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China's soft budget constraint on the demand-side undermines its supply-side structural reforms

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ABSTRACT

China's growth rate has been declining every year since 2010, from 10.6% to 6.7% in 2016, and the IMF expects it to drop further, to 5.8% in 2021. Expert opinion on what to do has ranged widely. The optimists view cyclical factors to be the cause of the downturn, and suggest macro-stimulus as the cure. The pessimists identify supply-side distortions to be the cause, and recommends comprehensive structural reform. We argue that the existence of the soft-budget constraint guarantees the creation of excess capacity and zombie firms, and that the correct demand-side supplement to supply-side structural reform should be the termination of the soft-budget constraint and not the implementation of macro-stimulus. Correction of the distortion in the composition and size of investment will render the composition of output to match the composition of consumer demand, and put the economy on a sustainable growth path that is more consumption-oriented.

1. Expert opinions on the recent growth slowdown

On March 5, 2017, Premier Li Keqiang announced in his work report to the National People's Congress that the target GDP growth rate in 2017 would be 6.5%. This announcement is worrisome because each of the growth rate of 6.7% in 2016, 6.9% in 2015, and 7.3% in 2014 was already the lowest growth rate up to that year since the reform and opening policies were re-started in 1992, see Fig. 1. The direness of this downward drift since 2010 is seen in that the lowest growth rate in the 1992–2013 period was 7.7% in 1999, during the Asian Financial Crisis.

The even more worrisome aspects of China's growth are that Premier Li might be too optimistic, and that China's growth rate would not stabilize soon. The IMF had predicted in October 2016 that China's growth rate would be 6.2% in 2017, 6.0% in 2018 and 2019, 5.9% in 2020 and 5.8% in 2021.¹ One could perhaps seek comfort from the IMF's bleak projections by noting that the diagnoses of this growth slowdown diverge widely across China experts, running the gamut of extreme optimism to deep pessimism.²

Lin (2016) typifies the optimistic faction of analysts when he identifies “external and cyclical factors, not some natural limit” as

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¹ Accessed on 14 January 2017, dataset of the *World Economic Outlook*, October 2016, of the International Monetary Fund: <http://www.imf.org/external/datamapper/datasets/WEO>.

² There has been an equally heated debate before 2001 on the causes of China's high growth rate and of the transformational recessions in Eastern Europe and Russia; see the discussions in *Sachs and Woo (1994)*, *Woo (1999, 2001)*, and *Fan and Woo (2009)*.

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Fig. 1. GDP Growth Rate in China.

the primary causes of the growth slowdown. He therefore urges boosting domestic demand (through “improvements in infrastructure, urbanization efforts, environmental management, and high-tech industries”) to reach the official growth targets. The basis for Justin Lin’s optimism comes from his observation that the China-USA ratio of GDP per capita (in PPP\$) was 20% in 2008 which was what the Japan-US ratio and the Korea-US ratio were in 1951 and 1977 respectively. Since Japan and Korea went on to grow 9.2% and 7.6% annually, respectively, for the next 20 years, Justin Lin (2015) concludes that “in the 20 years after 2008, China should have a potential growth rate of roughly 8%.”

Other notable members of the optimistic faction are Spence and Hu (2016) who feel that despite challenges like significant industrial over-capacity and excessive credit expansion, “the reality is that China’s transition to a more innovative, consumer-driven economy is well underway. This suggests that the economy is experiencing a bumpy deceleration, not a meltdown.” The term “bumpy” refers to being temporarily away from the norm, and Spence and Hu advises the Chinese government to moderate future bumps by increasing the transparency of its decision-making and communicating its policy decisions more effectively.

The important point to note about the optimistic camp is that neither Justin Lin nor Michael Spence and Fred Hu mention any specific structural or institutional reform in their articles. The latter focused on moderating the bump rather than on raising the trend growth rate.

Jin (2016), on the other hand, is pessimistic about sustaining the high growth of the past because she sees the state-owned enterprise (SOE) sector “as choking the private sector” through the unfair competition resulting from the preferential treatment given to SOEs (like cheap land and cheap capital). Keyu Jin calls for root-and-branch reform of the entire social system:

“The economic reforms China needs now presuppose political reform; ... it will have to overhaul its governance system – and the philosophy that underpins it ... [The] focus must be on institutional development. Sustainable long-term growth – based on efficiency improvements, productivity gains, and innovation – is possible only with an effective institutional framework, and that requires fundamental changes to the political and regulatory systems. Only by overcoming vested interests and building a more efficient bureaucracy, bound firmly by the rule of law, can the reforms China needs be pushed through.”

