# The Growing Problem of Excessive Debt in China

## —Estimating the Implied Non-Performing Loan Ratio and the Amount of Bad Loans—

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**Summary**

1. We cannot be certain about the real extent of China's non-performing loan (NPL) problem. According to official statistics, the NPL ratio for commercial banks at the end of 2015 was 1.7%, which would put the balance of NPLs at CNY1,274.4 billion. However, the standards for recognizing non-performing loans are quite lenient and do not include off-balance credit. For these reasons, the real level of bad debt is probably much higher than the official figures suggest.

2. To assess the stability of China's financial system, we have therefore estimated the implied non-performing loan ratio, which is based on methods used by the China Banking Regulatory Commission (CBRC) and the IMF. Based on this estimation, the non-performing loan ratio at the end of 2015 was 8.6%, or five times higher than the ratio used in the official statistics. Particularly significant is the fact that many companies in the manufacturing, mining, real estate and wholesale and retail sectors cannot meet interest payments from cash flows generated by their operating activities. Since debt levels are high, the financial positions of banks could be undermined by the deteriorating status of loans provided to these sectors.

3. We have also estimated the amount of the implied NPL. If off-balance credit is included as well as on-balance credit, an estimation based on the implied non-performing loan ratio indicates that the balance of implied NPLs held by China's financial institutions at the end of 2015 amounted to CNY12.5 trillion, or ten times more than the figure stated in the official statistics. The massive scale of the implied NPL burden on China's financial system means that there has been a proportionate increase in risk of economic destabilization.

4. Given this situation, we will need to be alert for bankruptcies among financial institutions and government mishandling of the problem. A number of small-sized financial institutions became insolvent in 2015, and there have been several runs on banks in the past year. These events could provide the trigger for a financial crisis.

5. On the other hand, the Chinese government has been wary about a possible credit crunch and should be able to avert financial crises for the time being. The rate of increase in bank lending has actually accelerated since the middle of 2015. The government is also implementing a CNY1 trillion yuan equitization policy as a way of alleviating excessive debt. Unfortunately, government actions of this type not only encourage speculation, but could also delay the disposal of non-performing loans and prolong the downward phase in China's growth rate.

## Introduction

Excessive debt has become a serious problem in China, as evidenced by the fact that the ratio of outstanding corporate debt to GDP is now higher than in Japan during the bubble era. As the high-growth phase winds down, excessive debt has not only become a major financial burden for indebted corporations, but has also heightened systemic risk in the financial system because of the stress inflicted on lenders by the growth of NPLs. Financial institutions have been forced to increase their reserves for irrecoverable loans, and in 2015 a number of small-sized financial institutions became insolvent. There have also been several bank runs over the past year. Another problem is uncertainty about the real extent of the NPL problem.

The calculations used in this article were therefore based on the "implied non-performing loan ratio" used by the CBRC and the IMF. An estimate based on this method places the implied NPL ratio at the end of 2015 at 8.6%, or five times the figure in the official statistics. We estimated the amount of bad loans to be ten times higher than the official figure at 12.5 trillion yuan. This situation has heightened the risk of a financial crisis, and financial institution failures and government mishandling of the situation will need to be monitored closely as potential triggers for a financial crisis. The Chinese government is alert to the danger of a credit crunch and should be able to avert a financial crisis in the short-term future. However, government actions in response to the situation are not only encouraging speculation, but could also delay the disposal of non-performing loans and prolong the downward phase in China's growth rate.

This article is structured as follows. Part 1 provides an overview of the factors behind the rapid rise in China's corporate debt. Part 2 clarifies the definition of the implied NPL ratio on the basis of research carried out by the CBRC. This is followed by an introduction to the writer's estimation methods, and the results obtained. Part 2 also includes an estimation of the amount of implied NPLs and highlights the risk of a financial crisis. Part 3 examines the government countermeasures and provides and assessment of those actions.

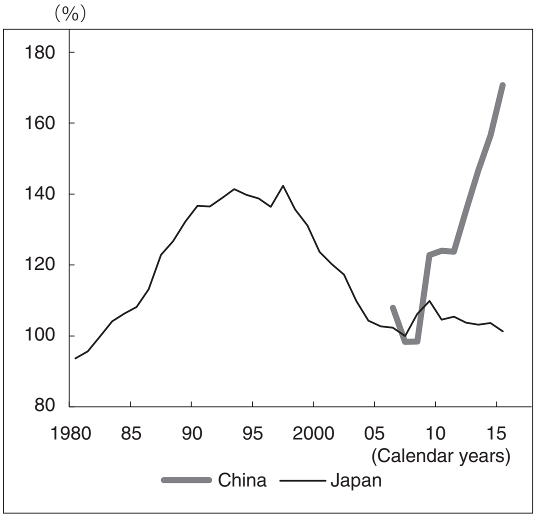
## 1. Increasingly Serious Excessive Debt Problem

### (1) Active Financing Leading to Debt Expansion

Corporate debt in China has expanded rapidly in recent years. Figures released by the Bank for International Settlements (BIS) show that the total debt of non-financial companies at the end of 2015 was CNY115.5 trillion. This means that debt has risen by factor of 3.7 over the seven years from the end of 2008, when the total was CNY31.2 trillion. The ratio of outstanding non-financial corporate debt to GDP has been rising even faster than it did in Japan during the 1980s. By the end of 2015 the ratio had reached 170.7%, which is higher than Japan's ratio during the bubble era (Fig. 1).

