16. ‘Strong on quantity, weak on quality’: China’s financial reform between 1978 and 2018

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Introduction

When China’s economic reform began at the end of 1978, the country had only one formal financial institution, the People’s Bank of China (PBC). This served as both the central bank and the commercial bank and accounted for 93 per cent of the country’s total financial assets. In the following 40 years, the financial sector experienced major reform, opening and development. Today, China’s ‘big four’ banks are regularly ranked among the 10 largest in the world. China’s equity and bond markets have also joined the top ranks globally in recent years. China’s currency, the renminbi (RMB), is part of the International Monetary Fund’s Special Drawing Rights (SDR) basket, along with the US dollar, the euro, the British pound and the Japanese yen.

In this chapter, we take stock of China’s past financial reform by asking five questions. What is unique in China’s financial reform experience? What logic lay behind policy? How did the reform strategy contribute to China’s economic growth and financial stability? Why did systemic financial risks escalate recently? And what further steps are required to establish an efficient and robust financial system, and contain systemic financial risks?

Our key findings can be summarised as follows. First, China’s financial reform and development during the past four decades have been strong on quantity, but weak on quality. China has a large number of financial institutions and huge volumes of financial assets. Yet Chinese authorities maintain serious and extensive restrictions on financial markets, including on interest rates, exchange rates and funds allocation.

Second, this unique path derives from a much broader economic reform strategy—the dual-track approach between the state and the nonstate sectors. To support less efficient state-owned enterprises (SOEs), the government had to intervene in the allocation and pricing of production factors, which led to a dual-track approach to liberalisation in product and factor markets. Deep financial repression is a form of distortion. Repressive financial policies resulted in dual-track financial markets between the formal and informal sectors.

Third, this pattern of financial reform worked quite well initially, evidenced by strong economic growth, but it now creates risks. Empirical analyses confirmed that the positive ‘Stiglitz effect’ of financial repression on growth dominated in the 1980s and 1990s in China, while the negative ‘McKinnon effect’ dominated in the 2000s. Repressive financial policies also helped maintain financial stability, as they underpin investor confidence, although with increasing consequences of moral hazard over time.

Fourth, systemic financial risks increased dramatically over time, especially after the Global Financial Crisis (GFC). There were several causes. Persistently slower economic growth weakened micro-level balance sheets, with an increasing proportion of zombie firms. The combination of large money supply—from the bank-dominated financial system and the government’s implicit guarantee policy—and the limited pool of investible assets expanded financial risks. Shrinking policy flexibility reduced investor confidence and increased market volatility.

Fifth, to complete the task of building an effective financial system, the government needs to take at least three further steps: create a level playing field, allow markets to work and improve financial regulation. Enforcing a stronger market will ultimately determine success or failure. Specifically, the government needs to end three dual-track systems—stopping protection for SOEs and state intervention in the financial market. The authorities will also need to make the regulatory system more independent, professional and authoritative.

China’s unique financial reform strategy

About the turn of the twentieth century, China had a relatively strong financial sector. At that time, Shanghai was a major international financial centre. After the 1867 Paris International Monetary Conference, most Western countries shifted from the previous bimetallism (of gold and silver) to the sole gold standard. Even the traditional silver-bloc countries such as India and Japan also adopted the gold standard before 1900. As China was the only major country continuing with the silver standard, this shift in the international monetary system delivered a positive shock to the Chinese economy—increasing liquidity and devaluing the currency. Therefore, large parts of the economy prospered—particularly the textile industry, the property sector, the stock market and the banking industry. Such robust performance continued even as the Great Depression struck the Western world from 1929. The economic boom ended abruptly after the US Congress adopted the *Silver Purchase Act* in 1934.

The financial industry nearly collapsed during China's war against Japan in 1937–45 and the Chinese civil war in 1946–49. During the latter period, undisciplined money supply caused hyperinflation and macroeconomic instability, which in turn contributed to the fall of the National Party government. Soon after the Communist Party of China (CPC) took power in 1949, it started its socialist transformation. All financial institutions were nationalised after 1952 and then closed. All funds were collected and distributed through the central planning system, and there was little need for financial intermediation. At the beginning of economic reform in 1978, the PBC was the only financial institution operating, serving central and commercial banking functions.

In 1979, authorities quickly reestablished the Bank of China (BOC) and the People's Construction Bank of China (later renamed the China Construction Bank or CCB) and, in 1978, the Agricultural Bank of China (ABC). In 1984, the old PBC was split into two institutions, the Industrial and Commercial Bank of China (ICBC) and the new central PBC, and the People's Insurance Company of China (PICC) was reestablished. In 1991 and 1992, respectively, the government created the Shenzhen and Shanghai stock exchanges.

