

# Balance Sheet Expansion and Economic Growth in China: Crowd in or Crowd out?

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**Abstract:** Balance sheet expansion is crucial to understand the historic path, current slowdown and future trend of economic growth in China. As the financial system transforms national savings into investment, balance sheet expands simultaneously. According to changing impacts of balance sheet expansion on real economy, economic growth in China from 1998 to 2016 can be divided into the crowd-in stage and the crowd-out stage. In the first stage (1998-2007), balance sheet expansion crowded China's real economy in, raised TFP dramatically and accelerated economic growth. In the second stage (2008-2016), balance sheet expansion crowded China's real economy out, with stagnant TFP and decelerated economic growth. Balance sheet expansion has slowed down since 2014, but it continues to exert crowding out effects on China's real economy. We argue that balance sheet expansion is crucial for China's future economic growth. In the long term, structural reforms, especially reforms in the financial system, could increase growth potential significantly. In the short term, financial system reforms should focus on generating sufficient cash flows to boost aggregate demand.

**Key Words:** Financial system; Assets and liabilities; Real economy

JEL: E02, E44, O40

## 1. Introduction

### 1.1 The Realistic Threat of Balance Sheet Expansion to China's Real Economy

China's economic growth is slowing down in recent years. Sluggish external demand and slower investment growth are two major causes. Meanwhile, balance sheet expansion, *i.e.* expansions in assets and liabilities, has become a realistic threat to financial stability and economic growth in China. Furthermore, rising private sector leverages and booming asset price bubbles are increasing systematic financial risks, which has led to widespread social concerns.

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On the side of liabilities, the leverage rate of private sector is high in China. According to Bank for International Settlements (BIS), private non-financial sector's leverage rate has reached 210.4% by the end of 2015, higher than most other major economies. Private non-financial sector's leverage rate has been increasing since the global financial crisis in 2008, at a rate faster than most other major economies (Fig.1)<sup>2</sup>. On the side of assets, rising housing price increases asset bubble risk, while over-supplies in the real estate sector causes high housing inventory<sup>3</sup>. Sharp changes in housing prices may trigger dramatic economic and financial turbulence. 20% of investment in China is for real estate development, creating huge demands for steel, cement and other housing related industries, and 50% of China's total credit is related to real estate (McKinney, 2015).

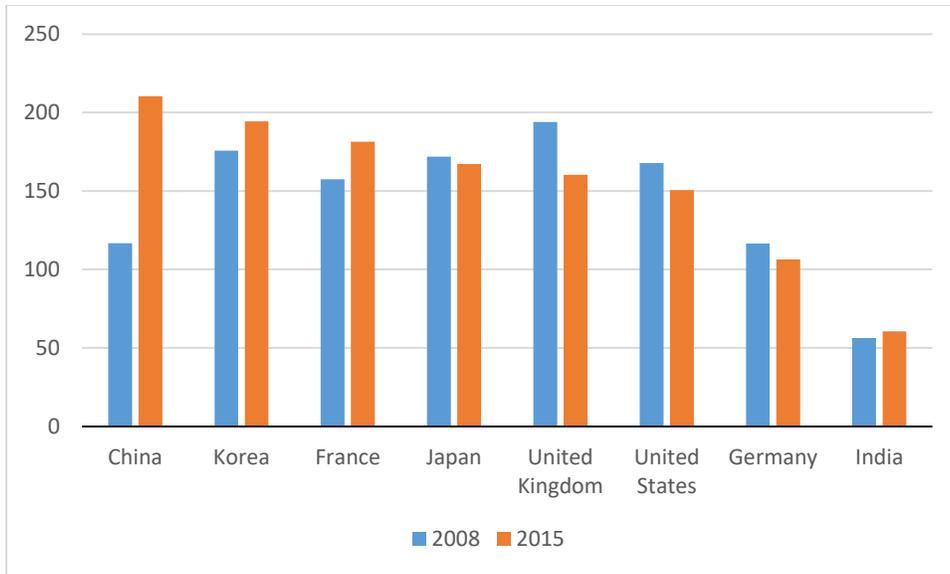
Moreover, China's domestic balance sheet expansion has huge impacts on external environment stability. Due to concerns of China's future economic growth, caused by domestic debt accumulation and asset bubbles, currency depreciation and capital outflow have accelerated since 2015. Official foreign exchange reserve has shrunk by 800 billion USD since 2014, and RMB has depreciated substantially (Fig.2). In particular, the CNY fixing mechanism change in August 2015 triggered sharp rises in risk aversion, which caused VIX index rise to above 40 and deteriorated short-term capital flight.