Why has corporate debt surged in China? One factor on the corporate side is the fact that borrower companies have invested excessively in plant

**Fig. 1 Ratio of Debt of Non-Financial Corporations to GDP**




Source: Compiled by JRI using BIS total credit statistics for the balance of debt of non-financial corporations, National Bureau of Statistics data for GDP, and Cabinet Office, *National Accounts of Japan* and facilities in the expectation that high growth would continue. Another factor is the increased use of speculative money management, such as the borrowing of low-interest funds for investment in high-yield instruments, such as entrusted loans. Another major factor is excessive lending by financial institutions without proper loan screening capabilities.

For many years, the Chinese government has used state-owned banks to channel China's limited supplies of funds into industries that were vital to industrialization, such as iron and steel. This focus on the production of specific types of goods, combined with aggressive efforts to attract foreign investment, helped to drive industrialization in China. As a result, labor moved from the agricultural sector into manufacturing industries, leading to a dramatic rise in per capita productivity. The government meanwhile adopted an industrial policy under which interest rates were kept low, and financial institutions provided loans that were implicitly guaranteed by the government. This practice became entrenched in the Chinese financial system. Access to credit in the Chinese financial system tends to be easier and the allocation of funds less efficient, compared with countries where the rules for participation in the banking sector by private sector and foreign capital are more liberal, and where direct financing is more developed.

## (2) Bank Management under Pressure from Growing Number of Non-Performing Loans

As China's high growth era comes to an end, excessive debt has become a major burden on business finances. From 2001 to 2010, the Chinese economy achieved rapid growth averaging +10.5%, per annum. However, the growth rate has followed a downward trend since then. The real GDP growth rate in 2015 was +6.9% year on year, which is the lowest level in 25 years. Exports are now shrinking on a year on year basis, while the growth rates for retail sales and fixed asset investment have been falling since 2014. These trends are indicative of deterioration in both domestic and external demand.

Weakening demand is reflected in deteriorating business earnings. Manufacturers maintained year on year sales growth of 7-8% until the fall of 2014, but growth over the whole of 2015 was sharply lower at 0.8%. Total profit, which is equivalent to income before income taxes, declined into negative figures at minus 2.3%.

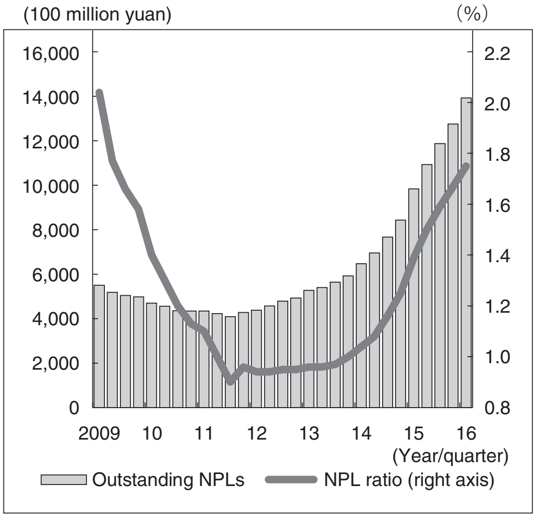
Because they have continued to borrow through bank loans, bond issues and other means, non-financial companies are now burdened with debts totaling CNY115.5 trillion. Assuming a 6% interest rate and a repayment period of ten years, we can estimate that principal and interest payments the debt will reach CNY18.5 trillion. These debt servicing costs have become an even heavier burden on businesses at a time when their earnings are shrinking(1). Corporate cash flow positions are now worse than at the time of the 2007-08 global financial crisis. Smartphone manufacturer Shenzhen Zhongtian Xin Electronic declared bankruptcy in December 2015, leaving 4,000 employees jobless. Nor are the problems limited to the private sector. Sainty Marine, a major state-owned shipbuilding company, filed an application under the corporate bankruptcy law and commenced bankruptcy proceedings in February 2016.

These trends appear to have been accompanied by a rapid increase in NPLs. According to NPL statistics compiled by the CBRC, the NPL balance of commercial banks stood at CNY1,274.4 billion at the end of 2015, an increase of 51.2% from the total at the end of 2014 (Fig. 2). The NPL ratio was 1.0% at the end of 2013, 1.3% at the end of 2014, and 1.8% at the end of March 2016. The real level of NPLs could be much higher than the official statistics if other factors are taken into account, including the fact that the official statistics do not include off-balance-sheet credit, and relaxed criteria used to identify NPLs.

As a result, banks are being forced to increase their loan-loss reserves, and they also face an increasingly harsh business environment. The loan-loss reserves of commercial banks have been rising steadily and reached CNY2.3 trillion at the end of 2015 (Fig. 3). This is very similar to the situation in Japan following the collapse of the bubble. In Japan's case, an increasingly serious NPL problem was accompanied by a string of financial institution failures, which led to a credit crunch in 1997-1998(2). With inter-bank lending and borrowing no longer functioning smoothly, businesses were affected by a credit crunch and the withdrawal of existing credit. Eventually inter-company procurements and shipments based on trade receivables and payables also began to shrink because of increasing credit worries. Japan was in the grips of a financial crisis.