Within the pessimistic camp, different experts have identified different causes for the slowdown, however. Cai (2012) had pointed out that China – unlike Japan and Korea – was aging before it was affluent, and warned that this demographic factor could cause China to fall into the middle-income trap.³ The abrupt drop in Japanese growth rates had occurred in the early 1990s when the Japanese dependency ratio (the proportion of population younger than 15 and older than 60) started going up sharply, after rising very slowly in 1970–1990. Similarly, Korean growth rates slowed down significantly after the Korean dependency ratio bottomed out in 2010 and started climbing up rapidly.

China’s dependency ratio bottomed in 2010, and its subsequent rise is quite rapid but still a little slower than in Japan after 1995 and in Korea after 2010. Using demographically-adjusted growth accounting, Cai and Yang (2013) had projected that the annual

³ See Woo (2012) for a fuller discussion of the middle-income trap, and its relevance for China.

potential growth rate in the 2016–2020 period was 6.1%. This is the basis of Cai Fang's call for the relaxation of the one-child policy and of the household registration (*hukou*) system to retard the rise of the dependency ratio via higher fertility and to increase the labor participation rate via faster urbanization.

One could plausibly argue that Cai and Yang's (2013) prediction of 6.1% growth would have come true in 2016 if not for the monetary and fiscal stimulus to keep zombie SOEs alive, enlarge the inventory of unoccupied housing in some regions, and increase the demand for goods made by firms with excess capacity. It is likely that Cai and Yang's (2013) prediction would also be falsified in 2017 because 2017 is a politically-sensitive year as the once-a-decade change in top political leadership would occur in late 2017 at the 19th Congress of the Communist Party of China.

A significant number of experts hold the middle position that the post-2010 downturn is the product of both cyclical (demand) factors and negative supply-side trends. For example, Yu (2016b) states that “China faces two separate challenges: the long-term issue of a declining potential growth rate and the immediate problem of below-potential actual growth”; and Yu (2016a) therefore points out that “another stimulus package that increases aggregate demand through infrastructure investment is needed.”⁴

This middle position is a reasonable view, but it has significant drawbacks. First, it is useful to guiding policy only when one could specify the relative contribution of each set of causes to the decline in the growth rate. Second, this middle position would misinterpret the excess capacity in industrial firms as evidence of inadequate demand because it does not take structural mismatches into account. For example, in China's distorted economy, large excess supply could exist simultaneously with large excess demand for a prolonged period: ghost cities in inland cities, and soaring housing prices in the large coastal cities.

It appears that the Chinese government is more on the side of economic reform rather than on the side of macro-stimulus to stabilize (and also perhaps raise) China's growth rate. In a speech that President Xi Jinping delivered in January 2016, he stated:

China could not rely on “stimulating domestic demand to address structural problems such as over-capacity”, he said. “The problem in China is not about insufficient demand or lack of demand, in fact, demands in China have changed, but supplies haven't changed accordingly,” Xi said. He gave the example of Chinese consumers shopping overseas for daily products such as electric rice cookers, toilet covers, milk powder and even baby bottles to show that domestic supply did not match domestic demand. Xi said [that China] faced “outstanding problems of unwieldiness, puffiness and weakness”. “The main symptom is limited innovation, and that's the Achilles' heel of China's [macro] economy,” Xi said.⁵

This paper makes the case that supply-side structural reform is the most effective way to address the present economic problems of China; and that what needs to be done on the demand-side is not the implementation of macro-stimulus but the termination of the soft budget constraint.

2. Part 2: sizing up the dimension of the supply-side problem

A most persuasive case for supply-side structural reform is instinctively made when one looks at Table 1. This shows the production capacity and utilization rate in seven major heavy industries in China: crude steel, cement, flat glass, oil refining, electrolytic aluminum, paper & paperboard, and shipbuilding. The increase in production capacity for these heavy industries over the 2008–2014 period ranged from 36% (shipbuilding) to 111% (electrolytic aluminum). Five of the seven experienced increases of over 60% increase.