Figure 1 Private Non-Financial Sector's Total Credit to GDP Ratio: International Comparison (%)

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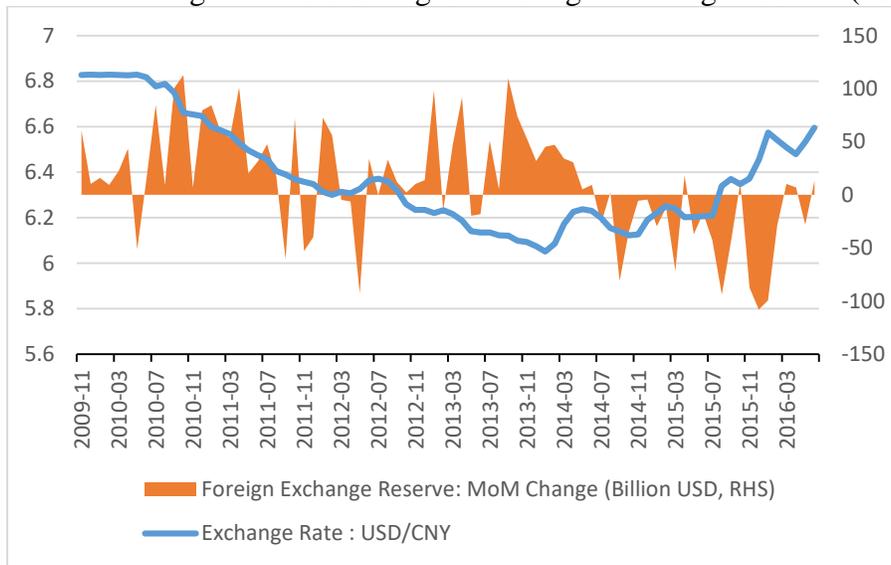
<sup>2</sup> Compared to private sector's debt, public sector's debt is relatively low. According to the data of Ministry of Finance (MOF), the ratio of public debt to GDP is only 39.4% in the end of 2015.

<sup>3</sup> According to National Bureau of Statistics (NBS), the price of new-built residential houses and the inventory of residential houses has increased by 52.5% and 4.3 times respectively from 2005 to 2015.



Source: BIS

Figure 2 RMB Exchange Rate and Changes in Foreign Exchange Reserve (2009-2016)



Source: PBoC

## 1.2 Economic Growth and Balance Sheet Expansion: Literature Review

Financial system plays an important role in long-run economic growth. On the one hand, it promotes long-term capital accumulation. On the other hand, it encourages venture capital investment which is essential for innovations (Levine, 1997). Assets and liabilities of the macro-economy build up in the process as well.

Balance sheet expansion has huge impacts on economic growth. Firstly, assets or reasonable asset bubbles promote economic growth while excessive bubbles exert crowd out effects on real economy. Rising prices of collaterals, such as land and house, loosens entrepreneurs' credit constraints, and thus promotes investment (Black *et al.*, 1996). This channel is especially important for developing countries with incomplete financial markets because a reasonable degree of bubbles can improve capital allocation efficiencies through liquidity supplies and collateral accumulations. As a result, investments are crowded in and outputs are increased (Farhi and Tirole, 2012; Martion and Ventura, 2012; Olivier, 2000). However, excessive asset bubbles may cause inefficient allocations of savings, crowding out investment and reducing output (Samuelson, 1958; Tirole, 1985).

Secondly, debt accumulation promotes economic growth with financial deepening, but excessive debt expansion increases the risk of economic recession. Private debt enables the private sector to smooth consumption, investment and production, and public debt smooths consumption across generations and provides liquidity to the private sector (Cecchetti *et al.*, 2011; Woodford, 1990). However, excessive debt accumulation may inhibit economic activities, and thus reduce long-term potential growth. Meanwhile, debt overhang leads to a rapid de-leveraging process. As enterprises' objectives shift from profit maximization to debt minimization, aggregate demand and investment growth are constrained, leading to the balance sheet recession (Koo, 2008; Eggertsson and Krugman, 2010; CEPR, 2014).

Thirdly, balance sheet expansion amplifies business cycles. With credit constraints of lenders, rising prices of assets accelerate credit expansion, which further pushes asset prices to a higher level. However, falling prices of assets accelerate investment and economic growth declines (Kiyotaki and Moore, 1997; Bernanke and Gertler, 1989; Schleifer and Vishny, 1992). Asset bubble bust reduces firm value and liquidity, leading to economic disturbances (Farhi and Tirole, 2012). Moreover, from the perspective of the financial system, inherent and fundamental instabilities in the system may transform the whole economy from hedge financing into speculative financing and Ponzi financing (Minsky, 1986).

Most researches on balance sheet expansions in China focus on the potential systematic financial risk, and there is a growing empirical interest on measuring the total size of China's assets and liabilities at financial, sovereign and national levels (Yi and Song, 2008; Li *et al.*, 2012). Different from the general perspective on China's balance sheet expansion and financial risks,

Yuan and Rao (2015) study balance sheet expansion in China from the perspective of transitions in driving forces of China's economic growth, and find balance sheet expansion crucial in understanding China's economic growth in the last several decades. Based on Yuan and Rao (2015), this paper analyses the past, present and future of China's economic growth from the perspective of balance sheet expansion, and pays particular attention to economic growth slowdown and possible reforms to increase future growth potential in China. Our main finding is that balance sheet expansion is still crucial to China's future economic growth. On the one hand, structural reforms, especially reforms in the financial system, could increase long-term growth potential dramatically. On the other hand, financial system reform should focus on generating sufficient cash flow to boost aggregate demand in the short term.