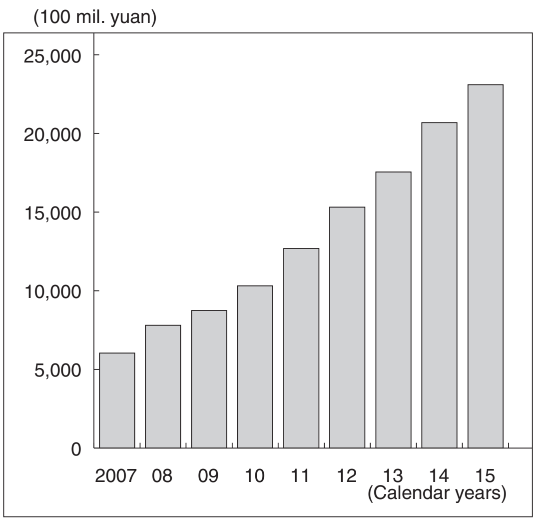
Is China's financial system about to descend into a crisis situation? To answer this question, we need to probe the realities of the NPL situation. In other words, we need to consider the extent of bank loans with no prospect of recovery. The following analysis is based mainly on the concept of the "implied non-performing loan ratio", which is the indicator monitored by the CBRC and the International Monetary Fund (IMF).

**Fig. 2 Outstanding NPLs and NPL Ratio**




Notes: The most recent figures are as of March 31, 2016.
Source: CBRC, *Yínhang Ye Jianguan Tongji Zhibiao Jidu Qingkuang Biao* [Quarterly Banking Supervision Statistical Indicators]

**Fig. 3 Loan-Loss Reserves of Commercial Banks**




Source: 2014 CBRC Annual Report for figures up to 2014, CBRC website for 2015 figures

## 2. China at Risk of a Financial Crisis

### (1) Estimating the Implied Non-Performing Loans Ratio

Studies concerning the stability of the Chinese banking system include *Research on Using the Implied Non-Performing Loan Ratio to Strengthen Commercial Bank Credit Risk Assessment*, which was published in 2012 by Xiong Liping and Cai Xing of the China Banking Regulatory Commission. The implied non-performing loan ratio used in this study is defined as follows.

Implied non-performing loan ratio = Total liabilities of sample companies (EBITDA≦Interest paid) ／ Total liabilities of all companies

To obtain this ratio, they first ascertain the total debt of all companies and then determine the percentage of debt for companies that are potentially at risk. A company at risk is a company that is unable to meet its interest payments in a given year from its broadly defined cash flows from operating activities earnings before interest, taxes, depreciation and amortization (EBITDA).

Based on financial data for all listed non-financial companies (A shares), Xiong Liping and Cai Xing point out that the implied NPL ratio stood at 8.4% in mid-2012 and has been rising continuously since the end of 2010.

A similar method was used to estimate the implied NPL ratio in a 2001 working paper by Paul Heytens and Cem Karacadag, and in the *Global Financial Stability Report* published by the IMF on April 13, 2016(3).

According to the aforementioned studies by the CBRC and the IMF, we estimated the implied NPL ratio at the end of 2015. At first, there were 2,850 listed companies (A shares) listed on the Shanghai and Shenzhen stock exchanges as of May 17, 2016. An analysis of the 2015 financial data for those companies shows that 2,327 non-financial listed companies had debts and were making interest payments (Table 1). This analysis was based on the industry classifications used by the CBRC. The total debts of these 2,327 companies amounted to CNY8,549.9 billion.

Under the China's corporate accounting rules that part of interest paid can be treated as costs and assetized. For this reason, it is appropriate to add the amount of interest that has been assetized to interest payments recorded as financial expenses. The sum of short-term borrowing and long-term borrowing repayable within one year, and long-term borrowing has been used to represent total borrowing.

We next divided companies into safe companies and companies potentially at risk. Companies potentially at risk are those that are unable to meet their interest payments from that year's EBITDA, which represents broadly defined yearly cash flows from operating activities. Of the 2,327 companies, 223 were classified as potentially at risk.

How to calculate EBITDA of Chinese companies? Under the Chinese accounting rules, total profit is equivalent to income before income taxes. Interest payments have already been discussed. In China, depreciation and amortization are shown in cash flow statements as tangible and intangible assets and long-term prepaid expenses. The sum of

**Table 1 Percentages of Potentially At-Risk Debt (Implied NPL Ratios)**

| Industry | Number of companies | Total borrowing | Potentially at-risk companies | Potentially at risk borrowing | Percentage of potentially at-risk borrowing |
|---|---|---|---|---|---|
| | | CNY millions | | CNY millions | % |
| Manufacturing | 1,492 | 2,606,447 | 153 | 491,798 | 18.9 |
| Agriculture, forestry, fisheries | 40 | 36,138 | 8 | 6,343 | 17.6 |
| Wholesale/retail | 130 | 328,494 | 12 | 56,326 | 17.1 |
| Conglomerated | 21 | 31,104 | 3 | 4,438 | 14.3 |
| Mining | 69 | 1,075,816 | 14 | 76,224 | 7.1 |
| Logistics | 74 | 482,822 | 2 | 28,614 | 5.9 |
| Real estate | 121 | 1,376,368 | 17 | 61,218 | 4.4 |
| Water management, the environment, public facility management | 26 | 50,174 | 2 | 1,190 | 2.4 |
| ICT | 111 | 128,025 | 5 | 957 | 0.7 |
| Construction | 69 | 1,038,092 | 3 | 5,605 | 0.5 |
| Entertainment, education | 32 | 15,320 | 1 | 50 | 0.3 |
| Electric power, gas, water | 88 | 1,204,206 | 2 | 3,913 | 0.3 |
| Leasing, business services | 26 | 150,078 | 1 | 20 | 0.0 |
| Food services, accommodation | 5 | 20,037 | 0 | 0 | 0.0 |
| Healthcare | 4 | 1,829 | 0 | 0 | 0.0 |
| Scientific research, technology | 19 | 4,965 | 0 | 0 | 0.0 |
| Total | 2,327 | 8,549,914 | 223 | 736,696 | 8.6 |