China's experience of financial reform exhibits a unique pattern. China was 'strong in establishing financial institutions and growing financial assets, but weak in liberalizing financial markets and improving corporate governance' (Huang et al. 2013: 44). China has large numbers of banking, insurance, securities and other financial institutions. In the banking sector, there are three policy banks, five large commercial banks, 12 national joint stock banks, 133 city commercial banks, five private banks and 859 rural commercial banks. In 2016, the 'big four' were all among the world's five largest banks and were identified by the Financial Stability Board as globally systemically important (Table 16.1). At the same time, Chinese financial markets and assets grew exponentially. Domestic credit provided to the private sector rose from 49 per cent of gross domestic product (GDP) in 1979 to 199 per cent in 2016. Broad money supply (M2) is already greater than in the United States and its proportion to GDP—208 per cent at the end of 2016—is among the highest in the world.

By the end of 2016, domestic stock exchanges had a total of 3,052 listed companies, and total market capitalisation reached RMB50.8 trillion (Table 16.2). China had the second largest market capitalisation in the world, accounting for 11.3 per cent of the global total. The market value of corporate and government bonds rose 151 times, from RMB418 billion in 1997 to RMB63.7 trillion in 2016. The proportion of debt finance in the country's total social financing also increased, from 5 per cent to 24 per cent. China is now the world's third largest debt market. China's insurance industry ranked third in the world at the end of 2016, with total insurance industry assets of RMB15.1 trillion and gross premium income of RMB3.1 trillion.

Table 16.1 Ranking of 10 largest banks in the world, 1996 and 2016 (US\$ billion)

1996				2016			
	Bank	Country	Assets		Bank	Country	Assets
1	Deutsche Bank	Germany	503	1	ICBC	China	3,422
2	UFJ Bank	Japan	501	2	CCB	China	2,827
3	Sumitomo Bank	Japan	500	3	ABC	China	2,741
4	Dai-ichi Kangyo Bank	Japan	499	4	Mitsubishi UFJ Financial	Japan	2,649
5	Fuji Bank	Japan	487	5	BOC	China	2,591
6	Sakura Bank	Japan	478	6	HSBC Holdings	UK	2,410
7	Bank of Tokyo-Mitsubishi	Japan	475	7	JP Morgan Chase	US	2,352
8	Norinchukin Bank	Japan	430	8	BNP Paribas	France	2,168
9	Crédit Agricole	France	386	9	Bank of America	US	2,147
10	ICBC	China	374	10	Credit Agricole	France	1,847

Source: The Financial Times Limited (2018).

Table 16.2 Summary information of China's capital market, 1990–2016

Equity markets						
Year	No. listed companies	Investor accounts ('000)	Market capitalisation (RMB billion)	Tradable volume (RMB billion)	Trading volume (RMB billion)	Funds raised (RMB billion)
1993	183	8,350	353	83	363	n.a.
1995	323	12,940	347	94	404	n.a.
2005	1,381	71,890	3,245	1,064	3,166	34
2010	2,063	133,910	26,542	19,311	54,563	895
2016	3,052	117,410	50,824	39,327	126,726	1,891
Debt markets						
Year	Debt issuance (RMB billion)	Year-end trusted value (RMB billion)	Government bond issuance (RMB billion)	Central bank notes (RMB billion)	Financial debt issuance (RMB billion)	Corporate bond issuance (RMB billion)
1990	32	n.a.	20	n.a.	n.a.	13
1995	181	n.a.	151	n.a.	n.a.	30
2005	4,218	7,340	704	2,788	716	205
2010	9,524	20,511	1,978	46,601	1,412	1,681
2016	18,564	63,700	9,109		5,242	8,224

n.a. = not available.

Sources: PBC (2016, 2017); Wind Database.

The state continues to intervene heavily in the operation of the financial system. The PBC regularly decides on base deposit and lending rates, although commercial banks' freedom in setting their own rates has increased over time. The central bank also frequently intervenes in foreign exchange rates, through the setting of central parity, defining daily trading bands and buying and selling foreign exchange. Chinese authorities have also adopted various ways of influencing the allocation of bank credit and initial public offerings (IPOs), through such means as loan quotas, industry policy and IPO approval. Most of the major financial institutions in the country have majority state ownership. According to one measure, China's degree of financial repression was higher than the average of both middle-income and low-income countries (Abiad et al. 2008). Among all 91 countries with available data, China ranked fourth for financial repression in 2005. These numbers are somewhat outdated, with progress in Chinese financial reform since then; however, China probably still lags behind many developing countries.

