CHINA

THE BUBBLE THAT NEVER POPS

THOMAS ORLIK

PRAISE FOR CHINA: *THE BUBBLE THAT NEVER POPS*

"Orlik covers complex debates in crystal-clear prose, spiced up with anecdotes from his years on the ground in China. His book serves as a primer on China's modern economic history, but, most importantly, lays out a strong contrarian case for why it can avoid a future crisis." —Simon Rabinovitch, Asia economics editor, *The Economist*

"No one is better equipped to help us understand and to prognosticate the outcome of China's debt problem than veteran analyst Tom Orlik. This book has a rare combination of intense focus on the details of this complex problem and a lucid style which makes it a fun and engaging read to the educated public. Readers should prepare themselves for a wild ride through the twists and turns of a potential Chinese financial crisis." —Victor Shih, Ho Miu Lam Chair Associate Professor in China and Pacific Relations, UC San Diego

"Orlik plucks vivid examples from all over China to tell the story of the economy's remarkable rollercoaster ride. Beijing has defied the odds to survive four momentous economic cycles in forty years, Orlik explains. Aided by clear writing style and a healthy dose of good humour, he determines how China might reinvent its economy for a fifth time." —Celia Hatton, Asia Pacific Editor, BBC

"Thomas Orlik's *China: The Bubble that Never Pops* provides a valuable historical overview of the build-up of debt in the world's second-largest economy over the last two decades. The author's deep knowledge and perceptive analysis make the book a timely contribution to our understanding of China's state-capitalist financial system and inefficient allocation of capital."—Minxin Pei, author of *China's Crony Capitalism*

"Orlik takes a dispassionate look at how, despite massive debt, non-performing loans, white elephant projects, and infamous ghost cities, China's economy has defied all the nay-sayers – at least for now. In *China: The Bubble that Never Pops*, Orlik offers an inventory of the policy tools – often unavailable to western central bankers and political leaders – that China's Party technocrats have used to manage the economy and prevent or forestall hard landings. Lucid and highly readable, this is one of those rare books that manage to be accessible to non-specialists while still offering ample detail and data to those steeped in the arcana of the Chinese economy."—Kaiser Kuo, host of *The Sinica Podcast* on SupChina.com

"Mr. Orlik does an excellent job of explaining why China's economy keeps confounding those who have predicted for years that it is a bubble about to pop. But he is no wide-eyed naif, rather he walks readers through all the issues and risks and help us understand how policymakers keep things together, while making clear that the risk of an eventual crisis is real." —Bill Bishop, Publisher, Sinocism

"Orlik musters his deep knowledge (and dry wit) to explain the stresses building beneath China's remarkable growth. The author mines his experiences as journalist and analyst covering China and Asia to provide clear comparative examples – he deploys 1980s Japan, 1990s Korea, and the catastrophic sub-prime crisis in the US, to illuminate the decisions taken by Chinese policymakers. This book is an accessible primer for anyone who wishes to understand China's choices today."—Lucy Hornby, China correspondent, *Financial Times*

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For Josephine, Saul, and Faith

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1

A Tree Cannot Grow to the Sky

"I know why you don't want to do it," says Xi Jinping, addressing a room packed with China's top cadres, "but if you can't control debt while maintaining social stability, I will question if you are up to the job." July 2017, Beijing is baking in the summer heat, and the National Financial Work Conference—a five-yearly gathering of China's policy elite—is in full swing. President Xi Jinping is in the chair, a white name card perched in front of his imposing bulk—as if anyone doesn't know who he is. Premier Li Keqiang, wearing the white short-sleeved shirt favored by Chinese officials, is studiously taking notes. In past administrations, the premier would be calling the shots on the financial system. This time it's different. Xi is playing an outsize role. Li has been edged aside. Rows of other officials—People's Bank of China governor Zhou Xiaochuan, party secretaries of provinces the size of European countries, chairmen of the world's biggest banks—listen attentively. Xi's tone is stern, his words explosive. The debt-fueled growth model that powered China through close to four decades of development now risks tipping the country into crisis. The lending feast is over. The deleveraging famine is about to begin.

"Financial stability is the basis of national stability," Xi says. "Deleveraging state-owned enterprises is the top of the top priorities." Xi ticks off the list of China's debts. Central government is on the hook for 40 percent of GDP. Adding local government, the level is 65 percent. For the country as a whole, government, corporate, and household debt is 260 percent of GDP, as high as the United States. That borrowing has kept the wheels of the economy turning, paying for an investment boom that offset the export bust from the 2008 financial crisis. Now it has run too far, leaving banks overexposed, state-owned enterprises and local government borrowers overstretched. Close to 4 out of every 10 yuan in national income are required for debt servicing. Even in the US on the cusp of the great financial crisis, debt costs didn't rise that high.

Xi puts a hard cap on local government borrowing, something like the US debt limit. To ensure compliance, a tough new regime is put in place. In the past, local officials were judged on their ability to produce growth. Now, on top of that, they will be judged on how much they borrow. And that record will follow them from post to post—an administrative albatross around their necks. In the past, long-term concerns about China's financial stability played second fiddle to social stability. Officials paid lip service to controlling lending. If there was a choice between higher unemployment and higher debt, they always opted for the latter. Now, Xi says, that game is over. Social stability can't be sacrificed, but debt has to come under control. Anyone who can't hit both objectives needs to look for a new job.

For Xi, sixty-four years old and marching inexorably toward his second term as general secretary of the Communist Party and president of China, financial policy is unfamiliar territory. China's most powerful leader since the great reformer Deng Xiaoping (some say since the great helmsman Mao Zedong) has made national renewal his rallying cry. At home, that meant a crackdown on corruption, with Xi's graft-busters going after gouging officials no matter what their status. Hundreds of top ranked "tigers" and thousands of more junior "flies" were caught in the dragnet—an attempt to make the Party's image as white as officials' short-sleeved shirts. Abroad, it meant muscular assertion of China's interests. Xi put his imprimatur on the Belt and Road Initiative—a massive investment program intended to extend China's strategic reach through Asia into Africa and Europe. For a man focused on the big picture, a "China dream" of state-planned prosperity to counter the American dream of rugged individualism, the nitty-gritty of the financial sector seems like an unwelcome distraction. Yet here Xi is, large and in charge, impassive and insistent.

Past Financial Work Conferences were important. At the 1997 meeting, then-premier Zhu Rongji laid the groundwork for a massive cleanup of the banking system. In 2007, the China Investment Corporation—the country's $940 billion sovereign wealth fund—was launched. In 2012, policymakers picked through the wreckage of the global financial crisis. The 2017 meeting is a watershed. China's number-one leader has delved into, and mastered, the complexities of the financial system. His speech is long, detailed, peppered with technical jargon. It's been written not by the People's Bank of China or the China Banking Regulatory Commission, but by the office of the Leading Small Group—an elite team reporting directly to Xi. It's as if President George W. Bush, before the storm clouds of the great financial crisis had started to gather, delivered a lengthy speech on the hidden dangers in mortgage-backed securities and collateralized debt obligations. For Xi, though, the new focus on financial stability is not a choice, it's a necessity.

In the years ahead of the great financial crisis—the Lehman shock that pushed the world's major economies into recession—China was already running off-balance. The combination of the one-child policy (which reduced the requirement for spending on children and increased the need for saving for old age) and an inadequate welfare state (which pushed families to self-insure against risk of unemployment and illness) drove the savings rate higher. A high savings rate meant consumption was weak. The economy leaned heavily on investment and exports as drivers of growth. As the crisis hammered global demand, exports evaporated and reliance on investment increased. A state-dominated banking system and industrial sector, combined with creaking government controls on how credit was allocated, meant lending and investment were groaningly inefficient. In the years before the 2008 crisis, 100 yuan of new lending generated almost 90 yuan of additional GDP. In the years after, that number fell below 30 yuan. More and more credit was required to produce less and less growth.

Years of breakneck expansion in borrowing placed China in a perilous position. Banks lent too much, stretching their balance sheets to the breaking point. From 2008 to 2016 the banking system quadrupled in size, adding 176.7 trillion yuan in assets. Shadow banks—lenders that dodge the regulations put in place to ensure the stability of the system—exploded onto the scene, extending credit at ruinous rates to firms locked out of access to regular loans. State-owned industrial giants went deep into debt, paying for new steel mills, coal mines, and cement kilns, adding to already burgeoning overcapacity. Real estate developers painted their balance sheets in red ink, borrowing to build ghost towns of unsold property. Local governments dodged the regulations intended to keep public debt under control, creating opaque investment vehicles to borrow off the books. In the best cases, they did so to pay for worthwhile but unprofitable public works. In the worst, they wasted funds on lavish new offices, or the money simply disappeared into foreign bank accounts. Neither the economy nor the financial system was on a sustainable trajectory. The clear and present danger, if China carried on down the same road, was a crisis.

China's Communist Party are keen observers of world history. Xi had seen how crises that start in runaway lending end with financial collapse, economic recession, social unrest, and political turmoil:

In Japan in 1989, excess lending resulted in a bubble in equity and real estate. The bursting of that bubble turned the land of the rising sun from a threat to US dominance to a stagnant also-ran in the global race and ended the decades-long reign of the Liberal Democratic Party.

In Asia in 1997, the combination of high foreign borrowing and crony–capitalist relations between banks and business tipped China's neighbors into crisis. Financial meltdown toppled leaders throughout the region, ending the thirty-one-year reign of Indonesia's Suharto and propelling a former dissident democracy activist into South Korea's Blue House.

In the United States in 2007, runaway mortgage lending and lax financial regulation triggered the subprime mortgage crisis. A painful recession and slow recovery resulted in a wrenching shift in US politics—a wave of populist anger that swept Donald Trump into the White House.

Taking a broader historical sweep, Xi's chief economic advisor Liu He has written how financial crisis can kick-start transitions in the global balance of power.[1] In the 1930s, the Great Depression heralded the shift from an exhausted Europe to a vigorous United States. In the 2000s, in Liu's view, the financial crisis accelerated the shift in the balance of power from the United States to China.

Now, the alarm bells are ringing for China. "A tree cannot grow to the sky," warned the *People's Daily*—the Communist Party's mouthpiece—in a front-page article in May 2016. "High leverage will lead to high risk, if not well controlled it will lead to systemic financial crisis and recession."[2] The International Monetary Fund—high priests of the global economy—were as alarmist as their sanitized intonation allowed. "International experience suggests that China's credit growth is on a dangerous trajectory," they warned, "with increasing risks of a disruptive adjustment."[3] On bare-knuckle Wall Street, money managers saw no reason to pull their punches. China was on a "treadmill to hell," warned short-seller Jim Chanos, famed for his early call that energy trader Enron was a house of cards. What was happening in China "eerily resembles what happened during the financial crisis in the U.S.," warned billionaire investor George Soros. Adding weight to those warnings, almost two decades earlier Soros had been one of those who bet successfully against China's neighbors in the Asian financial crisis.

Could Xi pull China back from the brink? The conventional wisdom said no. Credit had expanded too fast and been allocated too inefficiently. Bottom-up estimates—based on parsing the balance sheets of listed companies—suggested that more than 10 percent of loans were already at risk of default. China's decades of double-digit growth, which had enabled it to outrun past financial problems, were receding into memory. Far-reaching reform of creaking state firms might shift the economy back onto an accelerated growth trajectory, and increase efficiency of credit allocation. The Xi administration, however, appeared more focused on strengthening the ramparts of the state than on tearing them down.

As Xi declared war on debt, most commentators saw two possibilities:

- With the economy addicted to credit, aggressive pursuit of deleveraging would hammer growth. Businesses with falling profits and local governments with lagging land sales revenue would be forced into default. The deleveraging campaign would trigger the financial crisis it was launched to prevent.
- If Xi moved more cautiously, modulating the campaign to ensure GDP stayed on target, deleveraging would be just another passing policy fad. Slogans would be enthusiastically repeated. Behaviour wouldn't change. China might enjoy a few more years of credit-inflated growth, but the day of reckoning would not be long in coming.

Put simply, Xi faced an unpalatable choice: crisis now or crisis later.

When it comes to China, however, the conventional wisdom doesn't always get it right. At the end of the 1970s, few expected Deng Xiaoping to extricate China from the ideological dysfunction of the Mao era, placing it on a path of rational development. In 1991, as the Soviet Union collapsed, it looked like red China was on the wrong side of history—facing a choice between democratic reforms or regime collapse. The Communist Party chose neither, and China continued to grow. In 1997, as the Asian financial crisis swept away crony–capitalist regimes from Indonesia to Korea, the days for China—with its incestuous state-owned family—looked numbered. Then-premier Zhu Rongji used the crisis as a catalyst for reform—closing loss-making business, recapitalizing the banks, and pushing for entry into the World Trade Organization. In the great financial crisis, the collapse in global demand hammered China's exports and threatened to tip the economy into recession. A decisive 4-trillion-yuan stimulus meant it did no such thing.

Xi's deleveraging campaign wouldn't be easy, but China still had important points in its favor:

- A high domestic savings rate, combined with controls on households taking their funds offshore, meant the banks could count on a steady inflow of cheap domestic funding. Financial crises typically start when banks' funding dries up. In China, that was unlikely to happen.
- Average incomes were scarcely a third of the level in the United States—meaning there was abundant space still to grow. No one expected a return to 10 percent annual GDP growth. Expansion at 6 to 7 percent was attainable, and would mean more profits for business, income for

households, and tax revenue for government—all money that could be used to pay down debt.

A decade of reforms had shifted China from government-set to market-set interest rates, under-valued to market-priced currency, financial autarky to managed cross-border capital flows, and crude loan limits to a modern price-based monetary policy. All of those transitions promised to increase the efficiency of credit allocation, breaking the spiral of ever-increasing lending to pay for ever-decreasing growth.

In the real economy, rapid gains in household income, and the rise of the labor-intensive and capital-light services sector, held out the promise of a virtuous circle of rising consumption, higher employment, and less dependence on debt-fueled investment.

China's policymakers are not all-knowing or all-powerful. They do have an unusually extensive and powerful set of tools they can use to manage the economy and financial system, and experience dragging major banks back from the brink of crisis.

Those factors didn't guarantee success. As he launched the deleveraging campaign, Xi was betting they gave him a fighting chance.

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1. He Liu, *Overcoming the Great Recession: Lessons from China* (Cambridge, MA: John F. Kennedy School of Government, Harvard University, 2014).

2. "Authoritative Person Talks about the Chinese Economy ()," *People's Daily*, 9th May 2016.

3. Sally Chen and Joong Shik Kang, Credit Booms – Is China Different? (Washington, DC: International Monetary Fund, January 2018).