Notes 1: Financial data were aggregated for 2, 327 non-financial listed companies (out of a total of 2,850) that have borrowing and are making interest payments.
Notes 2: A potentially at-risk company is a company whose EBITDA (earnings before interest, taxes, depreciation and amortization) in a given year is less than interest paid in that year.
Notes 3: Potentially at-risk borrowing is borrowing owed by a potentially at-risk company.
Notes 4: EBITDA = Total profit + interest payments (financial expenses) + assetized interest payments + depreciation of tangible assets + amortization of intangible assets + depreciation of long-term prepaid expenses
Notes 5: Interest payments = Interest payments (financial expenses) + assetized interest payments
Notes 6: Borrowing = Short-term borrowing + long-term borrowing repayable within one year + long-term borrowing
Source: Compiled by JRI based on 2015 annual reports and Wind

these items was used to represent depreciation and amortization.

As an example, we will look at the 2015 financial statements for Baosteel. EBITDA amounts to CNY14,618 million, consisting of 1,850 million for total profit, 1,879 million in interest payments (financial expenses), CNY266 million for assetized interest payments, 10,260 million yuan for depreciation of tangible assets, CNY288 million for amortization of intangible assets, and CNY75 million for depreciation of long-term prepaid expenses. Total interest paid was CNY1,879 million plus CNY266 million, or CNY2,145 million. Baosteel can be regarded as a safe company, since its EBITDA, which represents broadly defined yearly cash flows from operating activities, is greater than interest payments.

The borrowing of companies potentially at risk, which were recognized as potentially at-risk borrowing, totaled CNY737 billion. Finally, we calculated the implied NPL ratio as the ratio of potentially at-risk borrowing to total borrowing.

This calculation yielded an implied NPL ratio of 8.6%, which is five times higher than the 1.7% figure cited in official statistics. Manufacturing had the highest sector ratio at 18.9%, followed by agriculture, forestry and fisheries at 17.6%, wholesaling and retailing at 17.1%, the conglomerated sector at 14.3%, mining at 7.1%, logistics at 5.9%, real estate at 4.4%, and water treatment, the environment and public facility management at 2.4%. We can assume that a higher implied NPL ratio indicates a higher risk that bank loans will become unrecoverable. Given the high levels of potential at-risk borrowing in the manufacturing sector (CNY491.8 billion), mining sector (CNY76.2 billion), real estate sector (CNY61.2 billion) and wholesaling and retailing sector (CNY56.3 billion), we can further conclude that there is a high risk that bank finances will come under stress when loans to these sectors are classified as NPLs.

The consensus forecast is that the end of China's period of high economic growth will be accompanied by increasingly serious problems caused by excessive debt and investment in the manufacturing, mining and real estate sectors. Now, we can say the consensus is correct. The oter hand, because many foreign companies see China as a consumer market and are considering investment on that basis, the high implied NPL ratio for the wholesaling and retailing sector is also attracting attention. During Japan's bubble era, retail companies, such as Daiei, continued to open new outlets and borrowed aggressively to fund the establishment of stores in prime locations, which became unprofitable after the collapse of the bubble. We can surmise that a similar situation is occurring in the Chinese wholesaling and retailing sector.

A breakdown of statistics for the manufacturing sector shows that 15 of the 30 companies in the ferrous metal processing industry are unable to meet interest payments from operating cash flows. These 15 companies have borrowing amounting to CNY217.9 billion, or 51.7% of the total (Table 2). Similarly, manufacturers of railroad rolling stock and aircraft and shipbuilding companies, and petroleum processors and coke manufacturers, which are both typical heavy industries, have implied NPL ratios of 44.8% and 36.7% respectively. Also significantly over 10% at 29.9% and 26.9% respectively are the ratios for general machinery manufacturers and the spinning industry, which is classed as light manufacturing industry. In contrast, few companies in the automotive and electrical machinery sectors are unable to meet interest payments from operating cash flows, and the implied NPL ratios for these sectors are low.

What is the reason for the wide gap between the estimation results and the official statistics? The difference appears to reflect while the surveys on which the official statistics are based cover banks, the implied NPL ratio is based on surveys of companies as borrowers. This means that any relaxation of the standards used to identify bad loans held by banks will cause the official NPL ratio to fall. However, the implied NPL ratio is not affected by the relaxation of standards, since it is based on objective data. The official NPL ratio will also fall if bad loans held by banks shift to government funds or shadow banking. This will not affect the implied NPL ratio, which is ultimately based on corporate figures.