China's financial repression declined steadily over recent decades, but policy interventions remain common and frequent. One example is interest rate policy. From the late 1990s, the PBC gradually liberalised interest rates for both money and capital markets (Table 16.3). It also started to increase the flexibility for commercial banks to vary their deposit and lending rates around the base (the policy rates). In 2004, the PBC removed the ceiling on lending rates and the floor on deposit rates. In 2013, it removed the floor on lending rates and, in 2015, the ceiling on deposit rates. Unfortunately, these did not mark the end of policy intervention in bank interest rates. The PBC explained that further development in risk pricing capability and the interest rate transmission mechanism was required before commercial banks could be allowed to freely set their own deposit and lending rates.

Table 16.3 Key dates in interest rate liberalisation in China

Year	Key reform steps
1983	PBC granted the right to adjust the benchmark lending rate
1998–2004	Upper limit on lending rates gradually increased
1999	Interest rate liberalised in deposit wholesale market
2000	Foreign currency lending rates liberalised
2000	Foreign currency deposit rates for deposits over \$3 million liberalised
2003	Floor on foreign currency deposit rates removed
2004	Ceiling on lending rates removed
2004	Floor on deposit rates removed
2012	Lower limit on lending rates increased
2012–15	Upper limit on deposit rates gradually increased
2013	Floor on lending rates removed
2014	Publication of 'Deposit insurance regulation (draft)', committed to secure deposits of less than RMB500,000
2015	Ceiling on deposit rates removed

Sources: Yi (2009); PBC website (www.pbc.gov.cn/zhengcehuobisi/125207/125213/125440/index.html).

The underlying logic of reform

Why did China pursue such a unique pattern of financial reform and development? To understand this, we need to go back to China's broad economic reform strategy. In retrospect, we can identify three dual-track reform strategies that the government adopted during the past 40 years. The first was between state and nonstate sectors. Protection of SOEs probably reflected political constraints. This led to the second dual-track liberalisation, between product and factor markets, as the government intervened in factor markets to support the less efficient SOEs. And financial repression being an important form of factor market distortion, this led to a dual track between formal and informal financial sectors.

The Chinese approach to reform, which Deng Xiaoping described as 'crossing the river by feeling the stones', is more gradual than the 'shock therapy' applied through suddenly privatising SOEs and dismantling central planning, as occurred in the former Soviet Union. At the core of China's approach is the dual-track strategy—continuing to protect SOEs while facilitating the rapid growth of other business forms (Fan 1994). The initial rationale for protecting SOEs is both political (SOEs are cornerstones of the socialist economy) and economic (to maintain employment levels). The dual-track reform strategy was therefore an inevitable rather than intentional choice.

This reform approach—once characterised by Naughton (1995) as 'growing out of the plan'—created a 'Pareto improvement'. As the private sector grew faster than the state sector under the dual-track strategy, the importance of the state sector in the overall economy declined over time and the transition to a market economy could be expected to be smooth. This approach delivered pretty impressive economic results, which Lin et al. (1995) called the 'China miracle'. Average growth was strong and there was no initial collapse of output or loss of jobs. SOEs' share in total industrial output declined steadily, from around 80 per cent in the late 1970s to around 20 per cent in the mid-2010s.

But this reform strategy worked only for a while, before some negative consequences rapidly emerged. In the late 1980s, arbitrage between the plan and the market became a major source of corruption. While SOEs' share in total industrial output dropped from 77.6 per cent in 1978 to 34 per cent in 1995, SOEs continued to cause major macroeconomic problems.

From the mid-1980s, various reform efforts, including responsibility systems, were directed towards improving SOEs' productivity and profitability. However, the state sector's financial performance deteriorated steadily. In about the mid-1990s, SOEs as a sector made a net loss (Huang 2001). To control the bleeding, the government had to adopt a dramatic reform program known as 'grasping the big and letting go of the small and medium', in September 1995. Government ownership was to

focus on very large SOEs in strategic industries, releasing all small and medium-sized SOEs in competitive industries. In the following three years, about 30 million workers lost their jobs and more than half a million SOEs disappeared, through mergers and acquisitions, management buyouts and closures.

Deteriorating SOE performance caused a near-fiscal crisis in the early 1990s. The proportion of government revenues to GDP declined from 36 per cent in 1978 to a low of 11 per cent in 1992. This decline was partly a result of decentralisation. With declining profitability, SOEs contributed less revenue and also demanded more subsidies from the government. While the private sector was growing rapidly, it also tried hard to avoid paying taxes. Many local governments were unable to cover overheads in the early 1990s due to fiscal stress. To alleviate the problem, the central government in 1994 introduced a new tax-sharing system, dividing taxes into central (including value-added and consumption taxes), local (such as resource tax and stamp duty) and shared. The proportion of tax revenues to GDP gradually recovered, to 21–22 per cent.