2

China's Debt Mountain: The Borrowers

In few places are China's inefficiencies and dysfunctions more evident than Liaoning—a province of 44 million in the rustbelt northeast of the country.

It is May 2016, and the meeting between Dongbei Special Steel Group—one of Liaoning's struggling state-owned enterprises—and its creditors is not going well. Perhaps the decision to create the Group by welding together three hundred-year-old steel plants was ill advised. Maybe management's decision to expand capacity into a saturated market was unwise. Whatever the reason, Dongbei has seen better days. In March 2016, Chairman Yang Hua was found hanged in his home—an apparent suicide. Days later, the firm defaulted on an 852-million-yuan bond payment—the first of a series of missed payments on bonds worth 7.2 billion yuan. Now the Liaoning government is trying to strong-arm Dongbei's creditors—an assortment of banks and bond holders—to agree to a deal, swapping their loans for an equity stake. Few want shares in a firm with no profits and little prospect of any. Despite proposing the deal, the government hasn't shown up to the meeting. Neither has Dongbei's new chairman, prompting a caustic query: "Is your new chairman dead too?"[1]

Creditors, among them China's biggest banks, are understandably irked. Loans to state-owned industrial firms are meant to be the safest of the safe. If state firms can't make repayments from their revenue, they have assets that can be sold. If asset sales fall through, the local government stands behind the loan. Now both of those fail-safes had failed. Dongbei is in default. The creditors issue a statement, blaming the "inaction of the Liaoning provincial government" and calling for a boycott of bonds issued by the province. In a Chinese system where deals are cut behind closed doors and losers nurse their grievances in silence, that public outcry was unusual. It didn't do the creditors any good. In August 2017, a restructuring plan was approved. Creditors got 22 cents on the dollar, or fen on the yuan, in the Chinese context.

It is corporations like Dongbei Special that account for the lion's share of borrowing in China's economy. Based on Bank for International Settlements data, China's corporate debt at the end of 2016 was 118.5 trillion yuan, equal to

160.5 percent of GDP. Even that astronomical number likely understates the true level of borrowing:

> Starting around 2012, China's banks began aggressively moving loans off the balance sheet. Reclassifying loans as investment products enabled them to dodge regulatory controls on loan-to-capital ratios, as well as policy campaigns aimed at cutting off funds to firms operating with too much debt, or producing too much pollution. Poring through 2016 financial reports from 237 lenders, analysts at Swiss investment bank UBS found some 14.1 trillion yuan in shadow loans (equal to about 18.9% of GDP), up from less than a trillion yuan in 2011.[2]
>
> Tighter credit conditions have pushed cash-strapped firms into slower settlement of accounts—repaying loans from banks ahead of bills from suppliers. Accounts receivable for China's big industrial firms rose to about 12.7 trillion yuan in 2016 (17% of GDP), up from 7.1 trillion yuan in 2011.[3]

Throw in a few trillion yuan in borrowing from informal lenders—a motley crew ranging from peer-to-peer lending platforms to loan sharks—and the actual level of corporate debt could be closer to 200 percent of GDP.

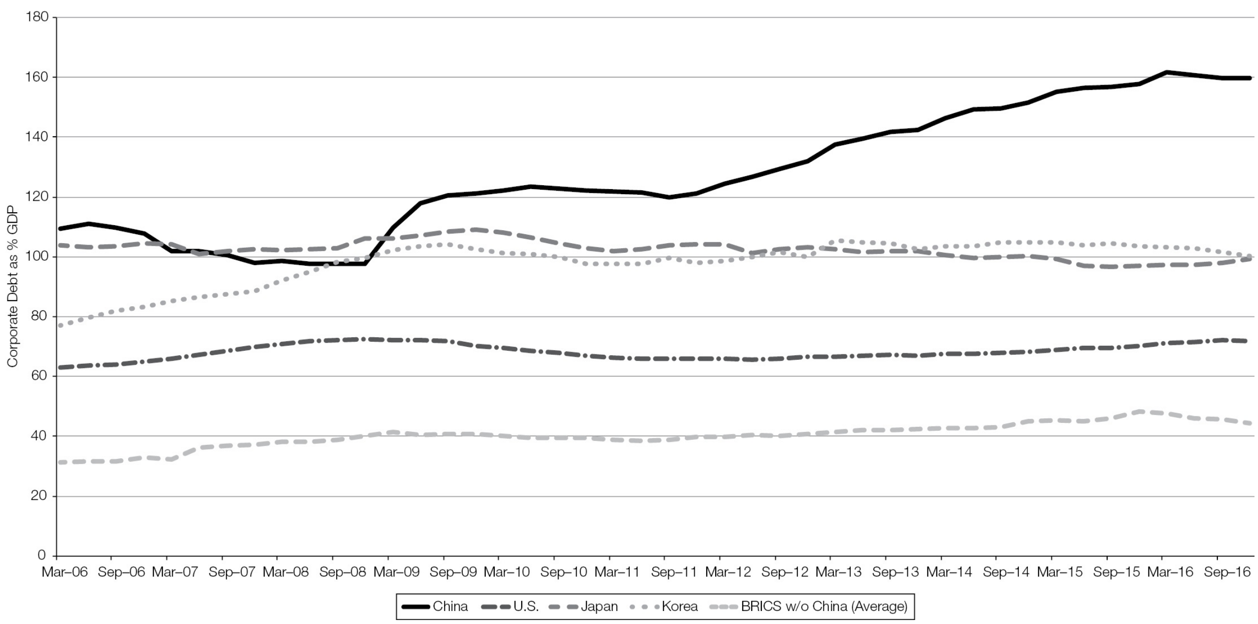

Figure 2.1 Corporate Debt as Percentage of GDP for China and Other Major Economies
Source: Bank for International Settlements.

Even assuming the Bank for International Settlements number is correct, China's corporate debt rings alarm bells. As figure 2.1 shows, in international comparison it's a very high number—off the scale relative to both major developed and emerging economies. Corporate debt in the United States and Japan ended 2016 at 72 percent of GDP and 99.4 percent of GDP, respectively. Looking at other emerging markets, the average for Brazil, Russia, India, and South Africa—which together with China make up the BRICS—was just 44.4 percent of GDP.

Within China's 160.5 percent of GDP total for corporate debt, borrowing by state-owned firms like Dongbei Special accounts for an outsize share of the total. Based on National Bureau of Statistics data, as of 2016 total borrowing for state industrial firms was about 67 percent of GDP.[4] The International Monetary Fund put it at 74 percent of GDP.[5] The real total might be higher still. As the China experts at research firm Gavekal Dragonomics note, the bulk of accounts payable represents bills owed by state firms to their private-sector suppliers—a hidden debt pile for the state sector (and a hidden tax on private firms waiting to be paid for their work).

High debt for state firms is a problem. Given the special role they play in China's economy, it's not a surprise. State firms smooth the ups and downs of growth, drive the government's development strategy, and provide patronage opportunities for leaders.[6] In the first case, that means acting as the borrower of last resort, keeping the wheels of growth turning by breaking ground on new projects when private firms have turned cautious. In the second, it means borrowing to pay for the buildout of priority infrastructure and industrial capacity—steel mills, aluminum smelters, electricity and telecom networks, and the roads, rails, and ports necessary to take products to market. That buildout was capital-intensive, and so the state firms that took the lead role took on a heavy burden of debt.

That special role means state firms get loans to carry out priority projects—whether or not they will generate a profit. "We're state-owned," said the manager of a multibillion-yuan gas–power project in an industrial park near the northern metropolis of Tianjin, "so it doesn't matter if we make any money." If revenue isn't sufficient to cover repayments, loans get rolled over, or government backers provide additional support. Since April 2015, when power equipment producer Baoding Tianwei gained the dubious honor of first default by a state-owned firm, there has been a trickle of other missed payments—including the Dongbei debacle. Even so, from the perspective of the banks—almost all of which are also state-owned—loans to other parts of the family look like a safe bet.

If borrowing is required to drive development and manage the ups and downs of the economic cycle, concentrating the buildup of leverage in the corporate sector is the least bad option. When households borrow too much, as in the United States ahead of the great financial crisis, the result is McMansion-littered suburbia. If government borrows to fund consumption, as in Greece ahead of European debt crisis, the result is an unsupportable burden from public-sector wages and welfare payments. Sustaining growth with loans to businesses is—at least potentially—different. China's firms used their borrowing to fund investment in the capital stock—infrastructure and industrial capacity—expanding the economy's growth potential. China's capital stock in 2008 was about the same level as the United States in the 1950s.[7] Starting from a low base, China's corporates had a decent shot at making productive investments, generating returns that could be used to repay borrowing.

That's true in theory. In practice, it didn't work out that way. Indeed, the breakneck investment growth that began at the end of 2008, combined with the outsize share of credit directed to inefficient state firms, was bound to result in serious misallocation of capital. The cycle is a familiar one. Cheap credit drives aggressive investment. Aggressive investment results in excess capacity. Excess capacity means that prices and profits fall. Chief executives who enjoyed spending borrowed funds on the way up find that repayment is difficult on the way down. The problem of moral hazard—the assumption that deep-pocketed government backers will always repay loans to state-owned firms—compounds the difficulty. With the chances of default low, credit is priced too cheaply and allocated too carelessly.

The regional manager of one of China's more commercially oriented banks explained how lending decisions were made. "First we look at what the central government's plans are," he said, "then we work out which local projects fit into those plans—that's where we make our loans." That—offered as a straightforward explanation of operations rather than a confession of poor practice—shows how moral hazard permeates China's financial system. The loan assessment process had nothing to do with hard-nosed calculation of risk and return, everything to do with brown-nosed investigation of which projects had the backing of Beijing, and so would be immune from default.

Steel illustrates the corrosive impact of China's credit cycle. From 2007 to 2014, driven by firms like Dongbei Special, investment in steel production rose 80 percent. Demand managed a much smaller increase. The resulting overcapacity triggered a 70 percent drop in prices, turning profits into losses and pushing producers toward bankruptcy. According to the official data, bad loans stayed low. Using an alternative calculation, based on the share of debt taken on by firms without enough earnings to cover their interest payments, in 2015 the bad loan ratio for metals and other basic resources firms was 46 percent. Almost half of debt in the sector was with firms that didn't have enough earnings to cover interest payments on their loans, let alone repay principal.

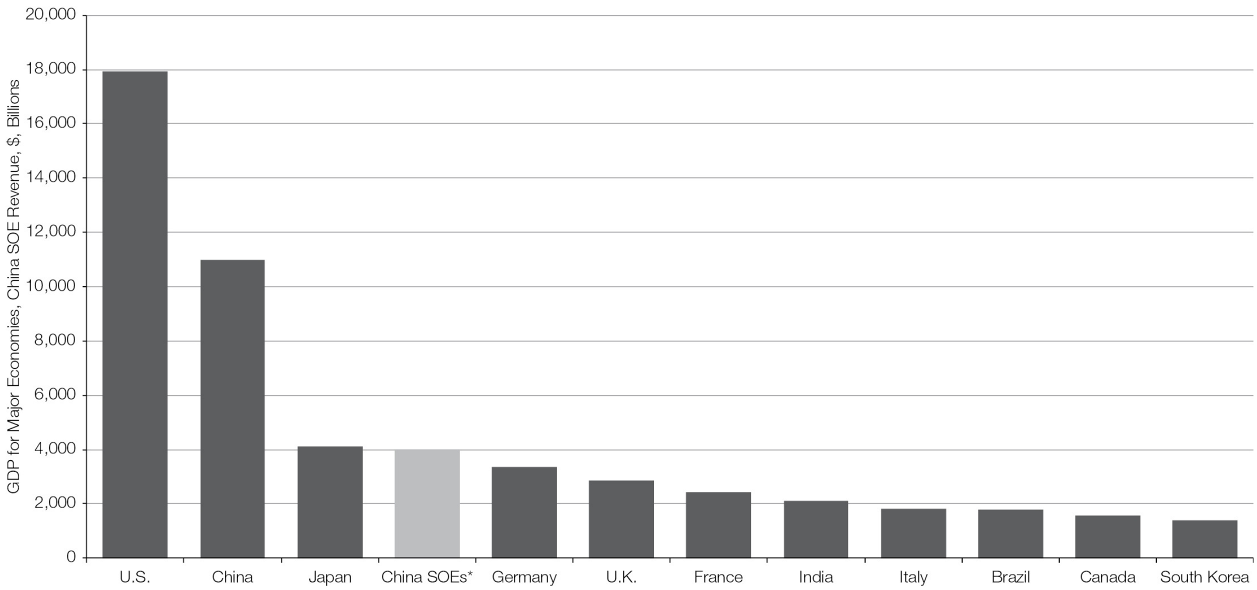

Figure 2.2 Revenue for China State Firms s vs. GDP for Major Economies
Source: National Bureau of Statistics, IMF.

The problem of torrid loan growth underpinned by pervasive moral hazard is not unique to China.

In Japan in the 1980s, major banks were at the center of "financial keiretsu," with cross-holdings of stocks and lending between bank and corporations. The interlocking network of cross-ownership and lending was thought to be a guarantee against default. In fact, while it did help smooth out bumps in the business cycle, it also encouraged loan officers to turn a blind eye to the risks, allowing lending to rise too fast and preventing banks from pulling the plug on failed projects.

In South Korea in the 1990s, massive conglomerates—known as *chaebols*—played a critical role in executing the government's industrial strategy. In return, they received an implicit guarantee against default, enabling them to tap loans at bargain rates. When financial deregulation eroded lending discipline, the result was a massive accumulation of debt, much of it wasted on vanity projects.

In the United States in the 2000s, mortgage lending rose too quickly, much of it channeled to households with limited capacity to repay—the NINJA

> loans to borrowers with "No Income, No Job, and No Assets." The foundation for that house of cards: government backing for giant mortgage financers Fannie Mae and Freddie Mac, which enabled them to borrow cheaply, stock up on high-risk loans, and operate with insufficient capital buffer.

It seldom ends well. The collapse of Japan's bubble economy in 1989, Korea's 1997 crisis, and the US subprime meltdown all found their origin in the twin problems of rapid loan growth and moral hazard. The difference in the case of China's state sector is that it's bigger. As figure 2.2 shows, revenue for China's state-owned firms is larger than the GDP of Germany.[8] If China's state-owned firms stumble beyond the ability of the government to support them, the consequences will be bigger, too.

CHINA'S GREEK TRAGEDY—ADDING UP LOCAL GOVERNMENT DEBT

China's local governments, said an economist attached to the powerful National Development and Reform Commission, are like "lots of little Greeces." It's not clear if the reference was to Greece's high debt or to the fake budget numbers that tipped the European economy into crisis. In the case of Liaoning, both would be correct.