Of course, there are also issues with the implied

**Table 2 At-Risk Debt Ratios (Implied NPL Ratios) for Manufacturing Industries**

| Industry | Number of companies | Total borrowing | Potentially at-risk companies | Potentially at risk borrowing | Percentage of potentially at-risk borrowing |
|---|---|---|---|---|---|
| | | CNY millions | | CNY millions | % |
| Ferrous metal processing | 30 | 421,106 | 15 | 217,854 | 51.7 |
| Railroad rolling stock, ships, aircraft | 31 | 155,485 | 5 | 69,691 | 44.8 |
| Petroleum processing, coke manufacturing | 19 | 42,009 | 8 | 15,398 | 36.7 |
| General-purpose machinery | 89 | 72,843 | 13 | 21,748 | 29.9 |
| Non-ferrous metals | 55 | 253,173 | 14 | 73,837 | 29.2 |
| Spinning | 35 | 37,540 | 7 | 10,108 | 26.9 |
| Telecoms equipment, computers, other machinery | 195 | 285,463 | 15 | 21,921 | 7.7 |
| Chemical raw materials, processing | 160 | 301,376 | 23 | 20,369 | 6.8 |
| Pharmaceuticals | 132 | 101,017 | 7 | 5,218 | 5.2 |
| Non-metal manufacturing (cement, etc.) | 74 | 140,410 | 6 | 6,039 | 4.3 |
| Foodstuffs | 26 | 22,269 | 2 | 818 | 3.7 |
| Apparel | 25 | 10,056 | 1 | 240 | 2.4 |
| Motor vehicles | 80 | 120,472 | 6 | 2,415 | 2.0 |
| Electrical machinery | 151 | 129,791 | 5 | 1,195 | 0.9 |
| Rubber and Plastic Products | 40 | 34,997 | 0 | 0 | 0.0 |
| Others | 350 | 478,441 | 26 | 24,947 | 5.2 |
| Subtotal for manufacturing sector | 1,492 | 2,606,447 | 153 | 491,798 | 18.9 |

Notes: Definitions and calculation methods for each item are the same as for Table 1.
Source: Compiled by JRI based on 2015 annual reports and Wind

NPL ratio. Because the implied NPL ratio is based on surveys that cover only listed companies, it underestimates the real level of risk in the Chinese financial system. Some unlisted companies are more profitable than listed companies, but unlisted companies generally tend to be smaller and more likely to cause NPL problems. Given that some companies, such as unlisted real estate firms, local government financing vehicles, and private sector manufacturers, have borrowed vast amounts of money through shadow banking, the 8.6% implied NPL ratio may be low compared with the actual situation. However, the analysis in this paper is limited to the method described above, since it would have been impossible to gather data for all companies, including unlisted companies.

## (2) Estimating the Amount of the implied NPL

Having calculated the implied NPL ratio, which appears to reflect the real situation more closely than the official statistics, we next need to consider the real amount of NPLs held by banks. We will estimate this by confirming the amount of on-balance-sheet credit provided by financial institutions, and then aggregating that figure with off-balance-sheet credit.

According to the official statistics, the NPL ratio for on-balance credit is 1.7%, based on an NPL balance of CNY1,274.4 billion. Estimating from this total, the balance of NPLs held by banks at the end of 2015 would be around CNY75 trillion. However, according to social finance statistics reported by the People's Bank of China, the total balance of loans denominated in Chinese yuan and foreign currencies at the end of 2015 was CNY95.8 trillion, so we will use that figure to represent on-balance credit, because the coverage is broader.

We will next consider the scale of off-balance credit, or shadow banking. Shadow banking is generally defined as a form of credit intermediation whereby funds are supplied through routes other than bank loans. For the purposes of this article, we will define it as consisting of wealth management products provided by banks, entrusted loans, and loans by trust companies.

Wealth management products are used by banks to move loan assets off their balance sheets by selling loan receivables to customers instead of accepting deposits from individuals and corporations.

Entrusted loans are loans from companies to other companies, with banks acting as intermediaries. Normally the loan conditions would be decided by the company entrusting the loan, but in practice the bank sets the conditions, including the borrower, the purpose, the amount, and the interest rate, and the loan is moved from the bank's balance sheet to that of the company. In some cases, companies in banking groups provide loans to borrowers who are not allowed to borrow from banks. There are also cases in which a bank will accept a deposit from a company at a higher-than-normal interest rate and ask that company to provide a loan to a recipient stipulated by the bank.

Trust lending has also expanded rapidly as banks have shifted their loan assets to the balance sheets of trust companies. Since banks are deeply involved in all three of these patterns, there is a strong possibility that they will incur losses of loans become non-recoverable.

According to the China Central Depository & Clearing Co., Ltd., wealth management products provided by banks amounted to CNY23.5 trillion at the end of 2015. Figures released by the People's Bank put the balance of entrusted loans at CNY10.9 trillion, also at the end of 2015, while the China Trustee Association estimated the balance of assets managed by trust companies at CNY14.7 trillion. This means that the balance of shadow banking at the end of 2015 was CNY49.1 trillion, which is equivalent to 72.6% of GDP.

Total credit, calculated as the sum of on- and off-balance-sheet credit, amounts to CNY144.9 trillion. Although in reality banks' off-balance credit is likely to be more at risk of becoming unrecoverable, we will simply assume that 8.6% of this total will become NPLs. On this basis, the balance of implied NPLs held by Chinese financial institutions amounts to CNY12.5 trillion (18.5% of GDP). This is 10 times higher than the official figure. Reasons for this huge difference include the lax criteria used to identify NPLs in the official statistics, the fact that off-balance-sheet credit is not included, and the fact that NPLs provided by financial institutions other than commercial banks are not counted. The amount of implied NPLs within the Chinese financial system is so large that there is a heightened risk of economic destabilization.

### (3) Risk of Bankruptcies among Financial Institutions and Mishandling by the Government

In this situation, bankruptcies among financial institutions or mishandling by the government could trigger a financial crisis. Some Chinese financial institutions have already become insolvent. On March 30, 2016, the *Nihon Keizai Shinbun* carried a story about the worsening financial positions of small financial institutions in China, in which it was reported that a rural credit cooperative in Xiangtan County, Hunan Province, had become insolvent by approximately CNY400 million, because its total liabilities of CNY12.8 billion were greater than its total assets, and that another rural credit cooperative in Li County was insolvent by about CNY200 million. However, these institutions will be supported and rescued by a local government-affiliated investment company, Xiandai Investment.