Another consequence of deteriorating SOE performance was technical insolvency of the banks in the late 1990s. About 1998, China's average bad loan ratio probably reached 30–40 per cent (Bonin and Huang 2001). At that time, SOEs were the dominant borrowers from the banks. The government often instructed banks to make 'stability loans' to financially troubled SOEs. The Asian Financial Crisis pushed many Chinese banks to the edge of crisis, and the government had to introduce a series of measures to rescue the sector. In 1999, it established four asset management companies (AMCs), one for each of the 'big four' banks, to resolve the bad loans. In the first round, the AMCs transferred RMB1.4 trillion in bad loans from the banks at face value. In 2003, the authorities established the Central Huijin Company to inject capital into banks and other financial institutions. In 2005, the CCB introduced the Bank of America as its first foreign strategic investor. Other banks took the same steps in the following years. In 2006, the BOC and ICBC became publicly listed companies on the Hong Kong and Shanghai stock exchanges.

The banking problems in the late 1990s were a product of the second dual-track liberalisation strategy—between product and factor markets. Since the relatively less efficient SOEs continued to operate in increasingly open and competitive markets, they needed special support. As fiscal revenues declined rapidly relative to GDP throughout the 1980s, it became clear that the government would not have funding to support the SOEs. One alternative was state intervention in factor markets in favour of SOEs. If the government could influence the banks to continue to allocate large volumes of credit to SOEs, relatively cheaply, SOEs could survive even if their performance continued to deteriorate.

Asymmetric liberalisation of product and factor markets is an important feature of China's reform approach (Huang 2010). On the one hand, the government almost completely liberalised markets for agricultural, industrial and service products, for which prices are freely determined by demand and supply. This enables producers to identify market demand and profit opportunities. On the other hand, markets for production factors, including labour, capital, land and energy, remained heavily distorted, and the government continued to intervene in their allocation and pricing. Taking finance as an example, the authorities still play an important role in decisions on allocation of bank credit and IPO quotas, mostly in favour of SOEs. They also intervene in setting bank rates and exchange rates. These factor market distortions ensure that SOEs receive the necessary inputs at below-market prices (Huang 2010; World Bank 2012).

The beneficiaries of such subsidies included foreign joint ventures and large-scale private enterprises, as well as SOEs. At the beginning of China's economic reform, the government set up four special economic zones (SEZs) to attract foreign investors. Within the SEZs, companies were often exempted from tax payments for a fixed period and received free use of land and subsidised financial credit and energy. Later, many local governments offered such preferential policies to large numbers of enterprises in their own regions. In many cases, local governments competed with each other by offering more aggressive preferential policies. The essence of asymmetric liberalisation of product and factor markets is effective subsidy to enterprises by households (state-owned, foreign-invested and private enterprises; and producers, exporters and investors). Some estimates put the total of such 'subsidies' at 12 per cent of GDP immediately before the GFC (Huang and Tao 2010) (Table 16.4).

Table 16.4 Estimated cost distortions in China, 2000–09 (percentage of GDP)

	Labor	Capital	Land	Energy	Environment	Total
2000	0.1	4.1	0.5	0.0	3.8	8.5
2001	0.2	3.9	0.5	0.0	3.5	8.1
2002	0.8	3.9	0.4	0.0	3.3	8.4
2003	1.0	3.8	1.1	0.0	3.3	9.2
2004	2.0	3.1	0.9	0.6	3.0	9.5
2005	2.4	3.0	1.3	1.7	3.0	11.4
2006	2.7	3.1	2.0	1.6	2.8	12.2
2007	3.2	3.6	1.2	1.6	2.4	12.0
2008	3.6	3.4	1.0	0.7	1.9	10.6
2009	2.7	3.5	0.9	0.7	1.8	9.6

Note: The estimation of the labour component is based on the wage gap between migrant workers and urban employees. The repressed wage rates of migrant workers—due mainly to China's household registration and social security systems—significantly lower the production costs of labour-intensive private manufacturing enterprises, which indicates a kind of subsidy to enterprises by households.

Source: Adapted from Huang and Tao (2010).

Asymmetric liberalisation explains the coexistence of economic growth and worsening structural imbalances through the first three decades of China's reform. It also helps us understand why past financial reform was strong on building institutions and growing assets but weak on liberalising markets and improving governance.

Repressive financial policies led to the third dual-track system of financial markets, between the formal and the informal sectors. When financial policies protected SOEs, they discriminated against other enterprises. Therefore, although China already has large financial markets, undersupply of financial services is still common for small and medium-sized enterprises (SMEs) and low-income households. Gradually, informal sectors emerged, mainly in the form of a curb market and shadow banking. Recently, emerging digital finance may also be regarded as part of the informal market. The two sectors coexist; the formal sector serves mainly large companies and wealthy households with heavily distorted pricing and allocation of financial resources. The informal sector serves mainly SMEs and low-income households, with mainly market-driven pricing and allocation of financial resources. While the informal sector makes important contributions to financial intermediation, it is often unregulated, unstable and relatively small in size.