The most disturbing development in Table 1 however, is that there was also a drop in the capacity utilization rates in the 2008–2014 period in all six industries for which this data is available. For example, the production capacity of crude steel rose from 0.6 billion ton in 2008 to 1.1 billion ton in 2014, reflecting an increase of 77% over the six years.⁶ But the utilization rate in the industry dropped significantly, from 80% to 71% (and then to 67% in 2015). Similarly, the production capacity of China's cement industry climbed 66% between 2008 and 2014, from 1.9 billion ton to 3.1 billion ton, while its utilization rate dropped from 76% to 73% (and to 71% in 2015).⁷

It is instructive to note that the observed excess capacity phenomenon exists in these Chinese industries only because China has become a large economy in global terms. If China had remained as it was in 1980, a price-taker in the international markets, each industry would simply have exported its surplus products and not face complaints from its trade partners. Potential anti-dumping measures by China's trade partners alongside and potential large price declines have prevented China from eliminating its pervasive excess capacity through exports.

The immediate outcome from the large excess capacity in so many industries means that many firms are unable to service the bank loans that were used to finance the expansion in capacity. The investment house CLSA has put the nonperforming loan (NPL)

⁴ Yu (2016a) helpfully adds that the “key will be to finance projects mainly with government bonds, instead of bank credit.” While this suggestion would help to prevent a banking crisis created by non-performing loans, this additional debt servicing might, however, contribute to a future fiscal crisis instead (which is the same as when the state budget has to bail out the SOBs).

⁵ Quote is from “Xi Jinping's stance on China's economy laid bare as he distances hallmark policy from Western-style supply-side economics” *South China Morning Post*, May 10, 2016.

⁶ “[An analyst] has calculated that from 2004 to 2014, global steel production increased by 57% – China contributed a staggering 91% to this increase. As a result, its steel industry now accounts for more than half of global output, or more than twice the combined output of the next four biggest steel makers: Japan, India, the US and Russia” (European Union Chamber of Commerce in China, 2016, pp. 16).

⁷ The scale of the expansion in the production capacity of the cement industry in China is well captured by the observation that “according to data from China's National Bureau of Statistics and the US Geological Survey, in just two years—2011 and 2012—China produced as much cement as the US did during the entire 20th century” (European Union Chamber of Commerce in China, 2016, pp. 1).

Table 1

Excess capacity galore led to zombie firms.

Source: [European Union Chamber of Commerce in China \(2016\)](#) for 2008 and 2014 data. [UBS Global Research \(2016\)](#) for 2015 data. Normal capacity usage, according to international experience, is 79%–83%, [Hu and Zhuang \(2015\)](#).

	Capacity (million ton)		% increase	Utilization rate (%)		
	2008	2014		2008	2014	2015
Crude steel	644.0	1140.0	77.0	80	71	67.0
Electrolytic aluminium	18.1	38.1	110.5	78	76	80.7
Cement	1870.0	3100.0	65.8	76	73	71.3
Oil refining	391.0	686.0	75.4	80	66	na
Flat glass	650.0	1046.0	60.9	88	79	68.0
Paper & paperboard	89.0	129.0	44.9	90	84	na
Shipbuilding	28.8	39.1	35.8			
Coal				na	na	65.8

ratio of the banking system to be in the range of 15 to 19%, compared to the official estimate of 1.6%.⁸ The CLSA estimate works out to the value of the NPLs being equivalent about 10 to 15% of GDP.

3. Part 3: the return of non-performing loans (NPLs) to economic center stage

The phenomenon of a high NPL ratio is an old one in China but has not been seen for the almost a decade. In 1996–2000 period, there was widespread concern about possible bank runs in China because many foreign financial experts like Deutsche Bank and Standard and Poor's had put the nonperforming loans rate (NPL ratio) in the Chinese banking system in 1999 to be 50 to 70% ([Chang, 2001, pp. 124](#)). In response, Premier Zhu Rongji initiated a process of bank recapitalization that would incrementally raise the CAR to 8% by 2004, and reduce the NPL ratio to a low level by 2006 by having state-owned Asset Management Companies (AMCs) buying a large amount of the NPLs at the original face value.