In Mao's time, Liaoning—which together with Jilin and Heilongjiang makes up China's northeastern rustbelt—was dubbed the "the eldest son of the republic," a reflection of its central role in efforts to accelerate industrialization. Fast-forward half a century and it looked more like an elderly relative. In 2016, the year of Dongbei Special's default, Liaoning's economy contracted 2.5 percent—the worst-performing province by a wide margin. Investment spending plunged 63.5 percent. Tax revenue—funds the government could have used to bail out its troubled enterprises—barely eked out an expansion. Even those dire numbers are open to question. China's auditors called out the Liaoning government for "rampant" exaggeration, including overstatement of fiscal revenue by at least 20 percent.[9]

For Liaoning's government finances, the beginning of the problem could be traced back to November 2008. It was then, responding to the collapse of Lehman Brothers and the start of the great financial crisis, that Premier Wen Jiabao promised a 4-trillion-yuan stimulus to keep China's growth on track. For Wen—who will be remembered for pinpointing China's economic problems but not nailing the needed solutions—it was his finest hour. The 4-trillion-yuan stimulus wowed the markets, saved the economy from recession, and reinforced the notion that China's authoritarian model was a viable alternative to the mess Western democracies found themselves in.

The trouble for Liaoning, and other provinces up and down the country, was that Wen only forked out 1.2 trillion yuan of the total. Local governments were on the hook for the rest. In Liaoning, borrowing filled the gap. On a trip to the province in September 2009, Wen said the stimulus was aimed at solving China's short- and long-term problems—boosting demand and tackling the unbalanced reliance on credit-fueled investment."We have made vigorous efforts to stimulate consumption," he said, "[making] domestic demand, particularly consumer spending the primary driver of economic growth." The reality was rather different. Debt-financed buildout of infrastructure and industrial capacity kept the wheels of growth turning. There was little in Liaoning's stimulus that supported the needed rebalancing toward consumption. By 2016 the stimulus was over, returns on infrastructure projects were low, industrial firms (now producing more than they could sell) faced mounting losses, and the auditors were calling out provincial leaders for their fake data.

Already in 2010, the province's auditor found that 85 percent of local government financing vehicles—the shell companies through which stimulus funds were borrowed—had insufficient income to cover their debt payments.[10] By 2016, a trawl through bond prospectuses found that, on average, Liaoning's local government financing vehicles had return on assets of just 1 percent. A bottom-up look at corporate balance sheets found that about 10 percent of borrowers had insufficient income to cover interest payments on their loans.[11] Stimulus funds had buoyed growth through the downturn. They had not created enough revenue-generating assets to repay even the most heavily discounted loan.

How much debt does China's government have? According to the Ministry of Finance, total government debt at the end of 2016 was just 27 trillion yuan, or 37 percent of GDP. Public debt at that level looks manageable. Major developed economies like the United States (107 percent of GDP), Japan (236 percent), and Germany (68 percent) typically have a much larger burden, and considerably less scope to grow their way out of difficulties. Major emerging markets like Brazil (78 percent) and India (69 percent) also compare unfavorably.

The question is, does 37 percent represent an accurate picture of China's government debt burden? It doesn't. The Ministry of Finance adopted a narrow definition of official borrowing including only central government debt, and the fraction of local government debt for which the central government has accepted responsibility. A complete accounting would include off-balance-sheet borrowing by local governments, and bond issuance by the government-owned policy banks that finance major infrastructure projects. Adding in borrowing by Dongbei Special and China's 19,272 other big state-owned enterprises, unfunded liabilities in the public pension system, and the potential cost of recapitalizing the banks would push the number higher still.

The explanation for the biggest chunk of hidden government debt—off-balance-sheet liabilities for local government—lies in an important dynamic in China's politics: the struggle for control between Beijing and provincial capitals. From the outside, it looks like President Xi Jinping, ensconced in his Zhongnanhai leadership compound, has a writ that runs down through province, county, and town to the smallest village. The reality, to quote a Chinese proverb, is that "the top has its measures, the bottom has its countermeasures." Chinese politics is not rigidly hierarchical; it is a struggle for control between the center and the provinces. Small wonder that then-president Hu Jintao's first anti-corruption scalp was the rebellious party boss of Shanghai, and that Xi's anti-corruption crackdown resulted in a new roster of loyalist party secretaries across the thirty-one provinces.

Central to that struggle between the center and the provinces: control of the budget. In 1994, fearing that China's reforms had stripped central government of the funds it needed to exercise effective control, then–vice premier Zhu Rongji realigned responsibility for taxing and spending. Local governments were left carrying the burden of paying for social services. Beijing grabbed the lion's share of the tax take. Caught between diminished revenue streams and expanding spending obligations, local cadres had to find a way to make ends meet. The beginning of a real estate boom, combined with a state monopoly on ownership of land, provided an ugly but effective solution. Land sales by the government to property developers became a major source of funds. At the same time, the creation of off-balance-sheet financing vehicles allowed local governments to evade controls on direct borrowing, tapping the banks for credit.

A typical structure for off-the-books borrowing looks something like this. Local governments inject land and other valuable assets into an off-balance-sheet financing vehicle and implicitly promise to stand behind any debt, enabling borrowing at below-market rates. Borrowed funds are used to pay for urban development projects—ranging from new roads and water treatment plants to tourist zones and affordable housing. If the projects go well, they generate revenue and the value of the other land on the balance sheet goes up, enabling repayment of borrowed funds. If they go badly, the local government has to step in with more support—injecting additional assets that can be sold to make repayments. That institutional framework had been in place since the 1990s, but it was not until the great financial crisis hit at the end of 2008 that local officials tested the limits of its potential.

For local government budgets, 2009 was close to a perfect storm. On the revenue side, the crisis hammered income from tax and land sales. On spending, local treasuries had to finance their share of Wen's 4-trillion-yuan stimulus, as well as increased social obligations. To fill the gap, they turned to borrowing. By the end of 2010, local government debt registered at 10.7 trillion yuan (26.1 percent of GDP), more than double its level two years earlier. By 2013, the last date for which comparable official data is available, the total had risen to 17.9 trillion yuan (29.9 percent of GDP). Even at that point, the official data—the results of an extensive trawl by the National Audit Office—likely understates the true debt level. In the years that followed, it definitely does.

In March 2016, then–minister of finance Lou Jiwei said that total local government debt at the end of 2015 was just 16 trillion yuan—some 1.9 trillion yuan lower than it had been two years earlier.[12] Given that both bond issuance by local financing vehicles and infrastructure spending financed by them had continued unabated, a drop in debt appears implausible. The likely explanation: under pressure to contain the problem without denting growth, officials had resorted to an accounting trick—reclassifying a chunk of local government debt as corporate debt. How high had debt actually risen? Diving into the balance sheets of local financing vehicles, a team of academics led by People's Bank of China advisor Bai Chong'en has a stab at the answer.[13] They estimate the stock of local government debt in 2015 at about 45 trillion yuan (64 percent of GDP).

Local debt isn't the only omission from China's government balance sheet. The policy banks—China Development Bank, Agricultural Development Bank, and China Export Import Bank—are immense, state-owned, and borrow extensively from the bond market to fund their operations. To get a complete picture of China's government debt, their borrowing has to be added to the total. At end 2016, China's three policy banks had liabilities of 21.7 trillion yuan, or 29 percent of GDP. Adding up central government debt, local government debt, and borrowing by the policy banks puts China's public debt at 130 percent of GDP in 2016. That's a troubling level. It places China's public debt in the range of major developed economies, and above most major emerging markets.

There's little consensus on the level at which government debt starts to be a problem. There is broad agreement on one point—higher is worse. Higher public debt means a heavier repayment burden. Funds that could have been used to pay for expanded provision of healthcare and education—a crucial underpinning of China's promised transition to a consumer-driven economy—have to be used for debt servicing. Banks that could be making more loans to entrepreneurial start-ups, catalyzing China's shift to a more dynamic, private-sector led growth model, find themselves using the funds to roll over loans to ailing government projects. In a downturn, financing a boost to growth from higher public spending or lower taxes is harder to do.

Worse, China's debt was increasing at a torrid pace. The official data put the 2016 budget deficit at 3.7 percent of GDP. As with the Ministry of Finance's take on the debt level, that reflects a strict definition of government borrowing. Taking account of off-balance-sheet borrowing, funds for infrastructure spending, and land sales, the International Monetary Fund calculated the "augmented deficit" at 10.4 percent of GDP. Deficit spending sustained at that pace would rapidly push China's public debt to vertiginous levels. In their seminal study of financial crises, Harvard economists Carmen Reinhart and Kenneth Rogoff found that the relationship between debt and crisis runs in both directions.[14] High debt causes crises, and crises result in higher debt. If China's hidden government borrowing does trigger a meltdown, the public finances would go in weak, and come out weaker.

GHOST TOWNS, REAL DEBTS: CHINA'S PROPERTY MARKET

China's state-owned enterprises and local governments are two legs of the rickety debt stool. The third is real estate.

The route along the high-speed rail from Zhengzhou, the capital of Henan province, to Luoyang, an industrial town ninety miles away, is crowded with property developments. Tower blocks rear out of the smog, in varying stages of undress. Some are little but a concrete shell, surrounded by scaffolding; others already have their skin of faux classical pillars and balustrades. They have one thing in common—little sign of life. Around the unfinished projects, there are no scurrying workers or clanking cranes. In the finished ones, no buyers throng the show rooms. That's not for want of trying on the part of developers: "Free car with every 15 percent down payment," proclaims the banner on one particularly forlorn-looking structure.

If buyers remain unenticed, there's good cause. In the great financial crisis and the years that followed, Luoyang's city government turned to property construction to buoy growth through the slump. With credit abundant and controls aimed at capping price rises stripped away, speculators drove demand higher. Sensing easy profits, developers started new projects. Industrial firms with no experience in property decided to get in on the action. The city government gave factories brownfield sites on the outskirts of town, encouraging them to vacate city-center plots to make way for new apartments and shopping malls. “You make a loan to an industrial firm to build a new factory, but the money ends up in real estate,” said a loan officer from one of the main local banks.

Mr. Guo, the vice president of a local real estate developer, sensed the turnaround at the start of 2009. “Normally February and March are the off season for sales,” he said. “This time, with supportive policies and government propaganda, buyers’ confidence has increased.”[15] Mr. Guo had a gift for understatement. As the US financial crisis hammered exports, booming real estate provided needed stimulus. Between 2010 and 2011, land sales doubled. The result, a few years down the line: a city swamped in oversupply. As of the end of 2016, Luoyang, a town of 6.7 million, had 33.7 million square meters of residential property under construction—five square meters for every man, woman, and child in the town. With the market flooded, the boom was over. In 2016, with prices falling, developers cut new project offerings by more than a third.

As with all bubbles, China’s property bubble has a basis in fundamentals. Until the 1990s, there was no private housing market in China. Everyone from the Politburo Standing Committee in their leadership compound to the street cleaners in their dormitory lived in government housing. In the twenty years that followed the creation of the private market, the dilapidation of the public housing stock, millions of people per year migrating from the country to the city, and rapidly rising incomes for existing city dwellers drove huge demand. If construction had just kept pace, there would have been a major boom and no risk of a bust. The trouble is, even as demand was rising fast, supply rose faster.

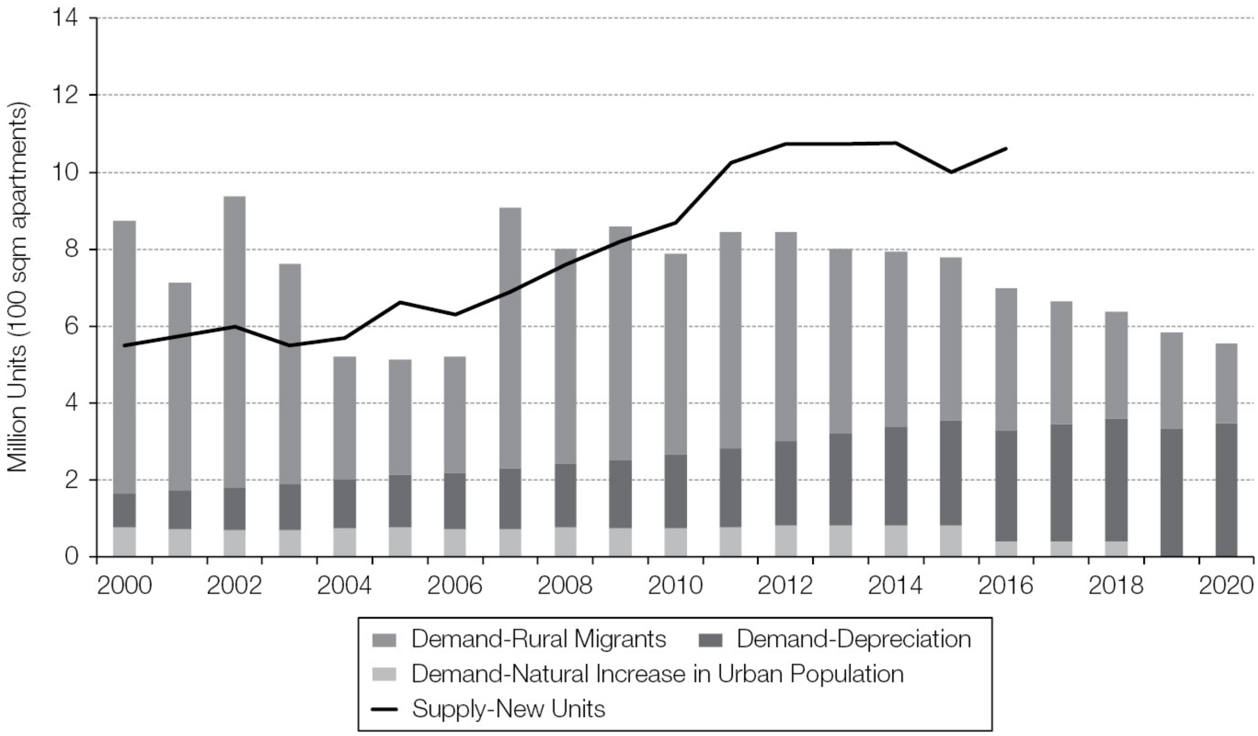

Figure 2.3 Supply and Demand in China Real Estate
Source: Bloomberg Economics, National Bureau of Statistics

From 2010 to 2017, looking at China as a whole, construction ran at about 10 million new apartments a year. As shown in figure 2.3, demand from rural migrants, natural growth in the urban population, and depreciation of the existing urban housing stock was less than eight million units a year. In the gap between those two numbers: ghost towns of empty property, uninhabited tower blocks ringing every city, and the Luoyang developer's desperate offer of a car with every down payment. In total, in 2016 there were about 12 million empty apartments in China—enough to house the entire population of Canada.

