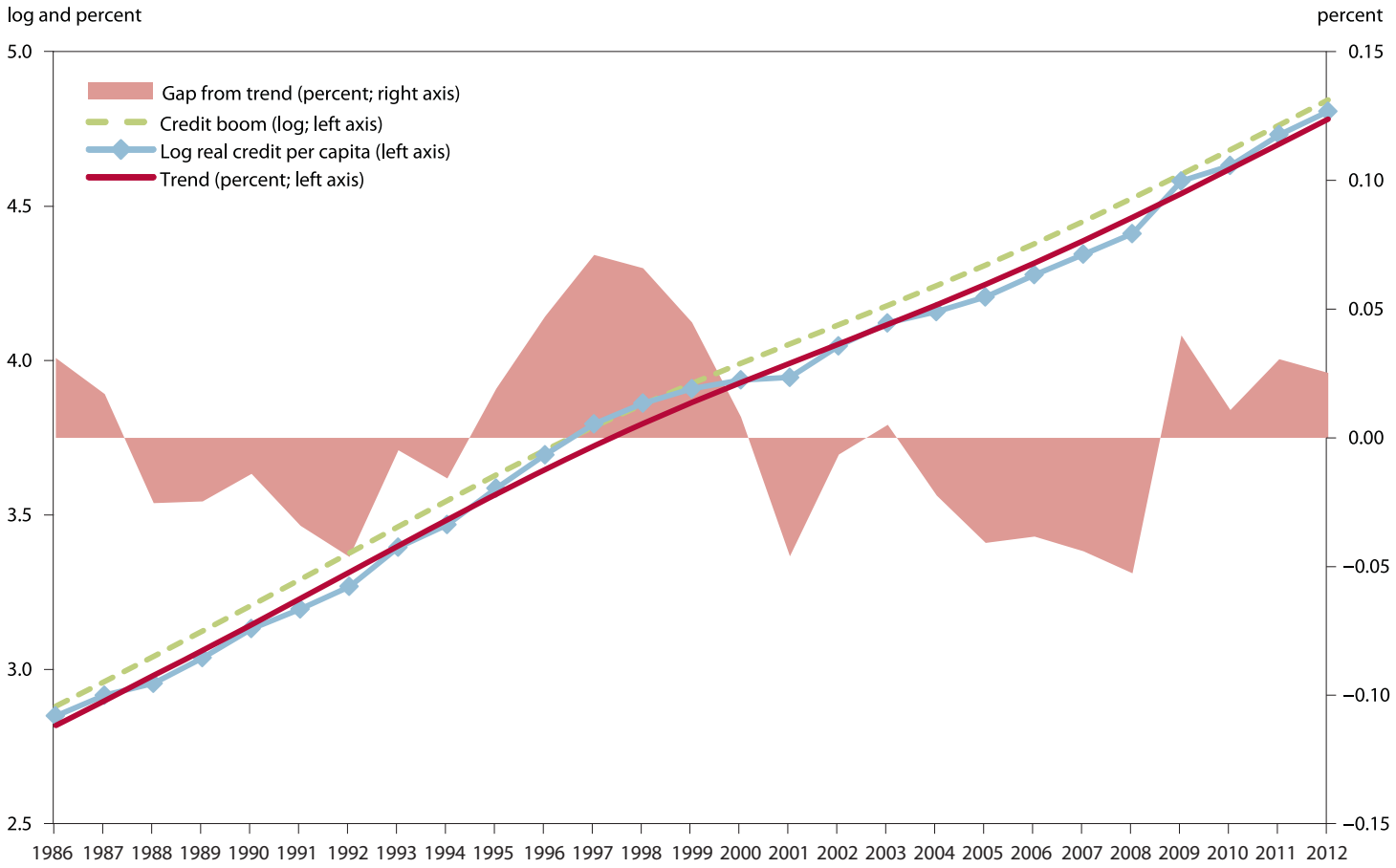
Applying this methodology to China reveals that a significant credit boom occurred in 1997 and lasted until the year 1999 (figure 7). The real credit per capita income gap in 2009 peaked just below the cutoff for a credit boom but has remained elevated for the last four years.

REAL CREDIT GROWTH GAP

Similar to real credit per capita gap method, the real credit growth gap calculates the long-term trend of log real credit growth and then measures significant deviations (gaps) from that trend. This measurement, however, excludes any denominator and simply looks at the growth of credit itself. Using this method to identify 99 different credit booms, researchers at the IMF conclude that episodes of excessive credit growth lead to growing financial imbalances and tend to end abruptly in financial crises (Elekdag and Wu 2011). Additionally, the researchers find that these credit booms tend to be associated with low interest rates and deteriorating corporate and bank balance sheets.

Using this method to analyze China produces virtually identical results to the real credit per capita gap method. There was a boom in credit in 1997, which lasted until 1999 (figure 8). Credit growth in 2009 came in just below the cutoff for a credit boom but has remained elevated for the past four years.