Truth be told, there was never a serious possibility of a bank run or a bank system collapse in the late 1990s and early 2000s. This was because the owner of the banks was the Ministry of Finance, and it was solvent. The value of state assets could easily guarantee the safety of the bank deposits.

Since there was no real danger of the NPLs inducing a financial crisis, it is interesting to ask why Zhu Rongji had bothered with cleaning up the balance sheets of the state-owned banks (SOBs). The reason is that in 1998 China had made enough progress in the negotiations with the United States on its application for WTO membership that agreement was within reach. WTO membership would require that national treatment be given to foreign banks after a short transition period, and the presence of a high NPL ratio among Chinese banks would mean that the competition from the foreign banks could push the SOBs into bankruptcy.

To see how WTO membership would threaten the SOBs, consider the minimum cash flow requirement of a domestic bank (assuming that the required reserve ratio is zero):

$$r_D D = r_L [D - NPL]$$

where r_D = deposit rate, and r_L = lending rate, and D = amount of deposit.

Now if $NPL = (1/3)D$ and $r_D = 4\%$, then the minimum lending rate charged by the domestic bank is 6%, $r_L = 6\%$.

If the newly-entered foreign bank has no NPLs, then it would be able to entice the entire customer base of the domestic by setting its deposit rate marginally higher than that of the domestic bank and by setting its lending rate a little lower, e.g. $r_D = 4.2\%$ and $r_L = 5.8\%$.

In order to incentivize the SOBs to guard against the creation of new NPLs, the presidents of the SOBs were informed that if the NPL ratio were to rise for three consecutive years, then he would be dismissed. It was rumored that the president of each SOB would then tell provincial-level bank chiefs that if the NPL ratio for the province were to increase for two consecutive years, the provincial chief would be replaced. The result was that the time interval over which the NPL ratio could rise was progressively shortened with each step down the organizational hierarchy. There was thence a new higher level of scrutiny and caution about extending new loans, and the NPL ratio declined rapidly between 1998 and 2006.

In retrospect, the first term of the Hu-Wen administration laid the basis for the creation of NPLs in the later years. In a careful examination of the “credit availability of listed firms in China between 2003 and 2011”, [Herrala and Jia \(2015\)](#) found “that favoritism of state-owned firms in access to credit grew continuously more pronounced until at least 2011. In other words, this pattern continued even after the accommodative policies in response to the first phase of the 2008–09 global financial crisis had abated.” The growth rate of total bank loans in 2002–2007 (first term of Hu-Wen) was a little higher than in 1997–2002 (final term of Jiang-Zhu) but the proportion of loans going to enterprises with significant state ownership was much higher in 2007 than in 2003.

In November 2008, with a Global Financial Crisis (GFC) looming, the leaders at the G20 Summit agreed that every country must undertake macro-stimulus because any country doing it alone would soon be running large trade deficits and hence be forced to end

⁸ “China's real bad debt ratio at least nine times the official number and still growing” [South China Morning Post](#), May 6, 2016.

the macro-stimulus prematurely. In December 2008, Wen Jiabao announced plans to inject an annual macro-stimulus of 7% of GDP in 2009 and 2010 to reach a target annual growth rate of 8%. Given the severity of the GFC, the IMF predicted a lower growth rate of 6.7% in both 2009 and 2010.

In testimony to the US Congress in February 2009, we predicted that China's growth rate in 2009 would fall between the forecasts of Premier Wen and the IMF:

China's growth in 2009 is likely to lie closer to Premier Wen's 8 % target than to the IMF's projection of 6.7 % ... The state-owned banks (SOBs) will be happy to obey the command to increase lending because they cannot now be held responsible for future nonperforming loans. The local governments and the state-owned enterprises (SOEs) can now satisfy more of their voracious hunger for investment motivated by the soft-budget constraint situation where the profits would be privatized and the losses socialized. The stimulus package will [therefore] work well ... The price ... will be paid later by the recapitalization of the SOBs and a more depleted natural environment.⁹

It turned out that actual GDP growth exceeded Wen Jiabao's expectations as well as our own by quite a large margin – 9.4% in 2009 and 10.6% in 2010. What we had not accounted for adequately in our 2009 prediction was the pervasiveness of the re-appearance of the soft-budget constraint behavior at the end of 2008 when the SOEs and the SOBs were tasked with preventing economic downturn. The abandonment of Zhu Rongji's micro-incentive of holding the SOB president accountable for an upward trend in the NPL ratio greatly boosted GDP growth in 2009. But this re-emergence of pervasive soft-budget constraint has caused a large amount of excessive capacity in China's heavy industries and is a serious NPL problem in the SOBs.