Preliminary assessment

What are the impacts of these dual-track systems on China's economic performance? A preliminary assessment suggests that, in the past, while creating inefficiencies and risks, they did not prevent the economy from growing rapidly. Although protection of SOEs caused some major problems in the 1990s, China's overall economic performance was remarkable. This is somewhat puzzling, as one would expect policy distortions to not only reduce the overall efficiency of resource allocation, but also increase financial and economic instability. Two important questions arise. Was China's economic miracle because of, or despite, repressive financial policies? And could China continue its past economic performance without significantly reducing financial repression?

In an earlier study, Huang and Wang (2011) tried to quantify the impact of financial repression on economic growth in China. They first constructed a financial repression composite index. Following Ang and McKibbin (2007), the index included the real deposit rate, interest rate control, capital account control, the reserve requirement ratio, state banks' share in total lending and the share of loans to SOEs. The index ranges from 0 to 1, with 1 indicating the highest level of financial repression.

Huang and Wang (2011) then estimated a growth equation, following the frameworks of Barro (1991) and Roubini and Sala-i-Martin (1992), using Chinese provincial data for the period 1979–2008. Their main estimation results are reproduced in

Table 16.5. They first looked at the whole period and then divided the sample period into 1979–99 and 2000–08. The coefficient estimate for the financial repression index was positive for the entire sample and the first subperiod, but turned negative in the second subperiod. These estimates suggest that, if there had been full financial liberalisation, real GDP growth would have been 0.55 percentage points lower in 1979–99 but 0.13 percentage points higher in 2000–08.

Table 16.5 Estimation of growth effects of financial repression in China

	Full sample		1979–99		2000–08	
Financial repression index	0.069***	0.167***	0.120***	0.356***	–0.136**	–0.132***
	(0.017)	(0.041)	(0.032)	(0.067)	(0.012)	(0.037)
Investment ratio	0.156***	0.133***	0.136***	0.083**	0.102***	0.100***
	(0.021)	(0.022)	(0.037)	(0.038)	(0.021)	(0.021)
Trade openness	0.013*	0.010	0.029**	0.026**	0.008	0.007
	(0.008)	(0.008)	(0.012)	(0.012)	(0.012)	(0.012)
Government consumption/GDP	–0.258***	–0.189***	–0.378***	–0.183***	–0.107***	–0.169**
	(0.049)	(0.055)	(0.070)	(0.085)	(0.073)	(0.083)
Share of SOEs in total output	0.027	0.039*	0.004	0.039	–0.054***	–0.039*
	(0.020)	(0.020)	(0.028)	(0.029)	(0.022)	(0.023)
Time trend		0.002***		0.003***		0.002
		(0.0008)		(0.002)		(0.014)
Observations	750	750	525	525	225	225
R ²	0.171	0.179	0.138	0.136	0.176	0.187

*** 1 per cent level of significance ** 5 per cent level of significance * 10 per cent level of significance

Notes: The dependent variable is the provincial real GDP growth rate. Estimation results for the primary school student enrolment rate are not reported since they are all insignificant. Numbers in parentheses are standard errors.

Source: Adapted from Huang and Wang (2011).

The positive effect discovered for the 1980s and 1990s was consistent with the reasoning of Stiglitz (1994, 2000). In the early stages of economic development, financial markets are often underdeveloped and might be unable to effectively channel savings to investments. Also, financial institutions are often immature and vulnerable to fluctuations in capital flows and financial stability. Repressive financial policies can actually promote economic growth through strong support to confidence and effective conversion of saving into investment. For instance, with an open capital account, the Chinese economy would have been more seriously damaged by the Asian and global financial crises.

The negative impact of financial repression on economic growth discovered for the 2000s was in line with analysis by McKinnon (1973) and Shaw (1973). State intervention in capital allocation might prevent funds from flowing to the most efficient uses. Protection of financial institutions and financial markets might also

encourage excessive risk-taking due to moral hazard. Therefore, repressive financial policies would eventually hinder financial development, increase financial risks, reduce investment efficiency and slow economic growth. For instance, if the less efficient SOEs continue to take in more and more financial resources, the efficiency of the overall economy will decline steadily.

The negative 'McKinnon effect' and the positive 'Stiglitz effect' of repressive financial policies on economic growth probably exist simultaneously in any economy. The net outcome depends on the relative importance of these two effects (Huang and Wang 2011; Huang and Xu 2017). In the early stage of economic development and reform, the positive contribution of financial repression to economic growth through maintaining financial stability and converting saving into investment is greater than the negative effects on inefficiency and risk. We can call this the 'Stiglitz effect'. As the financial system matures, the negative impact of financial repression in terms of reduced capital efficiency and increased financial risks could outweigh its positive contribution; this is the 'McKinnon effect'.