Two factors tipped China's housing market from urbanization boom into ghost-town bubble. First, for mom-and-pop investors, real estate was the only show in town. Bank deposits, with their below-inflation returns, looked unattractive. The rollercoaster stock market, lurching between huge gains and massive losses, was too volatile to act as a store of value. Wealth management products—retail investments with some of the safety of a bank deposit but markedly higher returns—could ultimately be a game-changer, but so far haven't slaked appetite for real estate. The result was intense speculative demand. According to the China Household Finance Survey—a large-scale national survey of saving and investment behavior—even as evidence of overbuilding grew, speculators accounted for about 30 percent of China home purchases.

Second, for China's government, real estate is the ballast that keeps the economic ship afloat. That's been true ever since the creation of the private housing market. In the late 1990s, China faced a twin challenge to growth. The Asian financial crisis hammered exports. Then-premier Zhu Rongji's root-and-branch reform of the state sector triggered a wave of factory bankruptcies and a sharp rise in unemployment. Investment in real estate, combined with a substantial slug of infrastructure spending, helped put a floor under growth. It remained true in the stimulus that followed the great financial crisis, when mortgage rates were cut, down-payment requirements lowered, and administrative controls lifted with an eye toward securing sufficient property construction to keep growth on track.

All of that construction has come at a price. Based on data from the National Bureau of Statistics, total debt for real estate developers came in at about 48.9 trillion yuan at the end of 2016, up from 10.5 trillion in 2008. Mortgage lending—including loans from a government fund for homebuyers—rose fast as well, climbing to 27.9 trillion yuan in 2016, up from about 4.5 trillion yuan in 2008. Putting those numbers together, total lending to the real estate sector rose to 76.8 trillion yuan (103 percent of GDP) in 2016 from 15 trillion yuan (47 percent of GDP) in 2008.

Even those numbers very likely understate the depths of the debt hole. On the developer side, government attempts to cool prices locked smaller builders out of access to conventional sources of credit. With the front door to the banks closed, many made use of the side entrance. "About 90 percent of our off-balance-sheet loans are to real estate developers," said one corporate loan officer at a major bank's Henan head office. For others, it means paying high rates—typically above 10 percent—to borrow from shadow banks. According to the China Trustee Association, at the end of 2016 shadow bank loans to real estate developers came in at 1.4 trillion yuan. A final group raised funds by issuing dollar bonds offshore—combining a higher cost of credit and exchange rate risk if the yuan depreciates.

Looking at developers' balance sheets, the signs of stress are clear. For China's most highly-levered home builders, debt is so high it would take more than ten years of earnings to pay it off. For the banks, risks are compounded by the critical role of real estate in the wider economy, and as collateral across their loan book. Real estate and construction account directly for 13 percent of China's GDP. Add in demand for steel, cement, home electronics, and furniture, and it's probably close to 20 percent. Weakness in real estate also hammers land sales—the main source of revenue for local government borrowers. And by reducing the value of collateral it triggers margin payments on loans—risking a downward spiral or falling prices, fire sales of inventory, and further price falls. A slump in real estate could have systemic consequences.

In the history of financial crisis, real estate plays a prominent role:

In 1989, at the height of Japan's property bubble, the land around the Imperial Palace was said to be more valuable than all of the real estate in California. Restrictions on bank loans to real estate developers were one of the catalysts for the bubble to burst, triggering a 72 percent drop in land prices and pushing Japan into a lost decade of stagnant growth and falling prices.

In 1997, with the Asian financial crisis poised to topple the region's economies like dominoes, Thailand's real estate bubble provided an early indication that something was amiss. Demand for office space in the capital, Bangkok, was running at less than half of construction.

In the United States in 2007, it was subprime mortgage lending that lit the fuse for the great financial crisis. Mortgage debt had risen to about 100 percent of GDP. "If you had a pulse, we gave you a loan," said an employee at Countrywide—a mortgage broker whose reckless lending helped bring on the crisis.

No surprise then that China's real estate sector has been a persistent focus of concern. "They can't afford to get off this heroin of property development," said Jim Chanos, the hedge fund manager who called the collapse of Enron back in 2001. "It's the only thing keeping the economic growth numbers growing."[16] Not to be rhetorically outdone by a foreigner, former Morgan Stanley economist Andy Xie chimed in. China's property investors were like "hairy crabs"—a Shanghai delicacy, best cooked in bamboo steamer baskets. "They will be cooked," said Xie, "they just don't know it yet."[17]

REASONS FOR RESILIENCE

There were plenty of reasons for concern about the health of China's borrowers. Getting less attention: the benefits of stimulus relative to the alternatives, the broader gains from infrastructure investment, and reforms that tilted the dial toward efficiency.

There's a story, probably apocryphal, about a senior Chinese leader asked whether the short-term growth boost from stimulus was worth the long-term costs to the economy from increased reliance on credit-fueled investment. “A little bit more imbalance,” he is said to have responded, “is better than a lot of collapse.” There is a high cost to recession and financial crisis. Workers who lose their jobs take a permanent step back as skills atrophy. Businesses that go bankrupt don’t just spring back to life. The cost of failing banks, with their deep knowledge of what makes the local economy tick, is even higher—a point Ben Bernanke, chair of the Federal Reserve, made in his study of the Great Depression. China’s stimulus was overdone. The alternative—inadequate stimulus and recession—would have been worse.

With stimulus required, spending on investment was preferable to spending on consumption. Yes, a lot of the funds were wasted, but a lot were not. A study by the Chinese Academy of Social Science found that China’s government ended 2016 with net assets of 120 trillion yuan (about 161 percent of GDP), including its stake in state-owned enterprises. In a credit boom, asset values are inflated. In a credit bust, financial assets lose value and nonfinancial assets are difficult to sell. Still, a complete picture of China’s financial system has to consider the asset as well as the liability side of the balance sheet. China’s assets are probably not worth as much as the Chinese Academy of Social Science says they are. They are worth something, and taking that into account makes the debt problem less daunting.

A bean counting approach to the value generated by investments misses the larger social benefits. China’s infrastructure generates low returns, but then all infrastructure generates low returns. That’s because it’s a public good—something that’s provided at low cost for the well-being of society. The state-owned firm that builds a bridge or high-speed rail link or water treatment plant might not generate much income. The firms and households that use the new facilities do. Ultimately—China’s government hopes—that will result in enough tax revenue to make everyone whole.

Finally, the defaults by Dongbei Special and others that signaled weakness in China’s financial system were also a step forward on reform. It was moral hazard—the belief that all loans to state firms had a no-default guarantee—that kept the credit flowing to projects of dubious value. Losses for banks and bond investors chipped away at moral hazard, encouraging more rational and efficient allocation of credit. Defaults show cracks appearing in China’s financial system. Cracks, with apologies to Leonard Cohen, are how the light gets in.

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3

China’s Debt Mountain: The Lenders

The year 2017 was not a good one for Anbang Insurance Group. China’s third-largest insurer started the year boasting turbo-charged growth. A string of high-profile acquisitions, at home and abroad, included $1.95 billion for New York’s storied Waldorf Astoria hotel. The firm had deep connections to the Communist Party elite—chairman Wu Xiaohui was married to a granddaughter of Deng Xiaoping. From the outside, Anbang looked like it was on an unstoppable roll.

Inside the system, though, alarm bells were starting to ring. In May, China’s insurance regulator charged Anbang with “disrupting market order.” A three-month ban on issuing new insurance products cut off a crucial source of premiums. In June, Wu fell into the clutches of the graft inspectors, part of an investigation into Anbang’s overseas acquisitions, market manipulation, and “economic crimes.” Then the final blow, with the banking regulator digging into the details of overseas bank loans to Anbang—along with giant conglomerates Fosun, HNA, and Dalian Wanda—suspicious of improprieties in its foreign acquisitions. For China’s markets, that was big news. Shares in Fosun and Wanda—the only listed firms in the group—nose-dived.

Anbang’s finances were opaque; the holding company was private and didn’t disclose its assets or liabilities. But trawling through reports from major subsidiaries, analysts found total assets ended 2016 at about 2.5 trillion yuan—equal to more than 3 percent of China’s GDP.[1] Anbang was a major investor in China Merchants Bank and Minsheng Bank—the eighth- and tenth-largest lenders in China, respectively (and the closest China has to big private-sector banks), and Chengdu Rural Commercial Bank, the largest local lender in Sichuan, a province of 87 million.

Banned from issuing new products, Anbang’s sources of funding dried up. The risk, as China’s regulators surely knew, was that as insurance policies matured, with no new funds coming in Anbang would be forced into a fire sale of assets in order to meet its obligations. If policy holders decided to cash in early, the pressure on Anbang to sell assets at bargain prices would be even greater. Anbang wasn’t quite American International Group (AIG)—the giant insurer that threatened to topple the US financial system in 2008. AIG's trillion dollars in assets meant it was three times larger than Anbang in absolute size, and almost twice as big as a share of national GDP. Even so, the parallels went beyond the shared initials, and the risks were clear.

What pushed China's regulators to crack down so hard and so publicly on one of the mainland's biggest insurers? China's politics remained—as ever—opaque. The timing of the move so soon ahead of a leadership reshuffle at the Party Congress expected in October 2017 raised suspicion of elite political infighting. The financial arguments for the clampdown, however, were clear. Anbang was gaming China's regulatory system, taking advantage of its status as an insurance firm to soak up cheap funding, and using that to go on an acquisition spree that appeared to have little commercial logic.

That's not how insurance firms—whose very purpose is to allow customers to manage risks—are meant to operate. On the liability side, insurers are expected to issue long-term policies that customers can cash in if they encounter illness or accidents. Anbang issued what looked like long-term policies, but with a low bar to cashing in early, the policies behaved like short-term investments. An example of its liabilities: in 2015, Anbang raised 47.6 billion yuan with a product called Longevity Sure Win No. 1. Investors could exit in 2017 with a tidy return of 4.7 percent. On the asset side of an insurer's balance sheet, it's normal to see ultra-safe and highly liquid bonds, generating a steady stream of income, and easy to sell if funds are needed. On Anbang's balance sheet were illiquid assets like the Waldorf Astoria hotel.

Anbang was an extreme example of this asset–liability mismatch, but it wasn't the only financial firm skirting the rules and growing faster than it could safely manage. What differentiated China's major banks from, for example, US investment banks on the eve of the great financial crisis is that they could count on a very stable funding base. That reflected a high national savings rate (China's households save about 30 percent of their income), a controlled capital account (making it hard to take savings offshore), and a simple financial system (which means few places other than banks to park funds).

Industrial and Commercial Bank of China (ICBC)—the world's largest bank by assets—gets virtually all of its funding from domestic savers, many of whom put their funds in long-term deposits. Lehman Brothers—the US investment bank whose failure triggered the great financial crisis—got its funding from overnight borrowing in the money markets. ICBC's funding is cheap, and it's not going anywhere fast. Lehman Brothers' funding was cheap until the markets decided they didn't like its position in subprime mortgages; then it got expensive, then it disappeared. That's why Lehman Brothers collapsed. In the years following the financial crisis, one of the most troubling trends in China's banking sector was that the stability of the funding base started to erode. None of China's banks looked quite as bad as Lehman. A number followed the path of Anbang, relying on expensive and volatile short-term funding to supercharge their growth.

In particular, three forces began eroding the stability of banks' funding base and eating into net interest margins—the gap between the deposit and loan rates, which is the main source of profitability. Wealth management products (WMPs)—a new type of retail savings product—forced banks to compete for funds by offering higher returns to investors. Technology giants Alibaba (Amazon with Chinese characteristics) and Tencent (an online behemoth combining the features of WhatsApp, Twitter, and PayPal) launched massive online money market funds, sucking cash away from deposits. And the People's Bank of China (PBOC) made steady progress on liberalizing interest rates—taking banks from the cozy world of low-government set deposit rates and high-government set loan rates into a more competitive world where the cost of funds rose and interest margins narrowed.

In a Chinese market where '*financial repression*' kept deposit rates below the level of inflation, WMPs filled a gap - giving retail investors the safety and convenience of a deposit, but with markedly higher returns. Anbang's Longevity Sure Win No. 1—which, it turned out, provided neither longevity for the company nor a sure win for investors (though, in the end, no one lost their shirt)—is one example. Another comes from one of the banks in which Anbang was invested: China Merchants.

In 2017, China Merchants was offering savers a return of 4.9 percent on its Sunflower investment product, substantially higher than the 0.35 percent available on demand deposits or 1.5 percent for those willing to stash their funds away in one-year savings accounts. With inflation running at around 1.5 percent, only Sunflower offered savers a chance to increase their real wealth. "The deposit rate is very low," says Ms. Ye, a loan officer at the bank, explaining why she had invested more than 50,000 yuan (equal to almost her entire annual salary) in the products.

With most banks offering similar rates, and savers hungry for inflation-beating returns, the WMP market boomed. In 2010, WMPs accounted for an insignificant fraction of bank funding. By the end of 2016 there was 29.1 trillion yuan invested, equal to about 19 percent of bank deposits. Even that figure significantly understates banks' exposure to the new source of funding. With average maturities of just one or two months, WMPs had to be rolled over multiple times to keep banks in action. Over the course of 2016, banks issued

168 trillion yuan—more than the 150 trillion yuan in deposits outstanding.

Some banks were more exposed to the risk from short-term funding than others:

- For the big state-owned banks, exposure was limited. ICBC, China Construction Bank, Agricultural Bank of China, and Bank of China—collectively known as the big four—had already achieved sufficient scale, and could count on a too-big-to-fail national brand, and an extensive branch network, to continue soaking up deposits. WMPs accounted for just 9% of total liabilities.
- For the next tier down—banks like China Merchants and China Minsheng, known as the joint stock commercial banks—it was a different story. China's second-tier banks combined commercial orientation, aggressive expansion plans, and a more limited branch footprint than their big-four rivals. That pushed a greater reliance on WMPs to fund expansion. For the group as a whole, WMPs at the end of 2016 equaled about 27 percent of total funding. For the most exposed, the total was above 40 percent

WMPs weren't the only threat chipping away at banks' cheap and stable funding base. In 2013, technology giants Alibaba and Tencent began offering online money market funds. With hundreds of millions of Chinese already using the firms' mobile payments apps, they rapidly gained scale. At the start of 2017, Alibaba's Yuebao—a name that translates as "leftover treasure"—became the world's largest money market funds, with 1.3 trillion yuan in assets under management. Those were funds that only a few years earlier, the banks would have counted as cheap deposits. Now they had to pay a premium to borrow them from Alibaba's asset managers.