The relative lack of concern for financial sustainability from 2008 onward is encapsulated in the example of investment in railways. Table 2 shows the length of railways and highways in operation in 2002, 2008 and 2014. The network of railways increased by 32,100 km in 2008–2014 compared to 7800 km in 2002–2008, a four-fold increase over the earlier period.¹⁰ Most impressively, China's high-speed rail (HSR) began service in April 2007 with less than 700 km of track, and within less than a decade “has the world's longest High-Speed Rail (HSR) network with over 19,000 km (12,000 mi) of track in service as of January 2016, which is more than the rest of the world's high-speed rail tracks combined, and a network length of 30,000 km (19,000 mi) is planned for 2020.”¹¹

The point is that no prudent cement (steel) enterprise would have increased production capacity to supply the amount of cement (steel) required to build the railways in the specified short-time period. A prudent cement (steel) enterprise, before accepting the order for its product, would have had to think carefully about the usage of its additional production capacity after the transportation projects were finished, i.e. to think carefully about the underlying long-run demand for cement (steel). The prudent owner of the cement firm would therefore have negotiated with the railways company to arrive at some combination of the following three actions:

1. The cement firm would accept only a proportion of the original order from the railways company (hence requiring the latter to import cement);
2. The cement firm would deliver the contracted amount over a longer time period (thereby forcing the railways company to lengthen the construction period); and
3. The cement firm would deliver the contracted amount at a price that reflected the longer-term prospective rapid depreciation or write-off of future excess-capacity.¹²

Because the largest Chinese cement producers are SOEs, however, the objective of the SOE manager is to maximize his career ahead of profits of the SOE. Career maximization means that the SOE manager will obey orders promptly and consistently, and recognize that the first priority is to contribute to the fulfillment of the targets of the national plan e.g. to construct 15,800 km of HSR lines in the next six years. The SOE manager has no direct or immediate incentive to negotiate with the railways company to reduce the size of the order or to deliver the product over a longer period or to charge a price that would reflect the long-run costs of such a short-term surge in output.¹³

4. Part 4: financial instability, and fiscal crisis

By the beginning of 2014, knowledgeable analysts had started warning about the worsening levels of excess capacity and the inevitable appearance of NPLs. Since NPLs would not exist if the SOEs could pay back the loan principal before the debt servicing difficulties appear in the near future, the government began instructing the SOEs to issue new shares and pay back the bank loans

⁹ Woo (2009).

¹⁰ Column (a) in Table 2.

¹¹ “High-speed rail in China,” Wikipedia, https://en.wikipedia.org/wiki/High-speed_rail_in_China; access May 19, 2016. The increase in the electrified railways network and the expressways network in the 2008-2014 period was also substantially greater than in the 2002-2008 period. It was roughly 1.5 times in both cases (columns (b) and (c) in Table 2).

¹² We are grateful to Lauren Johnston for this third point.

¹³ Moreover, it is always to the benefit of the manager of a state-controlled cement factory to have the factory grow bigger under his watch because this signals that he is capable of managing bigger projects. If he is lucky, he will be transferred to oversee more important projects before the railways project is completed. If not, he can count on the soft-budget constraint mechanism to come to the rescue of the SCE.

Table 2
Length of transportation routes (1000 km).

	Total railways in operation	National electrified railways	High speed railway	Total highways	Expressways
2002	71.9	<i>17.4</i>	<i>na</i>	1765.2	<i>25.1</i>
2008	79.7	<i>25.0</i>	<i>0.7</i>	3730.2	<i>60.3</i>
2014	111.8	<i>36.9</i>	<i>16.5</i>	4463.9	<i>111.9</i>

High-speed rail service in China was introduced on April 18, 2007.