## 2. China's Economic Growth and Balance Sheet Expansion

### 2.1 Balance Sheet Expansion and Its Structural Characteristics

Thanks to the financial system which persistently transforms national savings to investment, China has experienced both rapid economic growth and balance sheet expansion. The total amount of non-financial capital stock and bank loans have increased by nearly ten times from 1998 to 2015. Balance sheet expansion has huge impact on both short-term economic fluctuations and long-term economic growth in China (Fig.3).

Balance sheet expansion is inevitable in the process of transforming national savings to investment. National savings rate has been increasing quickly since 1998, peaking at above 50% in 2008, and investment rate has been growing accordingly. China's financing mode of development and construction, which transforms national savings to government and firms' investment at a low price by depressing factor prices and financial resource allocation distortions, greatly promotes national capital formation, but harms interests of savers. Meanwhile, the indirect financing dominated financial system accelerates debt accumulation. Currently, above 80% of all real economy financing is still indirect, while direct financing accounts for only a very small proportion. Debt buildup due to the indirect financing dominated financial system does not necessarily mean excessive credit or money supply expansions. Although credit accumulation has pushed up M2/GDP ratio, CPI remains steady (Fig.4).

Figure 3 The Impacts of Balance Sheet Expansion on China's Economy

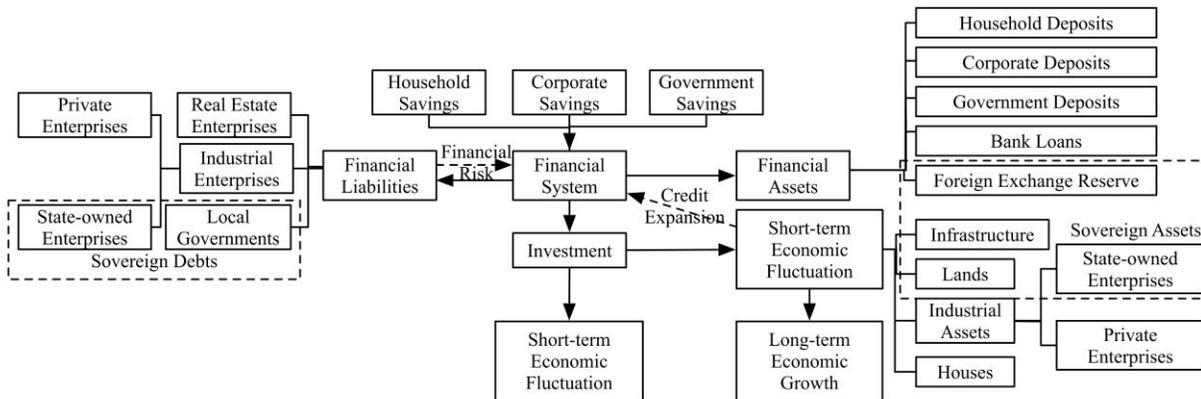
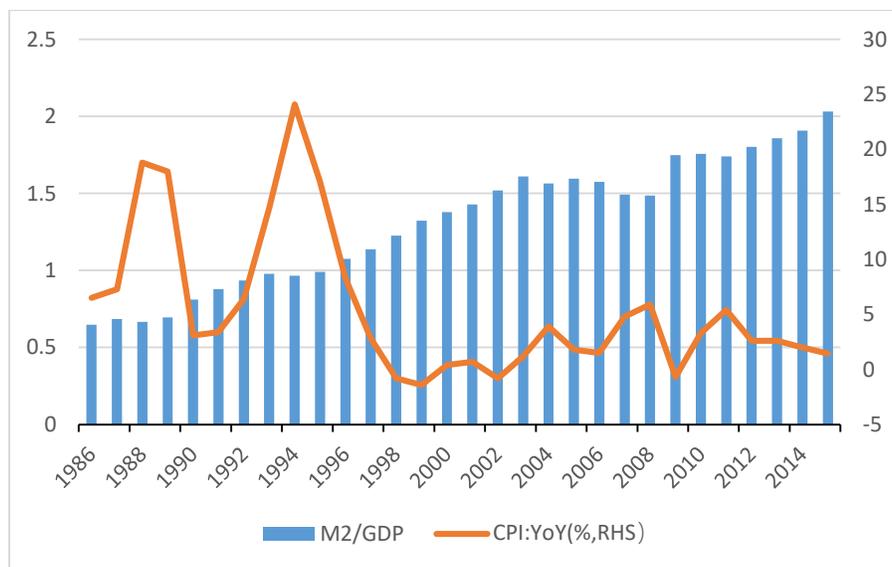