Even as banks faced new threats to their deposit base, interest rate liberalization started to erode their margins. For decades, government-controlled deposit and lending rates had served China well. When the main priority was providing cheap funds for priority investments, policy-set rates did the job. Now the challenges for the economy were more complex. Government-set rates were too blunt an instrument to solve them. Higher rates were needed to shift more income to household savers and choke off credit to overcapacity industry. Market-set rates were needed so that credit could be allocated more efficiently. China's central bank progressively raised the cap on deposit rates and lowered the floor on loan rates, before ultimately removing them entirely in 2016. Competition for bank deposits was growing. Profit margins on the deposits that remained were narrowing.

Looking through the complexity, the emergence of WMPs and money market funds, and the shift from government-set to market-set interest rates, showed China following a pattern familiar from other countries going through a process of financial modernization. Banks were moving from a highly regulated system, where funding comes mostly from deposits and interest rates are set by the government, to a market-based system, where there is competition for funds and interest rates are set by the logic of supply and demand. There are positives to that evolution:

- Banks are forced to provide higher returns to household savers, boosting their income and speeding China's transition to a consumer-driven economy. Given the difference in returns between WMPs and one-year deposits, in 2016 investors earned about an extra 870 billion yuan on their savings—equal to more than 1 percent of GDP. Over time, higher household income will catalyze China's rebalancing, reducing dependence on investment and exports as drivers of growth.
- When banks pay competitive rates for funds, they have to charge competitive rates to borrowers. Efficient, productive firms will be able to pay; others will not. The result should be a process of creative destruction, where the strong survive and the weak are winnowed out. For the reformers at the PBOC, the hope is that interest rate liberalization will be the ratchet that engineers improvements in efficiency across the economy.
- The sudden appearance of Alibaba and Tencent as dominant players in mobile payments, and small but growing players in the money management industry, could, over time, prove to be a game-changer. Payments data open a path to accurate credit scoring for business and households. In the right hands—perhaps because of a future joint venture between a major technology firm and a major bank—that could significantly increase the efficiency of credit allocation.

There were also risks. Increased reliance on expensive, short-term funding was a new and significant vulnerability for China's banks. Responding to the higher cost of funds, banks aiming to protect profit margins had to grasp for higher returns on their investments. In theory, market-set lending rates should drive efficiency gains across the economy. In practice, the reach for yield might push banks to take on too much risk.

A typical WMP promised to invest funds in a combination of bank deposits (completely safe), the money market (very safe), and bonds and loans (some safe, some less so). In 2017, three-year fixed-term deposits paid just 2.75

percent, money market instruments 4.7 percent, and three-year government bonds 3.6 percent. None of those would get returns up to the 4.9 percent return promised by products like Sunflower, let alone give banks a margin on top of it. To get to the required level of returns, asset managers would have to invest in high-yield corporate bonds and loans to low quality borrowers. Those investments certainly juice returns. Five-year corporate bonds with an A+ credit rating yielded 8.1 percent in the third quarter of 2017. Shadow loans could pay even more. The trouble is, they are long-term and illiquid, and carry a higher risk of default.

Back in December 2012, a rare default on a WMP issued by Huaxia Bank prompted one disgruntled investor to complain that “[this] is a state-owned bank, how can we trust the government and the Communist Party now that a state-owned bank refuses to pay our money back?”[2] In Beijing in 2016, scrolling LED displays above bank doorways warned would-be investors that higher returns come with higher risks. Despite that, most savers viewed WMPs to be just as safe as deposits and—beyond the neon banners—efforts to change that perception were limited. There have, undoubtedly, been multiple defaults on loans from the WMP pool. Banks absorb those losses in lower profitability, rather than passing them on to investors in lower returns. The benefit is that confidence remains high and funds continue to roll in. The cost is that the entire system is underpinned by moral hazard—the false belief that deep-pocketed, government-backed banks will always make investors whole.

In the cozy, tightly regulated world of the 1950s, US bankers operated on the 3-6-3 rule—borrow at 3 percent, lend at 6 percent and be on the golf course by 3pm. Till about 2010, that was also the world of China’s bankers. With the sudden arrival of WMPs, money market funds, and market-set interest rates, for some the rule started to feel more like 5-8-9—borrow at 5 percent, lend at 8 percent, pray that the bank is still solvent tomorrow at 9am. What happens if those prayers go unanswered? What if higher funding costs, the reach for yield, and shrinking profits margins, push banks over the edge? The international experience is littered with examples of what can go wrong. The US savings and loan crisis—a 1980s precursor of the 2008 financial crisis—provides an illustration.

For a long time, savings and loans (S&Ls)—the type of local mortgage lender immortalized in Frank Capra’s schmaltzy film classic *It’s a Wonderful Life*—had a cozy existence. Depression-era regulations prohibited banks from paying interest on demand deposits, and capped rates that could be paid on savings. S&Ls could count on a steady stream of deposits, and in return provided homebuyers with affordable mortgages. In the 1970s and 1980s, that started to change. The S&Ls faced three challenges. First, interest rate liberalization meant higher costs and new competition for funds. Second, rampant inflation, and the decision by then–Federal Reserve chair Paul Volcker to choke off the money supply, added to funding costs and hammered demand for mortgages. Finally, the Reagan administration's ill-advised efforts at deregulation allowed owners to make reckless investments in an attempt to outgrow their problems.[3]

In the newly deregulated market, S&Ls could buy funding at any price and invest at any risk. Federal deposit insurance meant that if bets didn't pay off, the taxpayer would bail out depositors. In the dash for growth, S&Ls went beyond their traditional focus on residential mortgages, investing in risky commercial real estate and even riskier junk bonds. When those investments failed, the S&Ls did too. Between 1986 and 1994, 1,043 of 3,234 S&Ls in the United States went bankrupt. According to the Congressional Budget Office, the cost of cleaning up the mess was $200 billion— about 3 percent of 1990 GDP.[4]

The parallels between the S&Ls and China's joint stock commercial banks are clear. Both responded to the deregulation of the financial sector by dashing for growth. Both expanded fast by turning away from safe, stable deposits toward higher-cost, more volatile sources of funds. Both tried to offset a higher cost of funds by reaching for higher returns with loans to risky projects. Both operated in an atmosphere steeped in moral hazard. The S&Ls had their federal deposit guarantee. Chinese households assumed that any funds invested in a product issued by a state-owned bank were backed by the government.

The difference: China's joint stock banks dwarf the US S&Ls in size. In 2016, joint stock banks had total assets of 96.8 trillion yuan—130 percent of GDP. Even at their peak, S&Ls assets never rose so nearly so high. China's banks continue to have important factors working in their favor. High inflation—one of the triggers for the US crisis—is conspicuous by its absence. China's banks are also better capitalized, giving them more capacity to absorb losses. The process of interest rate liberalization is being managed carefully, with the PBOC punishing small banks that try and suck up extra funds by offering unsustainably high rates. And in contrast to the Reagan administration, Xi's team has recognized and responded to the risks. If those fail-safes fail, though, the 3 percent of GDP losses the United States faced in the S&L crisis could be the tip of China's iceberg.

WHERE ARE THE BAD LOANS? INSIDE CHINA'S SHADOW LOAN BOOK

Caofeidian—an industrial zone and port built on land reclaimed from the sea in the northeastern province of Hebei—was meant to kill two birds with one stone. The relocation of giant steel producer Shougang from Beijing aimed at reducing air pollution in China's capital, at the same time as breathing life into Hebei's lackluster economy. Beijing, the government's economic planners reasoned, had no shortage of jobs, but as the nation's capital—the venue for everything from the Olympic Games to G-20 summits—it would benefit from slightly less choking smog. Neighboring Hebei, with average incomes barely a third of the level in Beijing, could tolerate a few more bad-air days in exchange for a job-creating steel plant.

In 2010, work began on the new development. Seven years and 500 billion yuan later, Caofeidian was not a complete failure. Company buses ran blue-clad workers to and from the Shougang plant. With salaries around 6,000 yuan a month, locals considered it a good place to work. The gritty air bore witness to the fact that the furnaces were switched on, production underway. Even so, stationary cranes at a port ringed by abandoned real estate projects testified to expectations missed.

Perhaps a move out of the capital for Shougang—a firm whose name translates as "Capital Steel"—was always ill-omened. Competition from nearby Tianjin, which had its own busy port and industrial zone, didn't help. Neither did a 70 percent drop in the price of steel, from a 2008 peak to a 2015 trough. Shougang swung from a profit of 349 million yuan in 2010 to a loss of 1,138 million yuan in 2015. In the same year, output for Caofeidian fell 10.4 percent—a hard landing for the local economy. As for Beijing's smog, for a city powered by coal, ringed by hills, and in the path of winds from the industrial northeast, Shougang was only part of the problem. If there were any birds killed by the Caofeidian project, it was the result of pollution, as air quality in Hebei and Beijing continued to deteriorate.

If Caofeidian's slump had a cost for the banks, however, it was difficult to discern. At first sight, Bank of Tangshan, the biggest local lender, appeared a model of prudence. In 2016 it reported just 17 million yuan in nonperforming loans, equal to 0.05 percent of the loan book. Even in China, where an overall bad loan ratio of 1.7 percent reflected endemic underreporting, that was a strikingly low number. It's especially striking because Bank of Tangshan didn't have great material to work with. Tangshan—the city of which Caofeidian is a part—is most famous as the epicenter of the 1976 earthquake, which killed a quarter of a million people and, according to local superstition, heralded the death of Chairman Mao. In 2016, it was China's largest steel-producing city. How did a small city commercial bank, stuck in an aging industrial town and with its fortunes tied to an ailing megaproject, manage to keep its bad loan ratio so low?

For city banks like Tangshan, the answer to the mystery of the missing nonperforming loans lay in the rapid expansion of the shadow loan book. The term “shadow loans” evokes images of pawnbrokers, peer-to-peer lending platforms, and other shady operations. In fact, most of China’s shadow loans originate with the banks. Here’s how a typical loan is put together:

- The bank has extended credit to a low-quality borrower, often an ailing industrial firm like Dongbei Steel, or local government financing vehicle borrowing to pay for an infrastructure project.
- Regulatory requirements make it too expensive for the bank to maintain the front-door lending relationship. The borrower might be in danger of defaulting on its existing loans, and the bank loath to report an increase in nonperforming loans. Or they might be the target of a government campaign against high pollution or some other evil.
- Cutting the borrower off entirely might push it into bankruptcy and trigger a default—not a desirable outcome. Instead of breaking the relationship, the bank finds a back-door workaround by inserting a shadow lender into the transaction. The shadow lender—typically a trust or asset manager— acts as a shell company, masking the true nature of the transaction.
- The shadow lender provides a loan to the low-quality borrower. The loan is then securitized, with the bank buying a security from the shadow lender giving it a claim on the borrowers’ repayment of interest and principal.

In effect, the bank has made a loan. On the balance sheet, it appears as an investment in a security issued by the shadow lender. In some cases, in a final step, the shadow loan is included in the pool of WMP assets sold to the bank’s retail investors.

From the perspective of the individual transaction, everyone is a winner. The low-quality borrower has the loan it needs. The bank has retained the relationship, prevented the borrower from defaulting, and hidden its exposure from regulators and shareholders. The shadow bank has taken a small margin for its part in the transaction. From the perspective of systemic stability, everyone is a loser. The low-quality borrower is paying more for access to credit, adding to its financial stress. The bank has increased its exposure to a high-risk borrower, and without the increase in capital needed to offset the risk of default. The inclusion of the shadow bank has lengthened the chain of transactions, adding cost and complexity. The financial system has become more opaque, tougher to regulate.

At the end of 2016, Bank of Tangshan had 110 billion yuan in shadow loans sitting on its balance sheet. That was up 27 times from 3.9 billion yuan three years earlier. It was equal to 54.5 percent of total assets—meaning the bank had more shadow loans than it did normal loans. And it handily outstripped the capital the bank had on hand to use as a cushion against defaults.

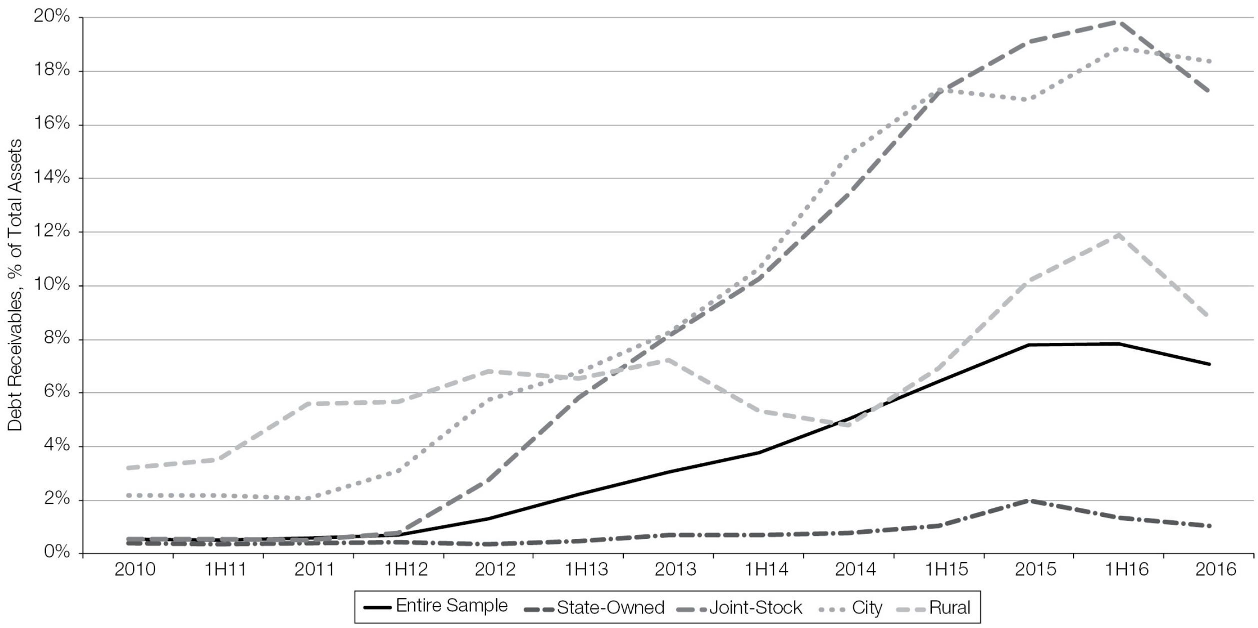

Figure 3.1 Banks' Shadow Loans as Percentage of Total Assets
Sample includes forty-one listed and nonlisted banks.
Created by the author using information from banks' financial statements.