Figure 7 Credit to per capita income gap, 1986–2012



Source: Bank for International Settlements; Wind Information; author's calculations.

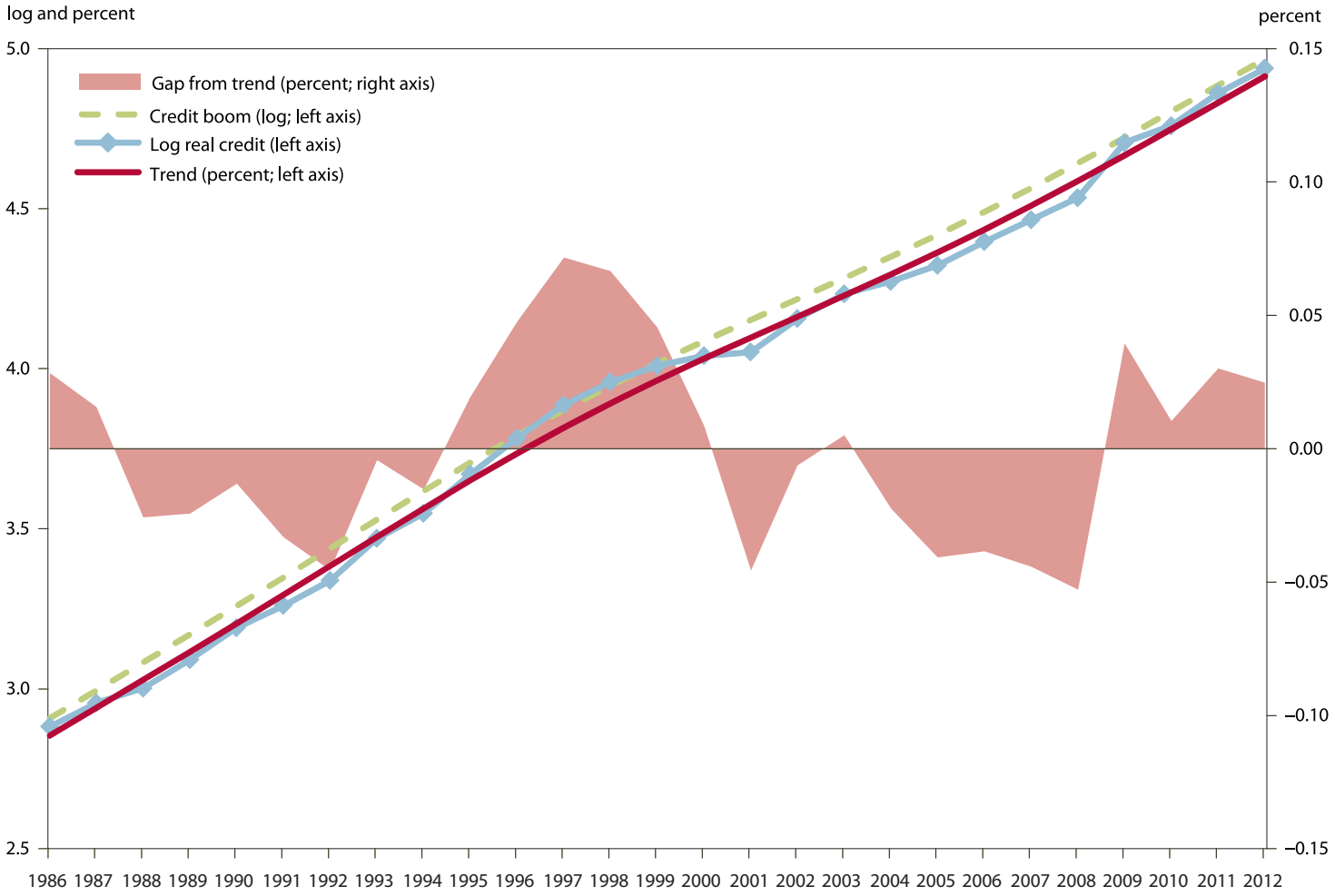
DEBT SERVICE RATIO

The debt service ratio method looks not at the aggregate amount of credit but at the expense associated with servicing existing debt. To calculate the debt service ratio for the entire economy, estimates for the maturity structure, average interest rate, and outstanding stock of credit are necessary.[12] With these components, an estimate of the debt servicing cost is produced. This debt service cost is then divided by GDP, which serves as a proxy for national income. The resulting number produces an estimate of the amount of national income needed to service debt each year.[13] The higher the share of debt servicing costs to income, the more likely that increases in debt or interest rates will cause financial distress. Researchers at the BIS apply this method to 27 countries and find that a sharp increase in the debt service ratio is a very reliable early indicator of banking crisis (Drehmann and Juselius 2012). Specifically, an increase in the debt service ratio by 6 percent, compared with a 15-year average, is associated with a financial crisis within three years two-thirds of the time. A moving 15-year average is used to compensate for countries like South Korea, which have a high level of credit to GDP and therefore a high debt service ratio. As with the other measurements, the growth rate rather than the absolute level is more important for predicting crises.