In fact, Xiandai Investment issued a press release on March 23, 2016, in which it said that the rural credit cooperative in Xiangtan County had total assets of CNY12.4 billion and total liabilities of CNY12.8 billion as of September 30, 2015, and that after restructuring the company into a commercial bank based on the joint-stock company model, it would acquire shares with its own funds of CNY320 million and also solicit outside investment. As of June 30, 2015, the Li County rural credit cooperative had total assets of CNY6.9 billion and total liabilities of CNY7.1 billion. As with the Xiangtan County rural credit cooperative, Xiandai Investment will invest CNY202 million of its own funds in the Li County rural credit cooperative, which will be similarly converted into a commercial bank. Outside equity investment will also be accepted.

There have also been runs on banks. According to local media reports, people in Linzhou City, Henan Province surged into several rural credit cooperatives seeking to withdraw their deposits in May 2015. In November 2015, people crowded into branches of the China Postal Savings Bank in Xinjiang City, Henan Province. And in March 2016, people reportedly crowded into a rural credit cooperatives in Handan City, Hebei Province to withdraw their deposits. In each case, one or more people were detained by the security authorities or police in the cities concerned for "spreading unfounded rumors."

According to the 2014 annual report of the China Banking Regulatory Commission (CBRC), a total of 4,089 financial institutions were engaged in banking throughout China at the end of 2014. This total is divided into commercial bank and other banking institutions. Commercial bank is divided into five large commercial banks, such as the Industrial and Commercial Bank of China, 12 joint-stock commercial banks, including the China Merchants Bank and China CITIC Bank, 133 city commercial banks, such as the Bank of Shanghai and the Bank of Beijing, 665 rural commercial banks, including the Shanghai Rural Commercial Bank, and 41 foreign financial institutions. The total assets of these commercial banks amount to CNY134,798 billion, or 78.2% of the total assets of all financial institutions engaged in banking throughout China. Other banking institutions include three policy banks, such as the State Development Bank, the China Postal Savings Bank, 89 rural cooperative banks, which are smaller than rural commercial banks, and 1,596 rural credit cooperatives(4).

To date no commercial bank has ever failed. In 1998, the People's Bank of China closed down the Hainan Development Bank and suspended all of its activities after it incurred massive NPLs. The People's Bank also ordered the bank to be liquidated, but liquidation procedures have not gone ahead. The bank's business operations are still suspended, but it is not being treated as bankrupt.

As we have already seen, however, the assets of Chinese financial institutions would be substantially reduced if their loans were screened on the basis of cash flow analyses, and some commercial banks would go out of business.

In Japan, the number of financial institutions fell sharply over a 10-year period starting in 1996. In 1997-98, banks tightened their lending policies and in some case withdrew existing credit, resulting in a credit crunch. In China, too, there is a risk that bankruptcies among financial institutions could lead to a financial crisis. Given its political system, China is unlikely to follow the same path as Japan. Japan's then Prime Minister Kiichi Miyazawa thought at the time that public money should be injected into banks as soon as possible, but he was unable to build a public consensus for the investment of what was in reality taxpayers' money in financial institutions. As a result, it was not possible to avert a financial crisis. Because of its political system, China may be able to move more quickly than Japan to inject public money into banks. Another major difference from Japan is the fact that financial intermediation functions are provided primarily by state-owned banks.

However, the possibility that financial institutions are not accurately disclosing their financial problems means that the Chinese government could be unable to inject public money appropriately. Even major state-owned commercial banks would face ratings downgrades if they disclosed their real NPL levels, further increasing the difficulty of procuring funds and managing their operations. If financial institutions accept cash injections from central or regional government funds, they will inevitably face tight control by those funds. When a financial institution seeks government assistance, it may already be in the grips of bank ruptcy. To a greater or lesser degree, there is a certain asymmetry of information between financial institutions and the government. As a result, the government may not always be able to inject public money at the appropriate times.

There is also concern about whether the government will be able to contribute sufficient amounts of public money. As noted earlier, the total amount of on- and off-balance-sheet credit is CNY144.9 trillion. Assuming that implied NPLs make up

8.6% of this total, outstanding implied NPLs held by Chinese financial institutions will amount to CNY12.5 trillion. However, commercial banks have loan-loss reserves of only CNY2.3 trillion. There is a shortfall of CNY10.2 trillion, and if financial institutions do not have sufficient funds to bridge this gap, it will be necessary to accumulate loan-loss reserves in the government's balance sheet. This would not be easy, since in 2015 central and local government revenues amounted to CNY6.9 trillion and CNY8.3 trillion respectively.

In addition to the possibility of bankruptcies among financial institutions, we also need to be aware of the risk of fiscal austerity. Fiscal austerity caused major economic downturns and triggered financial crises in Japan under the Ryutaro Hashimoto administration, and the United States under the Hoover administration. We will need to be alert to the possibility of similar developments in China.

## 3. Crisis Avoidable in the Short-term, but Prolonged Decline in Growth Rate a Possibility

### (1) Chinese Government Worried about Credit Crunch

Because of this situation, the Chinese government is very alert to the possibility of a credit crunch and should be able to avert a credit crisis in the short-term perspective by taking preemptive action to eliminate potential triggers. In its macroeconomic forecast for 2016, the People's Bank of China clearly identified the rising NPL ratio as a significant risk. The disposal of NPLs was also one of key issues raised at the Central Economic Work Conference.