Bank of Tangshan's situation isn't unique. At the start of 2010, bank loans to other financial institutions, a proxy for shadow lending, were steady at 2.8 trillion yuan. By the end of 2016, they had risen to 27.2 trillion yuan. As figure 3.1 shows, exposure varies across the sector. The highest risk is concentrated in joint stock and city commercial banks—the second and third tier of China's banking system. Looking at a sample of forty-one banks, as of the end of 2016, shadow loans accounted for 17.2 percent of assets at joint stock banks and 18.4 percent at city commercial banks like Bank of Tangshan. At top-tier banks like ICBC they accounted for just 1.1 percent of the total.

As with WMPs, different exposure to shadow loans reflected different starting points and ambitions. For the joint stock and city commercial banks, limited access to high-quality borrowers, a smaller deposit base, and higher cost of capital all made shadow lending attractive as a way to grow the business. For the city commercial banks, close control by growth-hungry local officials sharpened incentives and provided assurance that regulatory scrutiny would be limited. For the biggest banks, a Rolodex of the stateliest of the state-owned enterprises as borrowers, deposits hoovered up from branches on every corner, and low cost of capital all meant that growing the business through conventional lending was a more attractive option.

The history of financial crises is littered with examples of securitization gone wrong. In the United States in the run up to the great financial crisis, banks extended trillions of dollars in mortgages to low-income households. The claim on repayment was packaged and repackaged, sold and resold, bringing in fresh funds that extended the boom. By moving mortgages off balance sheet, banks dodged regulatory requirements on how much capital they had to hold, dashing for growth at the expense of stability for the system as a whole. A lengthening chain of transactions meant the final holder of the mortgage claim had no knowledge of the quality of the underlying borrower. The belief that the main participants were too-big-to-fail kept the funds flowing in, and meant the entire system was built on the shaky foundation of moral hazard.

All of those conditions were present in the case of China’s shadow loans. The length of the financial chain was extended, with funding from a bank, loans originated by a shadow lender, and final claims—in some cases—sold on to retail investors in the form of WMPs. The low quality of the borrower was evident to the bank. To the retail investor that ended up owning the claim, it was invisible. Access to funds from issuing WMPs allowed joint stock and city commercial banks to expand at a dizzying pace. And by dodging regulations—hiding loans as investments—they were able to grow their assets without enough capital to absorb losses. For China’s second- and third-tier banks, at the end of 2016, holdings of shadow loans were equal to 200 percent of the capital base, and for some the total was much higher.

Subprime mortgage origination in the United States rose from about $100 billion in 2000 to about $600 billion in 2006, taking the total over that period to about $2.4 trillion, or 17 percent of GDP.[5] In China, shadow bank lending rose from 420 billion yuan ($62.5 billion) in 2010 to 8.8 trillion yuan ($1.3 trillion) in 2016. The amount outstanding was 27.2 trillion yuan ($4 trillion), or about 36 percent of GDP. The US subprime crisis shook the world economy. A Chinese shadow banking crisis could break it.

HIRING THUGS AND DODGING DEBTS: SHADOW FINANCE WENZHOU STYLE

Mr. Hu is regretful. He made his money in Wenzhou, manufacturing shoes, lighters, and locks—whatever low-cost items could be sold at a profit to consumers in the United States and Europe. Wenzhou's location in coastal Zhejiang was once considered a curse. In the early days of the People's Republic, Chairman Mao feared arch-enemy Chiang Kai-shek would attempt to retake the mainland. If a Nationalist fleet landed from Taiwan, Wenzhou would lie directly on the path back to Chiang's hometown, Ningbo. That was enough to consign the region to oblivion in the eyes of Mao's economic planners—precious investment funds couldn't be risked on a city that might fall before an invading army.

The feared reinvasion never came. Chiang died in 1975. When Mao died a year later, and Deng Xiaoping began to lay the groundwork for China's reforms, Wenzhou's coastal location turned from a curse to a blessing. Over the next three decades, local entrepreneurs like Mr. Hu rode the wave of China's opening. Combining business know-how, cheap labor, and easy access to global markets, they grabbed the bottom link of the export value chain. The first wave of made-in-China goods—buttons, zippers, and tchotchkes that squeezed out low-end manufacturers in the West—was made in Wenzhou. Shadow finance played a crucial role. With state-owned banks still reluctant to lend, funds came from the informal market—that is, Mr. Hu and his friends lending to one another to pay for land, buildings, and capital equipment.

In 2008 the great financial crisis hit. Wenzhou's exporters were already feeling the pinch from higher wage costs, a stronger yuan, and stricter health and safety and environmental regulations. Now, with consumers in the West cutting up their credit cards, demand evaporated. Exports—growing more than 30 percent a year since China entered the World Trade Organization in 2001—collapsed, dropping more than 20 percent at the start of 2009. The government response was to tell the banks to ramp up lending. "Normally it was us asking the government officials for a favor; this time they called us," said Mr. Zhuan, the former head of a local bank. "They summoned all the local bank chiefs, told us not to call in any loans," he said. Then, at the start of 2009, the order came down from headquarters in Beijing: Lend! "We were issuing loans blindly," recalled Mr. Zhuan.

Wenzhou's old reliance on informal lending—networks of entrepreneurs providing credit to one another—supercharged the stimulus. Loans to firm A ended up as collateral for loans to firm B, which in turn was guaranteeing loans to firm C. With the export sector in the doldrums, factory owners didn't see any point in investing in their business. Instead, the credit flooded into real estate. In early 2010, Wenzhou property prices were up close to 22 percent from a year earlier—a rise that increased the value of collateral and enabled a fresh round of lending. Coachloads of Wenzhou speculators, traveling the country and snapping up new developments, became part of the folklore of China's property bubble. From the perspective of the individual bank officers, risks looked manageable. They were making a lot of loans, but they were all backed by collateral. From the perspective of the system as a whole, with the value of collateral artificially inflated, it was a house of cards.

According to Mr. Li, the head of one of Wenzhou's largest financial consultancies, it was the shuttering of an industrial park at the end of 2011 that triggered the crash. "The Party secretary had a strict attitude," said Li. "There were some heavy polluting businesses in the park; when they were shut down the value of the land fell, loans collateralized with that land were called in, the borrowers ran, and the crisis began." In the years that followed, credit expansion ground to a halt, house prices collapsed, and growth plunged. In 2007, the economy had expanded 14.2 percent from the previous year. In 2012, it grew just 6.6 percent. Even that massive drop in growth understates the magnitude of the slump. "The GDP data might have some issues," said a local official, wryly, "but it captures the trend." At least eighty executives declared bankruptcy, went into hiding, or committed suicide.

Mr. Hu, the exporter, counts himself among the losers. He guaranteed a 9-million-yuan loan for a friend who defaulted and fled to Vietnam, leaving Mr. Hu to pick up the bill. "I tracked him down but he was scraping a living washing motorcycles, so obviously couldn't repay," said Mr. Hu. "All I could do was hire some local thugs to beat him up; that made me feel better."

Another loser from the Wenzhou crisis: the city's growth model. Local entrepreneurs had grabbed the first link of the global manufacturing value chain. The next appeared out of reach. Hit by first the US subprime mortgage crisis, then the European sovereign debt crisis, and with rising wages and a stronger yuan eroding competitiveness, exports struggled to claw their way out of contraction. With no reason to plow more capital into their business, and the bitter experience of the real estate bust still fresh in their memory, Wenzhou's businesspeople needed a new place to put their funds to work. They found it in the city's informal banking industry.

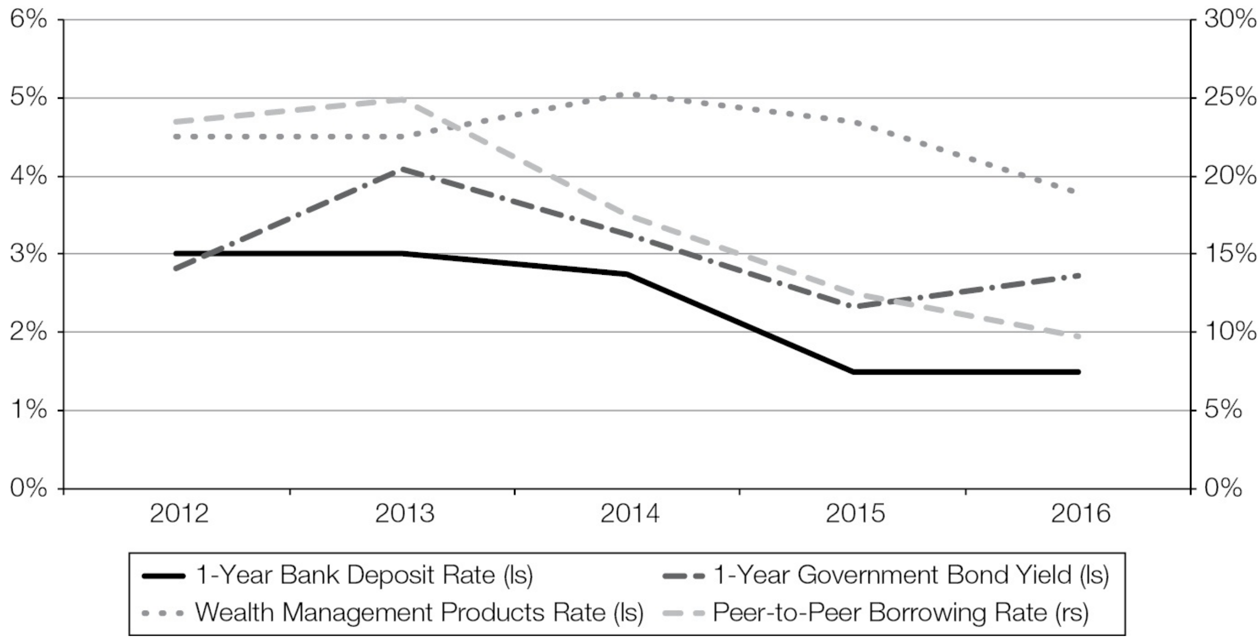

Figure 3.2 Returns for Investors in Banks and Shadow Banks
2012 data are estimated.
Created by the author using information from Bloomberg, ChinaBond, Diyi Wangdai (), and Yingcan ().

"We started with about 200 million yuan, now we manage about 700 million," said Mr. Zhuan, who quit his job as bank manager to run a small loan company. "We have about ten investors—business owners that don't want to put more funds into their business." As of 2016, China's small loan shops managed close to a trillion yuan in assets. Mr. Zhuan's is one of about forty in Wenzhou, and among the largest. Investors get a return of about 8 percent, and borrowers pay an annualized rate of about 15 percent. "The banks only have loans for state-owned firms and government projects," says Mr. Zhuan. "We fill the gap." A growing proportion of loans are to consumers: covering the down payment on a house, the purchase of a car, even the startup costs of overseas education for an only child.

A few miles down the road from Mr. Zhuan's outfit is Dinxing Dai, a peer-to-peer lending platform that is providing credit on even more expensive terms. As figure 3.2 shows, annual rates were above 20 percent. Peer-to-peer lending ballooned in size, rising to over a trillion yuan in assets spread over 4,000 platforms in the middle of 2017, up from just 38 billion yuan at the start of 2014. Mr. Zhou, Dinxing Dai's chain-smoking chief executive, pauses from offering investment advice on one of several mobile phones to provide assurance that risks are low. His platform teamed up with big data companies to manage the risk in their loans, he says. Locational data track borrowers. Those who spend too much time traveling around the country are considered higher risks and get charged more for credit.

In the best cases, big data might help minimize defaults. In others, this kind of high-tech hand-waving provides a cover for sharp practices. In December 2015, one of the biggest peer-to-peer lenders was exposed as a Ponzi scheme. Internet lender Ezubo is reported to have cheated its hundreds of thousands of investors out of about 50 billion yuan. Among the lurid details: nonexistent investment projects, a 12-million-yuan pink diamond ring purchased by the company's chief executive for his girlfriend, and a twenty-hour police dig to discover incriminating documents the company had buried.

In Wenzhou, it's tempting to say the economic model came full circle, riding out the great financial crisis and returning to the informal loan schemes that played such an important role in the city's original success. The reality is rather different. Wenzhou's shadow finance used to pay for the development of a world-beating export sector. After the financial crisis and real estate bust, it helped the remains of that export sector keep the lights on, and paid for the unaffordable consumer aspirations of a would-be middle class. The risks of shadow banking remained: regulation was light; borrowers were low-quality, capital buffers thin. The rewards for Wenzhou's economy were no longer there.

For China as a whole, the true shadow banks—not the trusts and asset managers that provide a deceptive cloak to obscure bank lending, but small loan shops and peer-to-peer platforms operating at the fringe of the system—were too small to cause a systemic crisis. At the same time, they appeared emblematic of a financial system that was running out of control. Lending grew too fast and was channeled to the riskiest borrowers. Funding was expensive and uncertain; capital buffers thin or nonexistent. Regulators appeared unable to get ahead of the problems. A crisis might not start today or tomorrow. Without reform, it wouldn't be too long coming.

SOURCE OF STABILITY

Reasons for concern about the lender side of China's financial system are not hard to find. There are also sources of strength:

> Joint stock and city commercial banks were taking on a lot of risks, increasing reliance on expensive short-term funding and taking more and more chances on their asset allocation. The big state-owned banks at the heart of the system—ICBC and others—were not. They remained stable on funding, conservative on lending, well capitalized and profitable.

China's high savings rate and controlled capital account meant funding for the system as a whole was not in doubt.

China's shadow banking system expanded fast. In international comparison it doesn't look that scary. Based on data from global watchdog the Financial Stability Board, at the end of 2016, assets at China's "other financial institutions"—a euphemism for shadow banks—were equal to $9.6 trillion, or about 86 percent of GDP. The Euro area (270% of GDP), United Kingdom (263%), and United States (145%) were all at a considerably higher level.[6] That doesn't mean China's shadow banks aren't big enough to trigger a crisis. Clearly, they are. It does mean that, relative to their size, the amount of worry focused on them appears disproportionate.

In many cases, stresses reflected growing pains from reform. WMPs, money market funds, and interest rate liberalization helped modernize the financial sector. They forced banks to operate in a more competitive market and sped the transition to a consumer economy, boosting income for household savers. Even the collapse of Ezubo and other shadow lenders —a gut punch for those who lost everything—sends a message that high returns come with high risks, and the government won't always come riding to the rescue.

Through all the stress, China's policymakers appeared relatively relaxed. Perhaps that was because a regulator panicking about financial risks is like the proverbial man shouting "fire" in a crowded theater—guaranteed to cause a stampede for the exit. Perhaps it's because they had seen it all before. In its forty years of reform, China had faced down problems worse than nonperforming loans.