Italicized numbers refer to a subset of the total.

with the proceeds. Simultaneously, the government also started promoting the stock market to the general public as a good investment vehicle for savings. The result of this talking-up of the stock market by government was that the Chinese stock market climbed steeply upward, a rise that itself was helped by stock market manipulation by some large investment funds. The Shanghai Stock Market Index rose 150% between June 2014 and June 2015.

The dramatic stock market boom ended badly in the form of an equally dramatic stock market crash that began on June 12, 2015. The Shanghai Stock Market specifically had lost one-third of its value by July 12, 2015. The reason for the reversal of stock prices is obvious. What rate of return could an SOE pay on its equities when it could not afford to pay the average loan rate? The answer is that the rate of return on this SOE's shares had to be lower than the average loan rate. This understanding would inevitably prevail, and the stock bubble would then end. The 2014–15 attempt to use the stock market to forestall the NPL problem resulted instead in financial market instability.

Ultimately, the Chinese government would be forced to remove the NPLs from the balance sheets of the SOBs because otherwise the foreign banks would drive the SOBs out of business by being able to charge a lower margin between the deposit rate and the lending rate (as explained earlier herein). The important question thus becomes how much of a burden would this recapitalization of the SOBs be to the fiscal sustainability of the state?

For brevity, in the rest of this part of the paper, we will use the term Debt as the shorthand for Government Debt. Fiscal sustainability is possible only when the Debt-GDP ratio does not follow an explosive path. Fiscal sustainability is possible only when the Debt-GDP ratio can ultimately converge to a finite steady-state value.

Fiscal sustainability is also however, at risk where the equilibrium Debt-GDP ratio is very high and reduces financing of important state programs. The European Union has adopted the safety standard of the Debt-GDP ratio to be no higher than 60%. For poor developing countries, the World Bank's Heavily Indebted Poor Country Initiative regarded a ratio of between 30 and 50% as the threshold, depending on the strength of a country's institutions.¹⁴

The mathematical condition for the existence of an equilibrium Debt-GDP ratio is given by:

$$y > r$$

where

y = trend growth rate of real GDP

r = real interest rate on government debt

When $y > r$, the steady-state equilibrium (Debt/GDP) value ratio is:

$$(\text{Debt}/\text{GDP})_{\text{steady-state}} = (f + b)/(y - r)$$

where

f = primary fiscal deficit rate

= [state expenditure excluding debt service – state revenue] / GDP

b = [increase in NPL in SOBs] / GDP because the state will take over the NPLs when it recapitalizes the SOB

The average value of long-term growth rate (y) for the 1978–2011 period is above 9.5%. The historical value for the primary deficit of the Chinese state budget (f) is usually between 2 and 3%. The real interest rate is in the historical range of 3 to 7%. The NPL-generation process that led to the NPL ratio being 50 to 70% in 1999 gave an annual NPL creation rate (b) in the range of 7.4 to 10.8% of GDP.¹⁵

Table 3 examines the role of NPLs in influencing the equilibrium Debt-GDP ratio by simulating the steady-state equation:

$$(\text{Debt}/\text{GDP})_{\text{steady-state}} = (f + b)/(y - r)$$

We take the official growth target of 6.5% for 2017 to be the *baseline* (business-as-usual, BAU) case. The *high growth rate scenario* is

¹⁴ www.development-finance.org/en/.../83-debt-sustainability-indicators-2009-02.html. We thank Lauren Johnston for pointing this out to us.

¹⁵ The range is 7.4 to 10.3% of GDP if we assume that NPLs started appearing in 1979 when market-oriented reforms began; and 7.7 to 10.8% of GDP if we assume that NPLs started appearing in 1985 when the government switched the financing of SOE investment from budget allocations to bank loans (*bo gai dai*).