On December 16, 2015, the chief economist of the People's Bank of China, Mr. Jun Ma, and five of the Bank's research staff jointly published a paper entitled 2016 *Zhongguo Hongguan Jingji Yuce* [2016 Macroeconomic Forecasts for China]. In this paper, the authors officially forecasted that China's real economic growth rate will fall by 0.1% from the 2015 level to +6.8%. They also identified (1) slower investment in the manufacturing sector due to excessive capacity, (2) increasingly cautious lending stances by banks due to the rising NPL ratio, and (3) an excessively rapid rise in U.S. interest rates as the three main risk factors for an economic downswing.

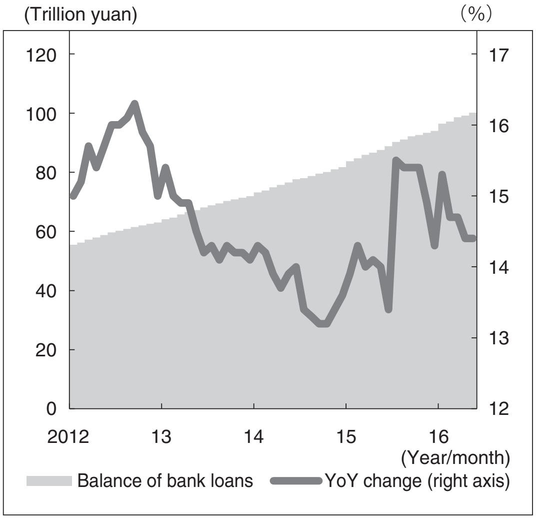
Concerning the second factor, they rang a warning bell about the danger of a credit crunch or withdrawal of credit affecting lending to sectors with excessive production capacity, especially coal, iron and steel and construction materials, as well as small and medium enterprises. The communiqué issued after the Central Economic Work Conference, which closed on December 21, 2015, called for corporate bankruptcies to be kept to a minimum, and for merger opportunities to be explored during the process of NPL disposal.

The government has meanwhile developed a range of monetary easing measures, including interest rate cuts since the fall of 2014, and the lowering of the deposit reserve ratio. In addition, a de facto ceiling was placed on deposit interest rates in an effort to prevent bankruptcies among financial institutions. Even after the October 2015 announcement that the upper limit on deposit interest rates would be removed, the authorities prevented some financial institutions from lifting their rates. Financial institutions also appear to have been urged to lend aggressively.

As a result, bank lending has increased overall, despite the elimination of some loss-making companies from the market due to the continuing economic slowdown and moves to put the brakes on production activity. In fact, the rate of increase in the year-end balance of bank loans accelerated from 13.6% in 2014 to 14.3% in 2015, even though economic growth was slower and business earnings deteriorated (Fig. 4).

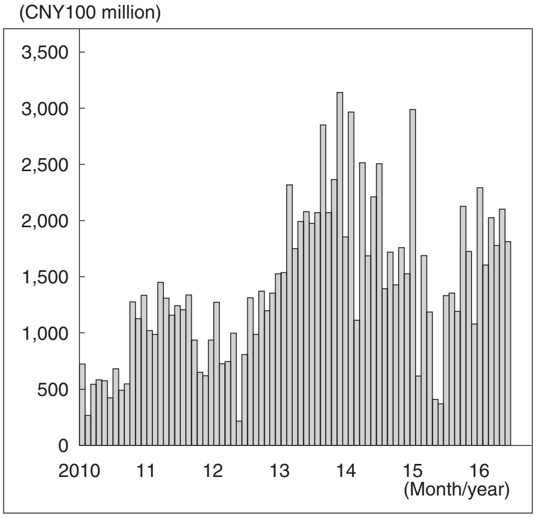
There is concern that lending to state-owned enterprises, which have poor earning potential, will continue to expand for a number of reasons, including fact that the state-owned enterprise employ large numbers of people and employment stability is a priority for the Chinese government,

**Fig. 4 Outstanding Bank Loans**




Notes: The most recent figures are for the end of May 2016.
Source: People's Bank of China, *Jinrong Tongji Shuju Baogao* [Financial Statics Report]

**Fig. 5 Entrusted Lending (Flow Basis,Seasonally Adjusted)**




Notes: Seasonal adjustment by JRI.
Source: People's Bank of China, *Shehuì Rongzi Guimo Zeng Liang Tongji Shuju Baogao* [Incremental Statistical Report on Social Financing]

as well as the government's strong influence over the lending policies of state-owned banks.

In addition, one of the measures adopted by the government in response to excessive debt is the equitization of debts amounting to CNY1 trillion. The conversion of corporate debt into equity has the effect of reducing corporate debt ratios.

## (2) Slow Progress toward the Optimization of Resource Allocation

However, these government measures are encouraging speculation, and there is also a risk that they will prolong the downward phase in the growth rate by postponing the disposal of NPLs. The side-effects of monetary easing are already becoming apparent as easy money flows into shadow banking and the housing market.

For example, entrusted loans, which is typical form of shadow banking, has been expanding again since the middle of 2015 (Fig. 5). With their core business activities in the doldrums, many companies, including state-owned enterprises, are procuring low-interest money through bond issues or bank loans and lending it at high interest rates to real estate developers, infrastructure projects, and small enterprises. Fixed asset investment meanwhile continues to decelerate, and even within China there has been criticism of the shift from real to hollow investment. The expansion of shadow banking will provide short-term economic underpinning, but it is also seen as a trend that will increase the instability of the Chinese economy because of its strong tendency to produce side-effects, including increased speculative money management activities by cooporations a preference for risk-taking with household finances, and the expansion of potential bad loans in the banking sector.