The recent transition from the Stiglitz to the McKinnon effect in China suggests that repressive financial policies have become a drag on economic growth. After the GFC, China's GDP growth slowed steadily. Many factors contributed to this slowdown. Cyclical factors include sluggish global economic growth. Trend factors provide lower growth potential. In the meantime, financial repression favours less efficient SOEs in resource allocation and further impedes economic growth. Statistical analyses reveal that the share of SOEs in total industrial output already had a significant negative impact on growth in the 2000s, but an insignificant effect in the 1980s and 1990s.

Important evidence of growing systemic risk is the rapidly rising incremental capital–output ratio (ICOR) in recent years, which rose from 3.5 in 2007 to 6.3 in 2015 (Figure 16.1). ICOR describes the number of additional units of capital input needed to produce one unit of additional GDP. The rapidly rising ICOR points to sharply deteriorating capital efficiency and increasing difficulties in relying on stimulus policies to support growth. There are many reasons for the rising ICOR, including the effects of the big stimulus package adopted several years ago. Continued policy biases in favour of the state sector probably played an important part. In the post-GFC period, SOE efficiency deteriorated sharply because of massive overcapacity, but these companies continued to absorb large volumes of financial resources. The rising ICOR after the 2008 GFC coincides with the rising debt problem and divergence of leverage ratios between SOEs and SMEs. Rising leverage of SOEs and declining leverage of SMEs indicate that banking credit is allocated mainly to low-efficiency firms or even zombie firms, which worsens the investment efficiency of the economy and exacerbates the rising ICOR.

Figure 16.1 Incremental capital–output ratio in China, 1985–2016

Source: Authors' calculation based on data from Wind Database.

The banking sector's nonperforming loan (NPL) ratio also picked up quickly, rising from 0.94 per cent in June 2012 to 1.75 per cent in June 2016. Although the current official number is still quite small, there is widespread suspicion that the NPL ratio is significantly underestimated. One of the main reasons for the underestimation is the lifetime responsibility system, under which it is common for bank managers to try everything they can to hide NPLs. If we add 'special mentioned loans' to NPLs, the total ratio of problem loans was already 5.78 per cent in June 2016.

One of the international investor community's biggest worries about the Chinese economy is its high leverage ratio. The combined leverage of households, companies and the government is roughly 250 per cent of GDP (Figure 16.2). This aggregated number is not extraordinarily high; however, the nonfinancial corporate leverage, which is about 160 per cent of GDP, is unusually high. Over the past 10 years or so, when the state sector's leverage ratio has risen, the private sector's has declined. Using the large industrial enterprise dataset surveyed by the National Bureau of Statistics (NBS), Tan and Yin (2016) found that the average debt–asset ratio of SOEs (90th quantile) rose from 292 per cent in 2006 to 349 per cent in 2013, and that of non-SOEs (90th quantile) declined from 304 per cent to 206 per cent during the same period. Given that SOEs performed much worse than non-SOEs, on average, this rise in 'bad' leverage and fall in 'good' leverage are truly worrisome.

Figure 16.2 Composition of nonfinancial leverages, 2014 (percentage of GDP)

Source: Compiled using data from Tan and Yin (2016).

We attribute this latest divergence of state and nonstate corporate leverages to rising uncertainty about economic policy (Bachmann et al. 2013; Baker et al. 2016). This pattern is clear even among listed companies: as economic policy uncertainty increases, private companies become more cautious and postpone their investment and recruitment plans, while SOEs continue to expand (Wang et al. 2014). This explains why capital or financial efficiency declined significantly in recent years. The root cause of this deterioration is repressive financial policy or, more specifically, lack of market discipline for SOEs.

Growing systemic financial risks

Such increases in financial volatilities caused widespread concern about rising systemic financial risks in China. The latest *Financial System Stability Assessment* by the International Monetary Fund (IMF) and the World Bank, released at the end of 2017, drew attention to the rapid increase in credit and risky lending in less-regulated parts of the financial system (IMF and World Bank 2017). While the PBC disagreed with some of the report's assessments, the *Government Work Report* (NPC 2018), delivered by Premier Li Keqiang on 5 March 2018 at the National Congress of the CPC, identified three key economic policy battles in coming years. Guarding against systemic financial risks was listed as the top priority, ahead of alleviating poverty and strengthening environmental protection. Systemic financial risk is the risk of collapse of an entire financial system or market.

We construct the Index of Systemic Financial Risk in China (ISFRC) to provide a quantitative measure of the problem. By using data from 202 listed financial institutions and property developers between June 2007 and November 2017, we first calculated several indices by applying three different approaches for estimation—conditional value-at-risk (CoVaR), marginal expected loss (MES) and system risk—and then obtained an aggregate index using the weighted average method, after standardising the individual indices. The ISFRC shows that China's systemic financial risk escalated steadily after the GFC. After 2015, the aggregate index showed some moderation, but it has since remained at elevated levels, even as growth slowed marginally in 2017 (Figure 16.3).