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4

China’s First Two Cycles

The year 1989 was bad for China. On June 4, tanks rolling into Tiananmen Square began a bloody crackdown on pro-democracy protestors. The image of “tank man”—a loan protestor standing in the path of a phalanx of armored vehicles—was seared into the global consciousness. It was the closest that reform-era China came to regime collapse. The crackdown handed a bitter victory to conservative Party elders, closing the door to economic reform for years, and to political reform for generations. The proximate cause of the protests was the death of reformist former general secretary Hu Yaobang. In the background was a financial sector run out of control, rampant inflation, and a near-hard landing for the Chinese economy.

It was an early lesson on the relation between economic growth and social stability, purchased at a high price. For future generations of leaders, from Jiang Zemin to Xi Jinping, it was a lesson that was impossible to forget.

The decade ended in tragedy. It started in hope. From 1949 to 1976, China had suffered privations and persecution—the worst of them self-inflicted. Under Chairman Mao Zedong, policy was set according to the dictates of ideological purity rather than evidence of what worked. The result was a series of disastrous mistakes. In the Great Leap Forward, Mao’s ill-conceived and worst-executed attempt to accelerate the move from agriculture to industry, the forced-march pace required requisition of the grain harvest to provide funds for investment. With not enough left to feed the hungry population, the result was history’s worst man-made famine. In the Cultural Revolution, fearing the creeping revival of bourgeois values, Mao turned workers against bosses, students against teachers, children against parents. A society turned on its head resulted in a decade of chaos and misery.

In 1976, Mao’s death opened the door to the return of reason. The first response of China’s new leaders, however, was not market reforms. Mao’s short-tenured successor Hua Guofeng advocated what became known as the “two whatevers”—that is, to uphold whatever policy decisions Mao made, follow whatever instructions Mao gave. That was a misreading of the mood in post-Mao China. Millions had suffered humiliation under political campaigns. Tens of millions had suffered deprivation or worse under failed social policies. There was a hunger for a more complete reappraisal. At a meeting in December 1978, Hua was quietly shuffled aside, saddled with the blame for the political and economic disappointments of the past two years. Deng Xiaoping emerged as China's paramount leader.[1]

China's central committee—the top tier of two hundred or so Communist Party cadres—is appointed for a five-year term. Each year, they convene for a meeting, known as a plenum, to set the direction of policy. The Third Plenum of the Eleventh Central Committee —the December 1978 meeting where Deng displaced Hua—marked a critical turning point. The success that followed reflected more a change in attitude from policymakers than any specific policies adopted. Hua's blindly faithful "two whatevers" was replaced by Deng's resolutely pragmatic "practice is the sole criterion of truth" as the guiding philosophy. In the new atmosphere, policymakers had a new freedom to experiment outside of the narrow ideological confines of Maoism. Out of that freedom came the reform that did more than any other to accelerate China's early development: the end of agricultural collectives and the beginning of the "household responsibility" system, putting individual households back in control of farming.

In theory, by bringing farmers together into larger work teams, collectives should have been a vehicle for modernizing China's farming. In practice, that's not how it worked. By separating effort from reward, the collective created massive incentives for shirking. Knowing that hard work and no work would both be rewarded with the same rice rations in the collective canteen, China's 800 million farmers collectively slacked off. Combined with national directives that ignored local conditions, and a reliance on quotas rather than prices to guide production, the result was decidedly unimpressive. In the three decades from the 1950s to the 1970s, despite being the focus of all-out efforts by policymakers, grain production only increased 5 percent.[2]

The household responsibility system overcame that problem. By restoring the link between effort and reward, it encouraged China's farmers to put their backs into it. The early signs were encouraging, with harvests rising. Initial experiments in Anhui and Sichuan provinces were rapidly rolled out nationwide. Zhao Ziyang—the Party secretary in Sichuan—would be tapped by Deng to serve as general secretary and spearhead a broader package of reforms. By 1984, 99 percent of rural households were participating in the system, up from 1 percent in 1979. The Third Plenum that marked the turning point in China's reforms had specifically banned the household responsibility system. But it wasn't the policy specifics that mattered, it was the change in philosophy. With Deng's focus on results rather than ideology, local farmers and officials had license to experiment, and whatever worked could be rapidly adopted on a larger scale.

Progress on the reform of industry was more halting, but the direction was the same. A series of policy documents on expanding enterprise autonomy aimed to do for factory managers what household responsibility had done for farmers—sharpen incentives by aligning effort and reward. In 1980, Deng promised to take the Party Committee out of day-to-day affairs in factories. Shougang—the steel giant that decades later would become a poster child for planners' overreach in the Caofeidian industrial zone—was at that time a beacon of reform, trialing new profit incentives for factory management. In 1982, price controls for buttons were eliminated. Eager entrepreneurs from Wenzhou began production, taking advantage of new freedom for local enterprises. The planned economy stayed in place, but for the first time enterprises were allowed to sell above-plan output and keep a share of the profits.

Special economic zones opened the door to global markets, giving local governments the flexibility to attract foreign capital, technology, and expertise. It was Xi Zhongxun—the Party secretary of Guangdong and the father of President Xi Jinping—who spearheaded the campaign for the first zone in Shenzhen. Inside the zone import and export tariffs were relaxed, and businesses could operate according to market principles, free of the constrictions of China's still-planned economy. It was a policy innovation that kick-started China's export industry and, as important, created a constituency calling for more market reforms. Firms outside the zone looked on enviously and demanded the same freedoms for themselves.

With the benefit of hindsight, China's early reform trajectory appears clear and policy choices consistent. For those in the trenches of 1980s policy debates, it was anything but. Reformers, headed by Deng, wanted rapid liberalization, seeing it as the path to rising living standards and national revival. Conservatives, headed by Party elder Chen Yun, advocated a more cautious approach, with a larger continued role for Soviet-style planning. Chen's "bird cage" theory captured the conservative philosophy. The economy, Chen said, is like a bird: "You can't just hold a bird in your hand or it will die. . . . You have to let it fly, but you can only let it fly in a cage. . . . Without a cage it will fly away." Keeping a caged bird healthy proved easier said than done.

In an irony that would not be lost on students of dialectical materialism, for both reformers and conservatives, success carried the seeds of its own destruction. Wins for the reformers would trigger overheating and inflation, allowing the conservatives to seize the reigns. Conservatives proved able to control prices only at the expense of hammering growth, opening space for the reformers to elbow their way back to the table.

In 1984, the political winds were blowing in favor of the reformers. Growth was strong and inflation low, reducing the argument for conservative caution. The household responsibility system had been a demonstrable success, delivering bumper harvests and strengthening the hand of market advocates. Deng seized the moment. The Third Plenum of the Twelfth Central Committee approved the Decision on Reform of the Economic Structure. The decision was a breakthrough. At the theoretical level, it affirmed that the difference between socialism and capitalism wasn't economic planning; it was public ownership. At the level of policy, it aimed at a reduced role for government-set prices and an expanded role for the market. Firms would be allowed to organize their own production in response to changing conditions, as signaled by market prices. As long as they were publicly owned—that was still socialism.

Separate from the decision, but equally consequential, the framework for a modern banking system was put in place. In the past, the People's Bank of China (PBOC) had functioned as both central and commercial bank, setting credit limits and determining who got loans. It was as if the Federal Reserve were the only bank in the United States, setting the money supply and allocating credit according to a government plan. Now, with the creation of Industrial and Commercial Bank of China, China Construction Bank, Agricultural Bank of China, and Bank of China—the big-four state-owned banks that would dominate the financial landscape for decades to come—central and commercial banking functions were separated. The PBOC would manage monetary policy. The new banks—still owned by the state but operating on something closer to a commercial model—would attract deposits and make loans.

Seizing the moment, the newly created commercial banks responded with a surfeit of enthusiasm. Credit growth in 1983 was already running at a respectable 13.7 percent annual pace. In 1984, it accelerated to a torrid 36.4 percent.[3] Lending expanding at such a rapid pace could only fuel overheating. That misstep by the reformers was the opening for which Chen and the conservative planners were waiting. They scrambled to reassert control. At a series of emergency meetings, provincial leaders were told to curtail major projects and cap bank lending. Chen used his post as head of the Central Commission on Discipline Inspection to reign in freewheeling cadres. Anticipating Beijing's later troubles containing ebullient local officials, those controls were only partially successful. With newfound influence over the banks, and more concerned about local growth than national overheating, local leaders paid lip service to Chen's concerns, but didn't substantially change course. In the three years from 1985 to 1987, annual credit growth never dropped below 20 percent.

A breakneck pace of economic expansion, torrid loan growth, and local leaders oblivious to central controls was already a combustible combination. The spark that triggered the blaze came in August 1988, when the Politburo endorsed Deng's plan for comprehensive removal of price controls.[4] The direction of travel was the right one. Market-set prices are a crucial underpinning of economic efficiency, signaling to firms where to produce more and where to cut back. China's dual-track pricing system—with state firms able to buy goods at a low government set price and sell them on at higher market prices—was a wellspring of corruption. The timing was disastrous. On August 19, the day after the Politburo meeting, the decision on price reform was announced in the *People's Daily*. Already struggling with high inflation, China's urban population rushed to the shops in a wave of panic buying. Stores emptied as households stockpiled ahead of an anticipated surge in prices. The official data showed retail prices for the second half of 1988 up 26 percent from a year earlier.

This was the setting for the Third Plenum of the Thirteenth Central Committee in September 1988. The Third Plenum of the Eleventh Central Committee in 1978 had launched the reform process. That of the Twelfth Central Committee in 1984 accelerated it. In 1988, the mood was different. Seizing the opportunity presented by spiraling inflation, Chen and the conservative planners redoubled their retrenchment policies. Investments were cut back, price controls reimposed, credit quotas strictly enforced. The result was a classic example of "operation successful, patient dead." Inflation was lowered, but only at the expense of hammering growth and jobs. In 1988, GDP expanded 11.3 percent. In 1989, it plummeted to 4.2 percent.

The one-two punch—first high inflation hammering purchasing power, then slumping growth hitting wages and employment—proved disastrous. Public servants, already incensed at the corruption of senior officials and their families, saw soaring prices eroding the buying power of already meager salaries. Migrant workers, pulled into the big cities by the 1980s construction boom, found themselves jobless as investment projects were curtailed. It was in this atmosphere that the Tiananmen protestors' call for greater political freedom found an echo in wider social discontent, triggering first mass protests, then a draconian response from Deng and the Party elders.

For China's policymakers, two lessons stood out. First, big-bang reforms came with unacceptable risks attached. Deng's decision to pull off the plaster of government set prices in one swift movement had catastrophic consequences:

spiraling inflation and social unrest. Second, an overheated economy had to be cooled down slowly, not doused in icy water. Chen's retrenchment policies, and the resulting drag on jobs and wages, had added to the atmosphere of unrest. In the years that followed, gradualism, on reform and on cooling an overheated economy, was the watchword for policymakers. That combination proved successful in preventing a repeat of the 1989 disaster. It also allowed problems —like excess loan growth—to run unchecked for too long. The price of delaying a day of reckoning could, ultimately, be that the day of reckoning would be too large to reckon with.

JIANG ZEMIN AND CHINA'S SECOND CYCLE

In 1998 China suffered something close to a financial crisis and economic hard landing. Credit growth plunged, crunching down from 23.8 percent at the start of 1997 to 13.4 percent in mid-1998, on its way to low single-digit growth in 2001. Bad loans surged. Guangdong International Trust and Investment Corporation, which had used its government backing to raise funds from investors at home and abroad, collapsed under $4.3 billion in debt, the money squandered on real estate, hotels, and securities trading.[5]

Based on the official data, GDP slowed to 7.8 percent growth from 9.2 percent —a sharp drop, and a fall below the 8 percent target. Even that 7.8 percent figure is widely suspected of exaggerating the reality. Premier Zhu spoke of a "wind of embellishment and falsification sweeping through the statistical system." Looking at everything from electricity output to air travel, Thomas Rawski, an expert on China's economy at the University of Pittsburgh, estimated that the true growth rate for the year could have been as low as 2.2 percent.[6]

The actual depth of the downturn will never be known. It's telling, however, that in response Premier Zhu launched a massive infrastructure stimulus—committing 1.5 trillion yuan over three years, the equivalent of 18.8 percent of 1997 GDP. Telling also that the bailout of the banks that started in 1999 had an initial price tag of 1.4 trillion yuan and continued to climb in the years that followed. If the downturn had not been severe, the reaction would not have been so big.

What had brought China to this extremity? Like the cycle that defined the 1980s, that of the 1990s began with Deng, and with a restoration of reform momentum. In 1978, the defining event was the Third Plenum and the jettisoning of Maoist dogma in favor of pragmatic policymaking. In 1992, it was Deng's southern tour.

“My father,” said Deng’s son Deng Zhifang, speaking in late 1990, “thinks that Gorbachev is an idiot.”[7] What had Mikhail Gorbachev, the General Secretary of the Soviet Union and the man who presided over its collapse, done to earn Deng’s contempt? Gorbachev’s mistake: attempting political and economic reform—glasnost and perestroika—at the same time. As a result, he lost control of the levers of power, losing both political control and his ability to fix the economy. For China, Deng had chosen a different road, ensuring that the Communist Party maintained its monopoly on power and using that power to steer a path to a more efficient economy.

Even so, conservatives had always feared that economic reform would prove the thin end of the wedge, with rising wealth driving demand for increased political freedom, and an expanding role for the market eroding the legitimacy of Communist rule. The events of 1989, when economic instability and political discontent fused into social upheaval, appeared to confirm their darkest imaginings. Deng, now eighty-seven years old, found himself out of favor and—perhaps—out of time, unable to restart the reform process, unable even to get his views published in the *People’s Daily*.

The conservative retrenchment policies introduced by Chen at the end of 1988 were kept in place. Zhao Ziyang, the architect of the 1980s economic reforms and the senior leader who had been most sympathetic to the Tiananmen protestors, was in jail. Jiang Zemin, his replacement as general secretary and now heir apparent to Deng, aligned with the conservative orthodoxy of the time. Western sanctions on trade with China dealt a blow to exporters in the new special economic zones, added to the us-against-them mentality, and stoked the anti-reform mood. The collapse of the Soviet Union at the end of 1991 confirmed the view of conservatives: further moves toward the market were not a good idea.