Furthermore, in May 2016, the average selling price for houses rose year on year in 50 of China's 70 major cities. In Shenzhen, a large coastal city, prices were 54.0% higher than in May 2015, while Shanghai and Beijing recorded increases of +33.8% and +21.4% respectively. All of these increases are far in excess of the economic growth rate. Increases in excess of 10% were also reported in some inland cities, including Nanjing (+27.1%), Hefei (+23.3%), and Wuhan (+11.9%). These figures are indicative of overheating in the real estate market.

A more serious issue from the medium- to long-term perspective is slow progress toward the optimization of resource allocation. The fact that the growth rate of bank lending has accelerated despite the economic slowdown and deteriorating business earnings is a sign of forbearance lending. Forbearance lending not only postpones action on problems, but could also allow the NPL problem to become even more serious in the meantime. Moreover, the equitization of debt does nothing to improve a company's product and service. Government funds established in the late 1990s took over the NPLs of state-owned banks through equitization and then tried to rehabilitate them as a shareholder. This process required the cooperation of local governments in the areas where companies were located to find new jobs for corporate employees affected by restructuring. However, that cooperation was difficult to obtain, and the initiative did not result in positive outcomes. Another danger with the debt equitization approach is that it will stimulate the expansion of loan assets with poor prospects of recovery, as happened when subprime loans were equitized in the United States.

Although a radical solution to the NPL problem would cause serious pain in the short-term, it would also remove unprofitable businesses and companies from the market and stimulate metabolism based on market mechanisms, eventually leading to robust economic expansion. As long as metabolism is restricted, progress toward the efficient allocation of capital and labor will be delayed. There is a danger that this will prolong China's economic stagnation.

## Conclusions

As is clear from this analysis, corporate debt is spiraling in China. The balance of debt owed by non-financial companies at the end of 2015 was equivalent to 170.7% of GDP, which is a higher ratio than recorded in Japan during the bubble era. One of the reasons for this situation is the fact that financial institutions have lent excessively without applying proper screening functions.

As China's high-growth era comes to an end, corporate cash flow positions are deteriorating, leading to a rapid increase in the amount of NPLs. A big issue is a lack of transparency about the real NPL situation. According to the official statistics, the NPL ratio for commercial banks at end of 2015 was 1.7%, and the NPL balance was only CNY1,274.4 billion. However, the real figure is likely to be far higher than indicated by the official statistics for several reasons, including the lax criteria for recognizing NPLs, and the fact that off-balance-sheet credit is not included.

An estimation places the implied NPL ratio at 8.6% at the end of 2015. This is five times higher than the figure in the official statistics. Particularly significant is the fact that many companies in the manufacturing, mining, real estate and wholesaling are unable to meet their interest payments from cash flows generated by their operating activities. Because of the high level of lending to these sectors, there is a high risk that bank finances could be destabilized if loans turn bad.

If we break down the statistics for the manufacturing sector, we find that heavy industries, such as ferrous metal processing, railroad rolling stock, shipbuilding, aircraft, oil processing, and coke manufacturing, have extremely high implied NPL ratios. The situation in the general-purpose machinery industry, and in light manufacturing industries, such as spinning, is also serious. In contrast, few companies in the automotive and electrical machinery sectors are unable to meet interest payments from operating cash flows, and the implied NPL ratio for these industries is low.

When estimating the amount of the implied NPL, we included off-balance-sheet as well as on-balance-sheet credit. If we calculate the balance of implied NPLs at the end of 2015 on this basis using the aforementioned implied NPL ratio, the result is CNY12.5 trillion, which is 10 times the figure in the official statistics. Given the large amount of implied NPLs in the Chinese financial system, it would be reasonable to conclude that there has been a proportionate rise in the risk of economic instability.

Under these circumstances, we need to be alert to the possibility of bankruptcies among financial institutions, and mishandling by the government. Rural credit cooperatives became insolvent in 2015, and there have been runs on rural credit cooperatives and branches of the China Postal

Savings Bank over the past year. These situations could trigger a financial crisis.

However, the Chinese government is alert to the possibility of a credit crunch and should be able to prevent a financial crisis in the shorter-term future. In fact, the rate of increase in bank lending has accelerated since the start of 2015. As part of its response to excessive debt, the government has adopted a policy of equitizing debt totaling CNY1 trillion.

However, these moves by the government could stimulate speculation. Entrusted loans, which is a typical form of shadow banking, has been expanding again since the middle of 2015, while house prices in coastal cities and some inland ones are showing double-figure increases, indicating that the real estate is overheated.

Slow progress toward the optimization of resource allocation is the most serious issue in the medium- to long-term perspective. The fact that bank lending is expanding despite slower economic growth and worsening business earnings is a sign of forbearance lending. There is a risk that China's economic stagnation will be prolonged if there are delays in dealing with the NPL problem or ensuring the efficient allocation of capital and labor.

## End Notes

1. According to the People's Bank report on China's monetary policy in the fourth quarter of 2015, the weighted average interest rate on bank loans was 5.7% at the end of 2015.

2. Detailed analyses of the impact of the credit crunch on the Japanese economy include Motonishi, T. and Yoshikawa, H. [1999].

3. See Heytens, P. and Karacadag, C. [2001] for details.

4. Although the China Postal Savings Bank has stated that it is commercial bank, the CBRC does not include it in the commercial bank category. It is supervised by the Policy Banks Supervision Department of the CBRC, and its NPLs are not included in the NPL totals for commercial banks.

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