Figure 16.3 Index of China's systemic financial risk, 2007–17

Source: Huang and Wang (2017).

The steady rise in systemic financial risk is a new development. During the past 40 years, China was the only major emerging market economy that did not experience any serious financial crisis. In retrospect, China was able to maintain financial stability due to two important factors: rapid sustained economic growth and implicit government guarantees to financial institutions. Persistent strong growth helps absorb or even hide inefficiency. The government guarantee ensures no panic, even when the banks' bad loan ratios exceeded 25 per cent at the height of the Asian Financial Crisis. But both of these factors have now gradually given way to what the Bank for International Settlements describes as the 'risky trinity': rapidly climbing leverage ratios (as illustrated in Figure 16.2), declining productivity (as illustrated in Figure 16.1) and diminishing policy flexibility. This trinity could be highly correlated with a high probability of financial risk.

We think three factors contributed to the recent escalation of systemic financial risks. First, the continuous slowdown of economic growth—from above 10 per cent in 2010 to below 7 per cent in 2017—led to deterioration of corporate balance sheets and increases in financial risk. In contrast to previous episodes of slowing growth, this was the result of a battle between new and old industries. Many of the industries that supported Chinese economic growth during the past decades are no longer competitive due either to higher costs or to excess capacity. Bottoming of growth should be dependent on development of a large set of new industries. According to one study, the proportion of zombie firms—insolvent companies continuing to operate—in total industrial firms rose from about 3 per cent in 2011 to 16 per cent in 2013 (Tan and Yin 2016).

Second, the combination of excessive liquidity and limited investible assets could easily trigger asset bubbles and migration of financial risk. At the end of 2016, M2 reached 208 per cent of GDP—the third highest in the world. This could be explained partly by China's bank-dominated financial system, as most financial transactions in China are reflected in the expansion of M2. But China's monetary policy also has a built-in acceleration mechanism for M2: when the economy expands, M2 needs to accelerate to satisfy increased demand for liquidity; and when the economy shrinks, M2 needs to accelerate to stabilise the economy and markets. One consequence of abundant liquidity is that, when depositors are no longer happy with the interest rate returns they receive from the banks, they start to move their liquidity around the economy, searching for higher returns. This could easily inflate asset bubbles, which are often followed by painful corrections.

Third, the outdated regulatory framework also contributed to significant increases in financial risk. In the early 2000s, China established a segregated regulatory framework, with the PBC, the China Banking Regulatory Commission (CBRC), the China Securities Regulatory Commission (CSRC) and the China Insurance Regulatory Commission (CIRC) at its core. The principle of a division of labour among these regulatory bodies was that whoever issued licences should be responsible for regulation. This system worked reasonably well for quite a while—until recently. To gauge the effectiveness of financial regulation, we also construct the Index of Effectiveness of China's Financial Regulation (IECFR), which consists of three subindices: macroprudential (volatilities of purchasing power parity, or PPI; the consumer price index, CPI; stock prices and exchange rates); microprudential (the leverage ratio and NPL ratio of commercial banks); and consumer protection (ease of obtaining bank credit and protection of minority investors). The IECFR declines steadily after 2013 (Figure 16.4).

Figure 16.4 Index of effectiveness of China's financial regulation, 2005–15

Source: Huang and Wang (2016).

The main cause of the recent decline in the effectiveness of financial regulation was the increasing incompatibility between the institutional regulatory regime and the increasingly mixed operations of financial institutions. For instance, at the start of 2015, the CSRC was not aware of stock market investors' leveraging behaviour through the banking and trust sectors. Its regulatory policies focused on the institutions with licences, not the financial transactions. This left some important financial activities unregulated, especially shadow banking businesses and the fintech industry. This caused extremely volatile market sentiment in some areas (Figure 16.5). And, finally, the regulators were responsible for both financial stability and industry development, which often led to significant industrial expansion at the expense of financial stability.

Figure 16.5 The sentiment index of China's fintech industry, 2013–17

Source: Wang and Dou (2017).

Required policy actions going forward

If the ultimate goal of China's financial reform is to build an efficient and robust financial system that can support economic growth in the long run, this task is, at most, only half-accomplished. After 40 years of financial reform, China has established a very comprehensive financial system, but market mechanisms are still constrained in many ways. The third plenum of the eighteenth National Congress of the CPC in late 2013 outlined a blueprint for financial reform, which covers three broad areas: lowering entry barriers, a free market mechanism and improving financial regulation (Table 16.6).