Table 3

Scenarios for the Debt-GDP ratio in steady-state.

$$(\text{Debt}/\text{GDP}) = (f + b) / (y - r)$$

y = trend real GDP growth rate, %

f = primary fiscal deficit as % of GDP

b = value of NPLs created annually as % of GDP

r = real interest rate, %

Assume that the government will keep the primary deficit of state budget (f) at 2% of GDP						
Annual NPL creation as % of GDP	Low interest scenario, r = 2.5%			High interest scenario, r = 4.5%		
	b = 9%	b = 5%	b = 1%	b = 9%	b = 5%	b = 1%
High growth, y = 7.2%	234.0	148.9	63.8	407.4	259.3	111.1
Baseline growth, y = 6.5%	275.0	175.0	75.0	550.0	350.0	150.0
Low growth, y = 5.8%	333.3	212.1	90.9	846.2	538.5	230.8

7.2%, and the *low growth rate scenario* is 5.8%. Given the low-interest environment that the world has experienced since 2008, we will define low interest scenario for government bonds to be 2.5%, and the high interest scenario to be 4.5%.

Taking the historical process of NPL creation (b) to be 9% of GDP, we define b = 5% for moderate tightening of the soft-budget constraint, and b = 1% for severe tightening of the soft-budget constraint. Finally, we assume that the government maintains its usual tight fiscal policy by setting f = 2.

Table 3 shows that all cases with b = 9% or b = 5%, (Debt/GDP) is in the range of 149% to 846%, which is way above the safe level of 60% as long as b is above 5%, there is no safe (Debt/GDP) ratio even if there is high GDP growth rate plus low interest rate. For the high interest rate scenario with b = 1%, (Debt/GDP) is in the 111% to 231% interval, which is still too high to be safe. In the low interest scenario with b = 1%, the (Debt/GDP) ratio is 75% when there is baseline GDP growth (6.5%), and is 91% when there is low GDP growth (5.8%). The only case that could be considered safe is b = 1% in the low interest scenario with high GDP growth, where (Debt/GDP) is 64%, which is a little above the safety limit of 60%.

The simulations emphasize that fiscal sustainability is under threat when the GDP growth rate is below 7.2%. *In short, under the present New Normal Economy growth phase the soft-budget constraint must be eliminated completely in order for fiscal sustainability to be possible.*

5. Part 5: the economic policy agenda

The two most common sets of policy actions that have been proposed to deal with the post-2010 slowdown are (1) demand-side macro-stimulus via fiscal-monetary policies; and (2) supply-side structural reform. These two sets of instruments represent the choice between short-run growth stability and long-run stagnation on one hand, and slower growth in the short-run and avoidance of the middle-income trap in the long-run on the other hand. Because the macro-stimulus of state-directed investments during the 2003–2013 period crowded out private sector growth and; and served as a lifeline for economically-inefficient “zombie firms”,¹⁶ the termination of the soft budget constraint and not implementation of macro-stimulus is the correct demand-side supplement to supply-side reform.

Zhu Rongji had successfully curbed reckless investments by SOEs operating under the soft-budget constraint by holding the top management of the SOBs accountable for the appearance of NPLs, which stopped the reckless supply of loans by SOBs. What China also needs to do is to reduce the reckless demand for bank loans. This will require that the career-maximizing practices of the managers of SOEs and SOBs become identical to the long-run profit-maximizing practices that owners of private firms in a modern market economy would adopt. To correct the incentives faced by China’s managers and government officials, the share of the private sector in firm ownership should increase. Government officials will have less incentive to soften the budget constraints of firms; and firm managers will have less political clout to demand the softening of their budget constraints.

The first important set of supply-side structural reforms is address the problem of laid-off workers by setting up an adequate social safety net; and by establishing effective retraining programs. These adjustment programs are crucial not only for political and moral reasons but also for a fast-growing economy to endure. Lifelong learning is needed because a fast-growing economy is a fast-changing economy that requires a constantly changing composition of labor skills.

Break-through reforms should also occur concurrently in the three factor markets because of the seriousness of the situation in all three. Because physical infrastructure is no longer the foremost binding growth constraint, the task of the financial system should no longer be to channel savings cheaply toward funding government investment projects. Instead, the state must now promote the establishment of private small and medium-size banks because these are the most effective vehicles to support the growth of small and medium-size enterprises (SMEs) and of rural firms.

Land reform is particularly important in rural areas. Privatization of rural land to the current leaseholders will provide collateral for them to become entrepreneurs, and/or to free them to move to cities permanently. At present most urban land remains owned by

¹⁶ Tan, Huang, and Woo (2016).

the state, and this means that the state can afford to construct public housing for the new migrants under the principle of future home ownership (as practiced in Singapore). For example, after 10 years, the new migrants would have the first right to buy the public housing units at the original construction price. Such migration and greater labor market flexibility will, however, need to be supported by a rapid phasing-out of the household registration (*hukou*) system, and of the restrictions on labor movement to the large and more developed coastal cities like Shanghai and Guangzhou.