Figure 4 M2 to GDP Ratio and Inflation



Source: PBoC and NBS

The total scale of assets and liabilities is not a realistic threat to real economy because some people’s liabilities are always others’ assets. However, the distribution of assets and liabilities matters to real economy. On the one hand, national savings are transformed to non-financial assets, most of which are real estate in the household sector, land and infrastructure in the government sector and fixed assets in the corporate sector<sup>4</sup>. On the other hand, financial assets and liabilities have been created along with the transforming national savings to investment. Financial liabilities concentrate mainly in real estate enterprises, state-owned industrial enterprises and local

<sup>4</sup> According to Li *et al.* (2015)’s estimation, the share of houses, lands, governments’ fixed assets and corporate sector’s fixed assets in non-financial assets are 35.0%, 18.5%, 2.3% and 31.3% in 2013, respectively (Some infrastructures are counted as regional state-owned enterprises’ assets).

governments<sup>5</sup>, and financial assets are mostly households' and enterprises' deposit and state-owned banks' loans due to the indirect financing dominated financial system. In fact, direct financing development is restricted by the imperfect legal system and lack of social trust which lead to relatively underdeveloped equity and bond markets (Porta *et al.*,1998). Meanwhile, the part of national savings that cannot be absorbed completely by domestic investment has been transformed into foreign exchange reserves, which has become an important part of China's sovereign assets.

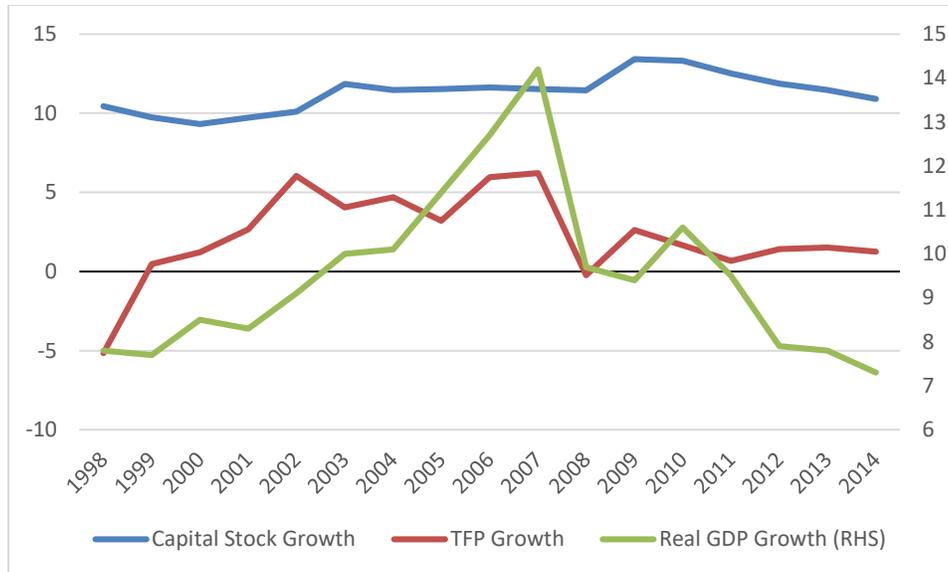
## 2.2 Two Stages of China's Economic Growth from the Perspective of Balance Sheet Expansion

The four-trillion fiscal stimulus package during the financial crisis in 2008 is the turning point of China's balance sheet expansion and economic growth. Balance sheet expansion's impact on China's economic growth has changed since 2008, and China's economic growth has slowed down simultaneously. Accordingly, economic growth in China since 1998 can be divided into two stages. In the first stage (1998-2007), balance sheet expansion has crowded China's real economy in, raising TFP dramatically and accelerating economic growth. In the second stage (2008-2016), China's real economy is crowded out by balance sheet expansion, and both TFP and economic growth rate are reduced in the period (Fig. 5). One should note that although balance sheet expansion has slowed down since 2014, it still exerts crowding out effects on the real economy.

Figure 5 Capital Accumulation, TFP and Economic Growth (%)

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<sup>5</sup> According to People's Bank of China (PBoC), The share of industrial sector, real estate development and infrastructural construction in loans outstanding are 24.7%, 6.6% and 15.8% in 2014, respectively.



Source: PWT 9.0 and NBS

### 2.2.1 The Crowding In Stage of Balance Sheet Expansion (1998-2007)

Starting from the market-oriented reforms of the housing allocation system in 1998, rising values of land and houses increased capital supply, and a series of structural reforms raised capital demand. As a result, both assets and liabilities expanded, crowding real economy in and accelerating economic growth by raising TFP dramatically.