12. For this analysis, the medium- and long-term (over five years) benchmark lending rate was used as a proxy for the average interest rate. The People's Bank of China releases a weighted average interest rate, but the series only goes back to 2008. An average maturity of seven years is used for the stock of outstanding debt.

13. An important assumption in this method is that debt is paid off, not evergreened, and that the debt is amortized in equal portions over the time span.

Figure 8 Real credit growth gap, 1986–2012



Source: Bank for International Settlements; Wind Information; author's calculations.

Applying this method to China reveals a high debt service ratio, not unsurprising given the high stock of existing debt (figure 9). The debt service ratio for most of the 1990s and 2000s was around 20 percent, relatively high but stable. The postcrisis period shows a sharp uptick in the debt service ratio, from 21 percent at the end of 2008 to 33 percent by the first half of 2013. Looking at the growth of the debt service ratio over the past several years relative to a long-run average reveals that debt service ratio growth has been at or above the critical 6 percent level since the end of 2009.

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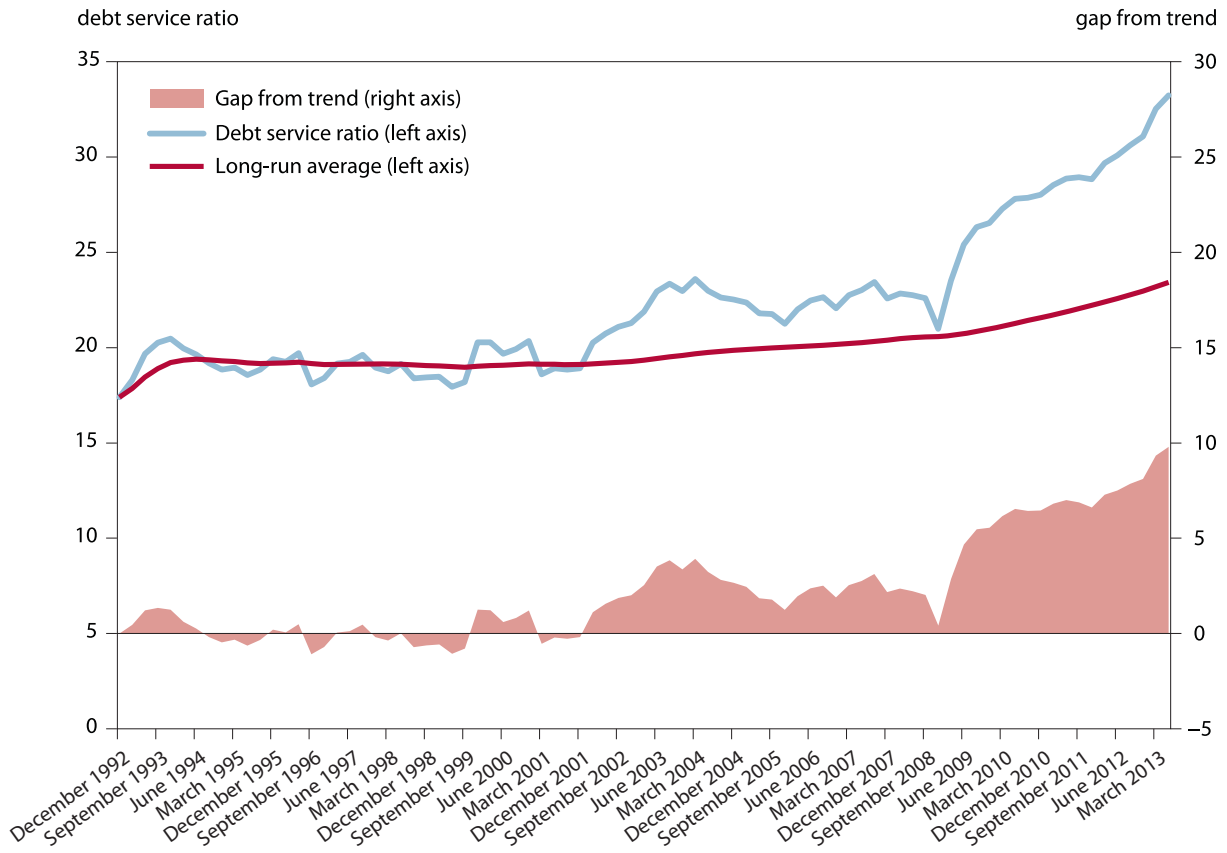
Figure 9 Debt service ratio, 1992–2013H1



Source: Bank for International Settlements; author's calculations.

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