Enhancing innovation is the most important supply-side reform in the long-run, and there are two main bottlenecks in China's innovation capabilities. The first is creativity because the Chinese education system emphasizes respect for and attention to existing knowledge and doctrine, rather than fostering critical thinking and challenging existing limits. The second major bottleneck is the unequal access to innovation resources and the need for greater support of SMEs (which form the most dynamic sector in the economy), and also the private sector in general (the most efficient innovator in the economy). Root-and-branch reform of the education and financial systems are needed (Fu, Hou, and Woo, 2016).

We end by stressing again that supply-side structural reforms cannot work to their full potential - and might be even undermined - unless the soft-budget constraint mechanism is eliminated from the investment considerations by firms. As long as SOEs face soft-budget constraints, the composition of output (resulting from the composition of investment) would differ significantly from the composition of consumer demand.

References

- Cai, F. (2012). The coming demographic impact on China's growth: The age factor in the middle-income trap. *Asian Economic Papers*, 11(1), 95–111 (Winter/Spring, 2012).
- Cai, F., & Yang, L. (2013). Population change and resulting slowdown in potential GDP growth in China. *China & World Economy*, 21(2), 1–14.
- Chang, G. (2001). *The coming collapse of China*. New York: Random House, Inc.
- European Union Chamber of Commerce in China (2016). Overcapacity in China: An impediment to the party's reform agenda. www.europeanchamber.com.cn.
- Fan, G., & Woo, W. T. (2009, July). The Parallel Partial Progression (PPP) Approach to Institutional Transformation in Transition Economies: Optimize Economic Coherence Not Policy Sequence. *Modern China*, Vol. 35(4), 352–369.
- Fu, X., Hou, J., & Woo, W. T. (2016). Technological innovation policy in China: The lessons, and the necessary changes ahead. *Economic Change and Restructuring*, 49(2–3), 139–157.
- Herrala, R., & Jia, Y. (2015, Summer). Toward state capitalism in China. *Asian Economic Papers*, 14(2), 163–175 (2015).
- Hu, B., & Zhuang, J. (2015, July). Knowledge work on excess capacity in the People's Republic of China. *Consultant report, Asian Development Bank, project number: SC 103697* (2015).
- Jin, K. (2016, February 11). Overhauling China. *Project syndicate* (2016).
- Lin, J. Y. (2015, January 29). How fast will China grow? *Project syndicate* (2015).
- Sachs, J. D., & Woo, W. T. (1994, April). Structural Factors in the Economic Reforms of China, Eastern Europe, and the Former Soviet Union. *Economic Policy*, 101–145.
- Spence, M., & Hu, F. (2016, February 28). China's volatile growth. *Project syndicate* (2016).
- Tan, Y., Huang, Y., & Woo, W. T. (2016, Fall). Zombie firms and the crowding-out of private investment in China. *Asian Economic Papers*, 15(3), 32–55 (2016).
- UBS Global Research (2016, June 10). *China economic perspectives: The economic and financial impacts of excess capacity reduction*.
- Woo, W. T. (1999, January). The Real Reasons for China's High Economic Growth. *The China Journal*, Vol. 41, 115–137.
- Woo, W. T. (2001). Recent Claims of China's Economic Exceptionalism: Reflections Inspired by WTO Accession. *China Economic Review*, Vol. 12(2/3), 107–136.
- Woo, W. T. (2009, February 17). China in the current global economic crisis. *China's role in the origins of and response to the global recession, hearing before the U.S.-China Economic and Security Commission, 111th Congress (first session)* (pp. 78–90). (2009).
- Woo, W. T. (2012, November). China Meets the Middle-Income Trap: The Large Potholes in the Road to Catching-Up. *Journal of Chinese Economic and Business Studies*, Vol. 10(4), 313–336.
- Yu, Y. (2016a). China's Next stimulus. *Project syndicate* (2016).
- Yu, Y. (2016b). China's incomplete growth strategy. *Project syndicate* (2016).