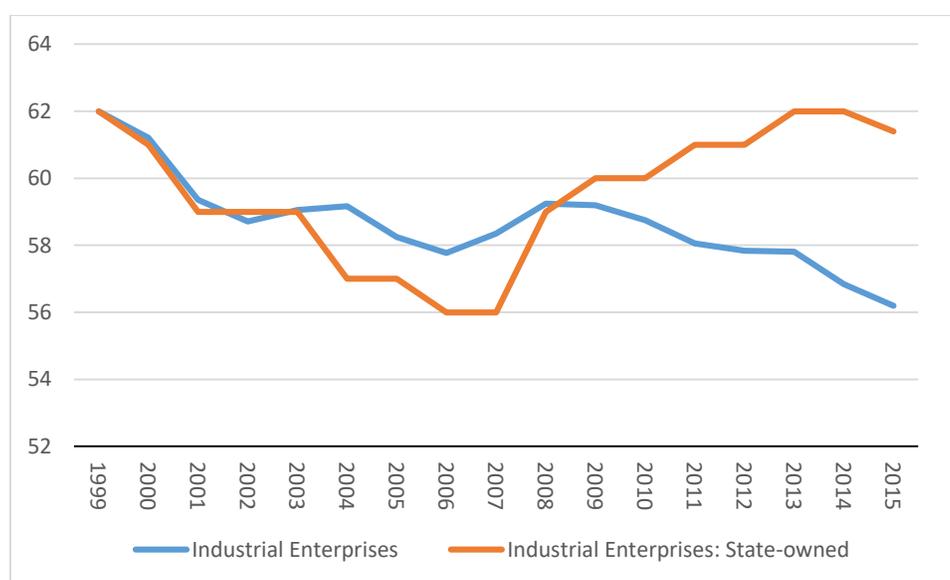
From the capital supply side, access to capital for investment funding was promoted by the rising value of land and houses. Land and houses are crucial collaterals for the private sector and local governments. Rising values of land and houses partially reduce information asymmetry in the financial market, which is important for China when its legal system is imperfect and social trust is weak. Moreover, liquidity conditions for enterprises were improved by rising values of land and houses, because land and houses can be converted into cash quickly with relatively low cost.

From the capital demand side, a series of structural reforms improved investment efficiency and boosted investment demand. Concerning the three major areas of investment, the market-oriented reform of the housing allocation system raised real estate investment and improved urban housing conditions; The state-owned enterprises reform, aiming at “grasp the large, let go of the small” and joining WTO, improved enterprises’ performance and boosted industrial investment; Tax-sharing reform encouraged local governments’ competition and led to booming infrastructure investment further. Increasing investment efficiency improved China’s economy’s capital

structure and raised China's TFP dramatically. The corporate sector's debt to asset ratio declined in this stage due to improving investment efficiency (Fig. 6).

From a global perspective, FDI inflows rose rapidly in this stage. Although national saving rate is higher than investment rate, there are still large scale FDI inflows into China. Though FDI inflows at least partially weaken the performance of inefficient domestic enterprises financial institutions, technology spillover and intensified market competition promote the efficiency of domestic enterprises and create many new investment opportunities. FDI inflows bring not only foreign capital to China, but also brand, management skill, human capital and global market. In general, the crowd-in effect of FDI outweighs crowd-out effect, and national savings are transformed to investment more rapidly and efficiently thanks to FDI inflows.

Figure 6 Debt to Asset Ratio of Total Industrial Enterprises and State-owned Industrial Enterprises (%)



Source: NBS

### 2.2.2 The Crowding Out Stage of Accelerating Balance Sheet Expansion (2008-2013)

After the global financial crisis in 2008, the driving force of China's economic growth has changed from market-oriented reforms to strong government stimulations. This is an important turning point for balance sheet expansion in China. Large scale fiscal stimulus as well as unprecedented monetary loosening aggravated both asset bubbles and debt accumulations. The unbalanced expansions of assets and liabilities crowded real economy out, restricting TFP and economic growth substantially.

As the four-trillion fiscal stimulus package and accommodative monetary policy caused rampant liquidity in the financial system, substantial capital flowed into the real estate sector, state-owned enterprises and local governments. The above three sectors are preferred by financial institutions because they have much more collaterals and obtain implicit guarantee from the government. In other words, soft budget constraint, which is widespread for both state-owned enterprises and local governments, led to their insensitivity of interest rate changes. Investment and financing decisions of state-owned enterprises and local governments aim at “scale maximization” rather than “profit maximization”. Furthermore, rampant liquidity in a sluggish economy gave rise to soaring housing prices as well as the high and rising leverage rate of real estate enterprises. Speculative financing prevailed in the real estate market, and expanding asset bubbles further.

Government stimulation has led to severe imbalances with excessive expansions in assets and liabilities. From the perspective of assets, asset bubbles crowded private investments out. Deflation caused by the sluggish economy raised enterprises’ real financing costs. As a result, a large scale of private capital flowed from the real economy with low returns into capital market especially the real estate market with high returns. Meanwhile, rising prices of land and houses squeezed out capital formation, and most funds for investment involved in the redistribution process of national income in a form of land and real estate transactions.