Table 16.6 Key measures of financial reform

Lowering entry barriers
1. Opening internally and externally; allowing financial institutions such as small and medium-sized private banks
2. Reforming financial institution policy
3. Developing multilayered capital markets; increasing shares of direct financing
4. Improving insurance and economic compensation systems
5. Fostering inclusive finance
6. Encouraging financial innovation; enriching layers and products of financial markets
Freeing market mechanisms
7. Improving interest and exchange rate mechanisms; forming a government bond yield curve
8. Promoting two-way opening of capital markets; accelerating capital account convertibility
Improving financial regulation
9. Fulfilling financial regulatory measures and prudential standards
10. Establishing a deposit insurance system; improving exit mechanisms
11. Strengthening construction of financial infrastructure; ensuring efficient operation and stability of the financial system

Source: Authors' compilation from NPC (2013).

Future financial reforms need to focus on three important tasks. The first is to continue market-oriented financial liberalisation. The key is to implement the principle decided at the third plenum of the eighteenth National Congress to let market mechanisms play a decisive role in the allocation of resources. This includes completing interest rate liberalisation, achieving a cleanly floating exchange rate and lowering entry barriers for both private and foreign financial institutions. Second is to restructure the financial system by increasing the importance of direct financing. China's financial system is still dominated by the banking sector, which is starting to have some negative effects, including high leverage ratios and weak capability for supporting industrial upgrading. Third is to recondition the regulatory system to maintain financial stability.

What will China's future financial system look like? Before the GFC, Chinese financial reform policies—intentionally or otherwise—were modelled on the financial systems in North America and Western Europe. Whether or not this implicit model is still the best choice for China needs to be seriously reconsidered. Many emerging market economies prematurely freed up market forces and suffered major financial instability. Even the model financial systems experienced serious financial crises in recent years. The critical test is not whether China should pursue further market-oriented reform; it is whether policymaking carefully balances improvement in efficiency with increases in risk. For example, China definitely should aim for greater openness of its capital account. But, at the same time, it should pay sufficient attention to adverse consequences, especially in relation to more volatile short-term cross-border capital flows.

For the immediate policy objective of containing systemic financial risks, the best strategy is systemic, focusing on opening the market, supporting innovation and strengthening policy coordination. The past approach of dealing with individual financial risks separately is no longer suitable, as such risks have increasingly become interconnected.

Specifically, we recommend Chinese authorities undertake policy actions in five areas:

1. Push ahead with market-oriented financial reforms and enforcing market discipline. While implicit government guarantees supported financial stability in the past, these are no longer sustainable. An effective market system should contain at least three key features: market-determined financial prices, including interest rates, exchange rates and bond yields; market-determined allocation of financial resources, including bank credit, IPOs and even cross-border capital flows; and a market-clearing mechanism, allowing defaults and bankruptcies. The PBC established the bank deposit insurance system in May 2015, but so far it has not played any role.
2. More effectively coordinate monetary, financial and other economic policies. In July 2017, the government established the new State Council Financial Stability and Development Committee (FSDC) to strengthen policy coordination. As the FSDC's office is located within the PBC and the PBC also took over the policymaking functions of the newly combined China Banking and Insurance Regulatory Commission (CBIRC), the central bank's role in the regulatory system has clearly been elevated. Yet the critical issue is still how to improve policy coordination and cooperation across different agencies. One possible way is to establish three committees with some overlapping members: a Monetary Policy Committee, Financial Stability Committee and Fair Trading Committee.
3. Adopt the 'twin-peak' regulatory model in China. While different regulatory models have different advantages, we favour for China the Australian or

US-type 'twin-peak' model, which separates the functions of prudential and macroeconomic regulation. The recent setup between the PBC and the CBIRC can be regarded as an important step towards a Chinese-style twin-peak model. Even more important is to change financial regulation, from institution-based to transaction-focused. Financial regulatory bodies need to be professional, independent and authoritative. For instance, it should be beneficial for the PBC to become an independent monetary policymaker.

4. Establish real-time monitoring mechanisms for financial risk. The pace of financial transactions picked up dramatically during the past decades, especially in areas involving digital technologies. The old-fashioned investigation methods are probably no longer appropriate. Macro and microprudential regulations should include effective working procedures analysing financial transactions and detecting potential financial risks. Currently, particular policy attention should be placed on shadow banking businesses, fintech activities, joint stock banks and some cross-sector financial transactions.
5. Carefully balance financial innovation and financial stability. In recent years, dynamic financial innovations created some new sources of financial risk, such as the subprime debt crisis in the United States. Some innovative transactions, such as those in fintech, actually make good economic contributions, by realising effective interest rate liberalisation and supporting the real economy. For those activities, the Chinese authorities could probably find ways to facilitate innovation within boundaries. The 'sandbox' framework popularly used in fintech is a good example. In the meantime, the authorities should also quickly contain those financial innovations that both increase risk and reduce transparency.

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