From the perspective of liabilities, hedge financing changed into speculative financing and Ponzi financing. For example, real estate enterprises relied heavily on speculative financing, and rising housing prices were used to pay interests. Local governments and some state-owned enterprises depended on Ponzi financing. Cash flows generated by inefficient infrastructure are not enough to cover interest payments, and survivals of some state-owned enterprises, labeled as Zombie companies, are sustained by bank loans. At this stage, the overall leverage rate of industrial enterprises remained stable, but the debt to asset ratio of state-owned enterprises kept on increasing. Without further reforms, reform dividends generated in the previous stage may decay gradually, restraining TFP growth further.

### 2.2.3 The Crowding Out Stage of Decelerating Balance Sheet Expansion (2014-2016)

Balance sheet expansion at this stage is still crowding real economy out, but its pace slows down since 2014 (Fig. 7). From the perspective of economic structure, investment and financing in real estate, infrastructure and manufacturing are all declining, indicating a change in the mode

of balance sheet expansion. The new driving force of balance sheet expansion is still on the way. The economy's share of high-end manufacturing and service sector stays at a relative low level, and investment and financing from private sector remain depressed.

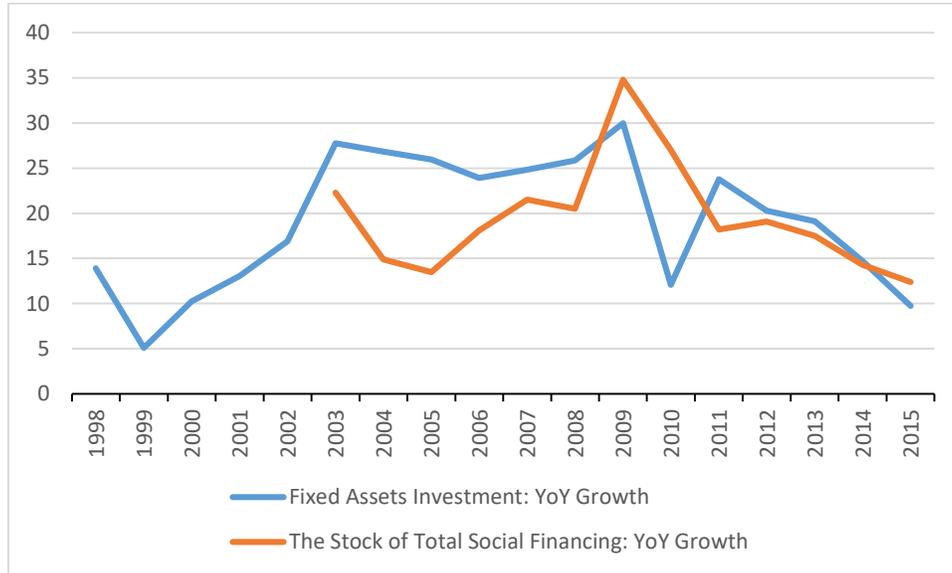
The traditional economic growth pattern is unsustainable. Firstly, real estate investments are restricted by high inventory and strict house purchasing restrictions in first-tier cities. Secondly, manufacturing investments is constrained by serious over-capacity in manufacturing, which is the major part of industrial sector. Thirdly, investments in local infrastructure are restricted by debt burdens of local governments and falling back of real estate market (Fig. 8). Traditional economic driving forces result in the declining investment growth rates, impeding economic growth and balance sheet expansions.

The slowdown of balance sheet expansion does not necessarily mean weakening crowding out effects. The traditional channels of balance sheet expansion still exist. Banks prefer providing financing to the real estate sector and sectors with soft budget constraints such as state-owned enterprises and local governments. Real estate bubble continues to crowd private investment out, inhibiting development of the private sector during economic downturn and resulting in a sharp rise in banks' nonperforming loans. Even if balance sheet expansion slows down, problems caused by debt accumulations and asset bubbles will continue to deteriorate because of the existence of tradition channels of balance sheet expansion. Furthermore, potential systematic financial risks caused by the real estate sector, state-owned enterprises and local governments will rise significantly.

From the standpoint of global economy, China's balance sheet expansion is exerting growing influences on global economic growth as well as global financial stability. First of all, balance sheet expansion in China has created huge domestic demand for commodity imports. Therefore, slowdowns in balance sheet expansion will lead to declining external demand of commodity exporters. Secondly, China's balance sheet expansion has attracted external capital inflows due to the surge of asset prices, leading to one-sided RMB appreciation in the past several years. However, the slowdown of balance sheet expansion and downside risk of asset prices lead to capital outflows, and the depreciation pressure on the RMB is increased. Thirdly, domestic policies related to asset prices trigger concerns on China's real economy performance, intensifying global financial market turmoil. Currently, direct spillover effects of domestic financial market to global financial market are still weak, but shocks and expectation adjustments on China's economic growth substantially

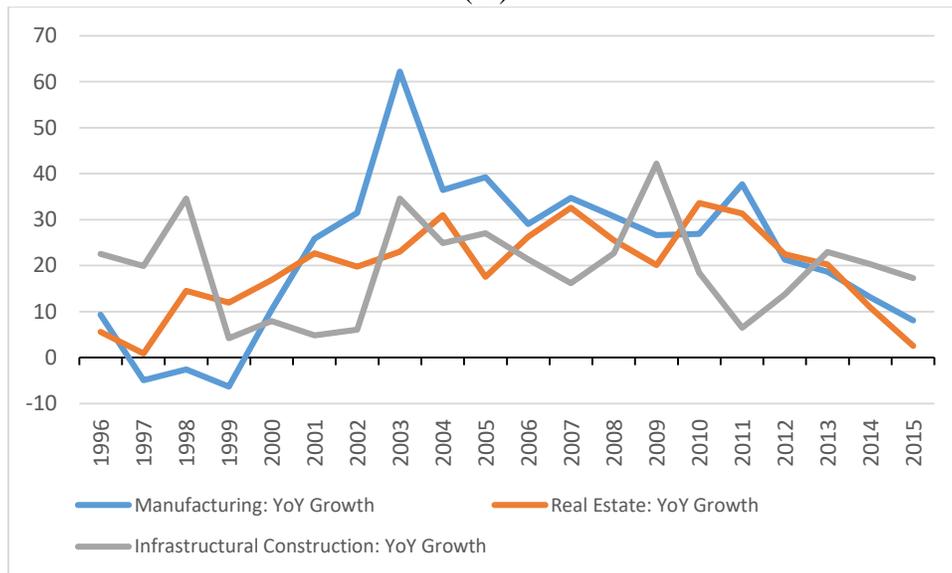
exacerbate fluctuations of global financial market (IMF, 2016). For example, China’s adjustment to CNY fixing mechanism in August, 2015 led to great upheaval in global financial market.

Figure 7 Fixed Assets Investment and the Stock of Total Social Financing (%)



Source: PBoC and NBS

Figure 8 Fixed Assets Investment: Manufacturing, Real Estate and Infrastructural Construction (%)



Source: NBS

### 3. Financial System Reform and Long-Term Economic Growth

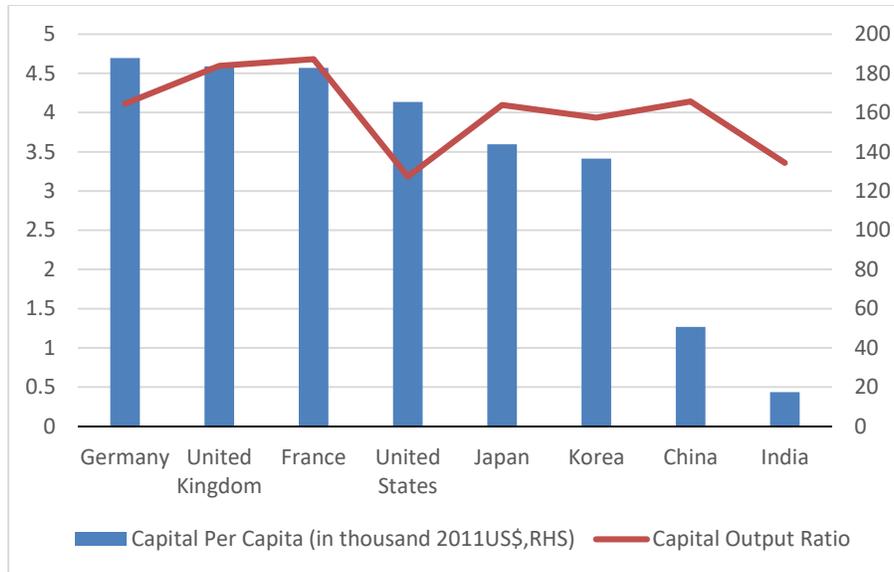
#### 3.1 Potential Economic Growth in China is Determined by Institutional Factors

China's potential economic growth trend depends on institutional reform. Labor, capital and technology progress are three major determinants of potential economic growth rate. A popular view is that China's potential growth rate has slowed down because of an aging population, decreasing national savings rate and technology convergence (Cai, 2014; IMF, 2015). However, China's economy still suffers from institutional distortions, especially distortions in the financial system. Further institutional reforms could improve China's economic growth potential substantially.

Insufficient aggregate demand impedes economic growth in China. At present, cyclical insufficiency of aggregate demand is obvious, including under-consumption due to income inequality and an imperfect social security system, under-investment caused by financial system distortions, weak external demand resulted by slower global growth, and declining government spending due to local governments' debt burden. PPI deflation is one important reflection of insufficient aggregate demand. Therefore, moderately accommodative monetary and fiscal conditions are necessary to cope with insufficient aggregate demand, creating more time and space for further structural reforms.

Balance sheet expansion is still crucial for future economic growth in China. China's overall investment level is far from saturated. The capital to output ratio is at a moderate level compared with world's other major economies, and capital per capita is significantly lower (Fig.9). More importantly, China needs more investments to get prepared for an aging society. Demographic dividend is fading in China, and the size of labor forces aged 15-59 declined for the first time in 2012. China needs to speed up infrastructure constructions and urbanization before the society gets more ageing. Therefore, reasonable balance sheet expansion supported by institutional dividends could not only increase short-term aggregate demand, but promote long-term growth as well.

Figure 9 Capital to Output Ratio and Capital Stock per Capita: International Comparison (2014)



Source: PWT 9.0

### 3.2 Financial System Reform is the Core of Institutional Reforms

After thirty years of reform and opening up, product market reform in China is almost completed, while factor market distortions still remain to be solved. In particular, financial system distortions lead to inefficient allocations of financial resources, which restricts effective supply and long-term growth potential.

Crowding out effect of balance sheet expansion is rooted in financial system distortions. Financial resources are allocated inefficiently to real estate, local governments and the state-owned enterprises by the indirect financing dominated financial system, especially state-owned banks. On the side of assets, capital formation is structurally unbalanced, and investment returns keep diminishing<sup>6</sup> (Dollar and Wei, 2007; Bai, Hsieh and Qian, 2006), resulting in overcapacity in the state-owned industrial sector, real estate bubbles with high inventory, and low utilizations of infrastructure. On the side of liabilities, the leverage rate of the real estate sector, local governments and state-owned enterprises continues to rise. Most efficient private enterprises suffer from financial constraints and high financing costs. Furthermore, PPI deflation for a long period raises real interest rate, inhibiting effective capital formation and future growth potential.

Financial system distortions threaten the financial stability of China's economy. China's current financial system is relatively robust, because financial assets and debts still concentrate in

<sup>6</sup> The investment return of Chinese economy has declined sharply since 2008, which remained around 8%-10% before 2008, but has decreased to 2.7% in 2012. Those data is updated and reported by Bai, C. at the Academic Forum of China's New Supply-side Economics in 2013 based on the same estimation method of Bai (2006),

the state-owned sector, and the government is able to solve short-term regional debt default. However, financial market developments in recent years lead to increasingly close connections between different financial markets, especially the stock market, bond market, real estate market and foreign exchange market. Local financial risk could spill over rapidly to other markets, increasing systematic financial risk of debt accumulation.

### 3.3 Policy Implications on Financial System Reforms

The grand blueprint for the China's future structural reform has been depicted in the 3rd Plenum of the 18th Communist Party of China. The supply-side reform beginning in the end of 2015 focuses on improving resource allocation efficiency and enhancing long-term growth potential. At present, supply-side reforms should aim at cutting down overcapacity and excess inventory, deleveraging, reducing costs, and improving supply-side weaknesses. Financial system reforms are crucial to the successful implementation of all the five tasks.

In the long term, financial system reforms must be directed towards improving financial resource allocation efficiencies. Firstly, soft budget constraints of state-owned sectors should be eliminated, because financing bias towards state-owned sectors due to soft budget constraints leads to overcapacity and high leverages. Secondly, prices of financial resources, such as interest rate and exchange rate, should be determined by market mechanism. To correctly reflect risks and returns and improve supply-side weaknesses, the price mechanism should allocate financial resources to high productivity sectors. Thirdly, reasonable demand for housing should be satisfied by moderate financial supports, while speculative demand has to be controlled. Moderate credit expansion in the household sector will not only accelerate people-oriented urbanization, but also cut down excess housing inventory substantially. Finally, direct financing should be promoted to encourage innovation and entrepreneurship, so that they will not be depressed by the indirect financing dominated financial system and the resulting lack of collaterals any longer.

In the short term, financial system reforms should focus on generating sufficient cash flows to boost aggregate demand and promoting the transition of economic growth pattern. Firstly, private capital should be introduced to realize market-based infrastructure operations. In practice, the sunken cost of infrastructure construction is borne by local governments, and local governments benefit from the rising value of lands surrounding the infrastructure. Future cash flows of infrastructures could be managed by private enterprises to improve operational efficiency.

Secondly, expectation management is crucial to restrain the further booming of asset bubbles as well as avoid sharp fall of asset prices. Development of a healthy real estate market is necessary to sustain urbanization in China, and new opportunities such as urban re-development, cities belt construction and housing quality improvement will thus be created. Thirdly, to improve the performance of private enterprises and encourage investment, monopolistic power of state-owned enterprises in upstream industries should be reduced. Finally, some assets of state-owned enterprises, which are not essential for national and economic security, can be used to pay back debts as well as refinance social pension fund. It will not only improve state-owned enterprises' efficiency so that the risk of balance sheet recession could be reduced, but also narrow the funding gap of the social pension fund so that household consumption could be promoted.

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