The forces aligned against reform were formidable. So was Deng. In January 1992, with little fanfare, he began his last foray into influence—a southern tour taking in the cities of Wuhan, Changsha, Shenzhen, and Zhuhai.[8] In Shenzhen, the site of China’s first and most successful experiment in reform and opening, Deng said that “Shenzhen’s development and experience prove that our policy of establishing the special economic zones was correct.” In Zhuhai, the reform message was delivered again, and with a political edge. Deng attended a meeting with Qiao Shi, a member of the Standing Committee and a potential rival to Jiang as Deng’s heir. “Whoever is opposed to reform must leave office,” Deng said. “Our leaders look like they’re doing something, but they’re not doing anything worthwhile.”

The official press paid little attention to Deng's tour. A gaggle of reporters from Hong Kong and the freewheeling Guangdong newspapers were hanging on his every word, amplifying their impact, and turning Deng's tour into a national conversation about reform. In Beijing, the message was received loud and clear. By mid-February, even before Deng's return, Jiang was vocally supporting the call for accelerated opening. He arranged for Deng's speeches to be collected and circulated to senior leaders. The conservatives' success in containing inflation, and the easing of post-Tiananmen sanctions, would already have resulted in calls for loosening of economic controls. Now Deng's tour and Jiang's support redoubled the pressure.

In May, a swath of provincial capitals were granted the same economic privileges as the special economic zones, opening to foreign investment and trade. In Shanghai, development of Pudong—the district on the east of the river that would become China's financial center—moved off the drawing board into construction. It wasn't long before the results were evident in the data. With controls removed, local officials rushed to start a fresh round of industrial investment. Capital spending, languishing at 2 percent growth in 1990, rose 44 percent in 1992 and 62 percent in 1993. GDP growth accelerated from 3.9 percent in 1990 to 9.2 percent in 1991 and 14.3 percent in 1992. The Party Congress in 1992 became a celebration of Deng's reforms. His calls for accelerated efforts became Party policy.

Deng bequeathed Jiang with a restarted reform process, but also a problem to deal with. With investment running wild, the economy was once again overheating. By 1993, the consumer price index had broken above 10 percent. In 1994, it rose above 20 percent. Remembering what happened during China's last bout of high inflation, Jiang readied the riot police. This time, however, it wasn't Chen Yun leading the charge on retrenchment. Chen and other Party elders had stepped back from the front line of policymaking. Instead it was Zhu Rongji, the flinty-faced, no-nonsense vice premier, who found himself tasked with cooling an overheated economy.

In comparison with the retrenchment of 1988, and setting a pattern that would persist through the decades ahead, controls aimed at slowing lending and investment were applied gradually and with a light touch. "We are deeply aware," said Zhu, speaking to US magazine *Businessweek* at the start of 1994, "of the need to provide a soft landing for the Chinese people . . . if the growth rate were allowed to decline significantly, our social stability would be adversely affected, and if social stability were adversely affected, we would not be able to initiate reforms."[9]

With GDP growth in 1995 still at 11 percent and price increases still running in double digits, one might have wondered if Zhu's soft landing was actually no landing at all. Macroeconomic controls were tight enough, though, to prevent inflation spiraling higher. By the start of 1996, annual increases in the consumer price index were back in the single digits, tight enough also to end the rally in the infant stock market. Prefiguring later extreme boom–bust cycles, the Shanghai Composite Index rose from 393 in November 1992 to 1,536 in February 1993, before crashing back down to 339 in July 1994. Combining humor and resentment, stock pickers quipped that it wasn't a bear market or a bull market but a pig market—about as appealing to be in as a pig sty, and a pun on the similarity between Zhu's name and the Chinese word for pig, which is also pronounced "zhu."[10]

Zhu had gone one better than Chen, taming inflation without hammering growth. Left unaddressed, however, was an even larger task—cleaning up moribund state-owned industrial firms, and the overstretched state-owned banks that kept them afloat.

The Asian financial crisis strengthened incentives to accelerate reform. It was on July 2, 1997, that Thailand, under intense pressure from speculators, floated the baht. That was the start of a crisis that rolled across the region, toppling once-mighty banks and corporations, laying growth low and bringing governments to their knees. Japan, South Korea, Indonesia, Thailand, Hong Kong, Malaysia, Singapore, and the Philippines all slid into recession. In Indonesia, which saw a 13 percent contraction in output in 1998, the thirty-one-year reign of President Suharto came to an end. A photograph of International Monetary Fund managing director Michel Camdessus standing over Suharto as he signed up to stringent conditions for a rescue loan came to characterize the crisis, which many in Asia saw as caused by foreign investors and exacerbated by foreign governments.

The proximate cause of the crisis was speculative attacks by foreign speculators. Hedge funds like George Soros's Quantum Fund made big bets that Asian central banks wouldn't be able to maintain overvalued exchange rates, triggering a flood of hot money out of the region. The underlying cause was a crony capitalist system, with banks making loans based on political rather than commercial logic. For China, a closed capital account—with strict controls on any cross-border fund flows—meant immunity from speculative attacks. The charges of crony capitalism, however, hit uncomfortably close to home. If relations between banks, businesses, and government in Thailand, Indonesia, and Korea were too close for propriety, China's state-owned family was positively incestuous.

For Zhu, there were two questions: first, how to calibrate policy settings to ride out a crisis that threatened to hammer exports; and second, what structural changes would be needed to inoculate against a similar shock striking the mainland. On the first, China won plaudits for resisting the temptation to devalue the yuan—a move that would have bolstered exports, but exacerbated the crisis for the rest of Asia. A stable yuan provided an anchor for the region as currencies around it plunged. Instead, with hollowed-out exports laying bare industrial overcapacity, Zhu opted for a massive infrastructure stimulus—a 1.5-trillion-yuan splurge that anticipated the 4-trillion-yuan response to the great financial crisis a decade later.

On the second question, the lesson that China's policymakers drew was that reform needed to accelerate in some areas, and slow in others. State-owned firms needed to be cut off from life support, and operate on a commercial basis. Banks needed to make loans according to financial rather than political logic. On capital account opening, however—breaking down the barriers between China's financial markets and the rest of the world—caution was the watchword. "Asking a country to open its capital account prematurely," warned Zhu, "may even destroy the country's economy."[11] China's leaders had seen what happened to Suharto. They didn't want the same thing to happen to them.

Reform at the end of the 1970s was centered on a shift in mindset: Deng's "practice is the sole criterion of truth," an oblique but effective debunking of blind faith in Maoism. In the 1980s, the key win was the step away from the plan as the guide to production and prices. In the 1990s, it was public ownership that found itself in the reformers' sights. At the start of the reform era, state-owned enterprises were the engines of industrial development and a source of revenue for the government. By 1997, that was no longer the case. Profits for state-owned firms, equal to 15 percent of GDP in 1978, had fallen below 2 percent.[12] Even ahead of the Asian financial crisis, Zhu bemoaned a state sector that was riddled with overcapacity and burdened with debt, with three people employed to do the job of one.

At the Fifteenth Party Congress in September 1997, Jiang took aim at state ownership, calling for "removing the fetters of irrational ownership structure on the productive forces and bringing about a situation of multiple forms."[13] The word "privatization" was not uttered, but the direction of travel was clear. In the years that followed, Zhu presided over a root-and-branch reform of the state sector. Following a policy of "grasping the large and releasing the small," Zhu aimed to nurture a core of major state-owned enterprises, creating globally competitive firms that could go toe to toe with General Electric, Siemens, and Sony. Smaller firms faced privatization, merger, or bankruptcy. For many of their workers, this meant unemployment. In 1996, on the eve of ownership reforms, there were 142 million employed in the state sector, accounting for 72 percent of urban employment. By 2002, when Jiang and Zhu were preparing to pass the baton to the next generation of leaders, those numbers had fallen to 83 million and 33 percent.

The second target of Zhu's reform was the banks. In the early years of China's reform era, commercial banks did not exist. With a system of two hundred thousand employees across two thousand local branches, the PBOC allocated credit based on the priorities of state planners. Even after the big-four commercial banks were carved out in the mid-1980s, lending was driven more by political than commercial considerations. State firms investing in line with national development plans got credit, even if the projects had little chance of delivering a commercial return. Zombie firms with no viable business model but a crucial role in keeping unemployment low got credit, even if they had no chance of repaying it.

In such an environment, it was inevitable that banks would be plagued with low profits, high nonperforming loans, and an inadequate capital buffer. In 1998, the stock of bad loans was about 3.5 trillion yuan, equal to a third of GDP.[14]

The first challenge for Zhu was to deal with that legacy of troubled assets. In 1998 the government issued 270 billion yuan in bonds, with the proceeds used to recapitalize the banks. In 1999, the government established four asset management companies—one for each of the big banks. Operating on policy directives rather than commercial interests, they purchased 1.4 trillion yuan of bad loans from the banks, at face value. The second challenge was to instill in the banks a new commercial culture. That proved harder to do. In 2002, Jiang had a moment of nostalgia for the good old days when Shanghai bankers would take so much responsibility for bad lending decisions they would drown themselves in the Pu, the river that divides the east and west sides of the town. "How many bankers today have jumped in the Pu—or any other river—because of bad debts?" he asked.[15] Further government support would be contingent on banks putting their own house in order.

Even as banks moved closer to commercial operation and—a few years down the line—full-blown initial public offerings, nothing would dent the Party's control of their operations. Banks' role in managing China's development strategy, and smoothing the ups and downs of the growth cycle, was too important to allow them to become fully privately owned or market-oriented. "Like the People's Liberation Army," said one cadre during the 1998 reforms, "the banking system would remain a preserve of the Party and subject only to its control."[16]

Reform of the state-owned enterprises and the banks retooled China's economic engine. It was entry into the World Trade Organization (WTO) that provided the fuel to make it speed ahead. In 1986, when China first applied to join the General Agreement on Tariffs and Trade, it looked like an easy win. A government monopoly on trade—with all imports and exports channeled through state-owned Foreign Trade Corporations—was already on the way out. In the United States, the strategic calculation favored bringing China into the fold of global commerce as part of the counterbalance to the red menace of the Soviet Union. It turned out to be somewhat less straightforward than expected.

In China, fighting tooth-and-nail opposition from conservatives who feared Western influence and state firms that feared foreign competition, reformers worked to put in place the conditions for WTO membership. For the United States, however, the strategic calculation swung through 180 degrees. The collapse of the Soviet Union and end of the Cold War reduced the need for a close embrace with China. The horror of Tiananmen shifted the US focus on China away from its successful reforms toward its authoritarian government. Bill Clinton campaigned for the US presidency with a promise to get tough with the "butchers of Beijing"—tying WTO access to progress on human rights. US labor unions viewed China less as fellow travelers on the path to worker power and more as an unwelcome source of low-price competition.

If the obstacles were formidable, so too was the will to overcome them. For Zhu, WTO entry would not just allow China to tap global demand, it would also be a catalyst for reform—attracting more foreign investment and expertise, forcing strong Chinese firms to do better, pushing weak ones into bankruptcy. In the United States, the business lobby was salivating at the prospect of cheap workers and new markets. In April 1999, Zhu was embarrassed when an ill-fated trip to the United States failed to deliver the expected agreement. A few months later, the breakthrough was achieved. In 2001, at a meeting in Doha, fifteen years after China's application, the WTO welcomed China as its 143rd member. Hailing the decision, Jiang promised China would "strike a carefully thought out balance between honoring its commitments and enjoying its rights." In the years that followed, as China's trade surplus with the rest of the world ballooned, it seemed the balance was more toward the latter.[17]

For China's leaders, the experience of the first half of the 1990s confirmed the lesson they had learned at the end of the 1980s. The Chinese people must be provided with a soft landing; an overheated economy cooled slowly. The experience of the second half shows that they knew not to waste a good crisis.

Asia's meltdown would provide the catalyst for root-and-branch reforms of state-owned enterprises, a recapitalization of the banks, and entry into the WTO. Those reforms, recalling the dynamism of the Deng era, would propel China's growth into the twenty-first century.

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5

China's Third Cycle and the Origins of the Great Financial Crisis

China's economy under Deng Xiaoping had been characterized by reform without losers. A few got rich first, most got richer, few were worse off. During the Jiang Zemin administration (running from 1989 to 2002), that was not the case. Progress on reform meant the shuttering of thousands of state-owned enterprises. Millions lost their jobs. The "iron rice bowl" of cradle-to-grave benefits was smashed. Even as the divide between winners and losers grew starker, Jiang moved away from Communist orthodoxy, enshrining the idea of merit-based rewards in the Party constitution. In 2002, Jiang's final Party Congress agreed on the principle that "labor, capital, technology, managerial expertise and other production factors should participate in the distribution of income in accordance with their contributions."[1] With that final jettisoning of Marx's "from each according to their ability, to each according to their need," the door to rising inequality was gaping wide.

Following Jiang, the first and most distinctive contribution of the Hu Jintao administration that started in 2002 was an attempted shift toward a more inclusive model of development. Hu's first trip as Party secretary was to Hebei, visiting the last Communist headquarters in 1949 before they seized power in Beijing—a signal of return to the Party's orthodox and egalitarian roots. At the Third Plenum in October 2003 he staked out a more socially conscious vision of China's development, bemoaning the slow increase in rural incomes and the "prominent contradictions" that had left so many without jobs. One of Hu and his premier Wen Jiabao's first and most successful decisions was to reduce the burden of the agricultural tax, removing a drag on farmers' incomes.

In his ten years in office, Hu, himself from a humble background, maintained a steady focus on building a progressive social policy. He didn't get the job done, but he did make progress. In the old world, workers had enjoyed an "iron rice bowl" of cradle-to-grave welfare provided by state-owned enterprises. Housing, education, healthcare, and pension were all provided by the *danwei*, or work unit. In the new world most jobs were in private firms, and even for those that remained in the state sector, benefits were stripped back. Steadily increasing government spending on social services, and expanding coverage of health insurance, Hu didn't fully replace the iron rice bowl. He did at least provide the instant noodle cup of a rudimentary welfare state. Where Jiang's signature achievement was the "three represents"—bringing the capitalist entrepreneurs into the Communist Party fold, along with the workers and the farmers—Hu promised a "harmonious society" where the entrepreneurs didn't get rich at the expense of the workers and the farmers.

On financial reforms too, the early years of the Hu administration were a period of progress. With People's Bank of China (PBOC) governor Zhou Xiaochuan in the lead, China's technocrats set out a roadmap for recapitalizing, remodeling, and—ultimately—listing the banks. Carving out $45 billion from its foreign exchange reserves, the PBOC created Central Huijin, a state-owned investment vehicle that would use the funds to recapitalize the banks, plugging holes left by a decade's accumulation of nonperforming loans. At the end of 2003 Huijin injected $22.5 billion each into Bank of China and China Construction Bank, taking their capital base up to the 8 percent level required by international regulations.

The next step was introducing foreign strategic investors—needed not so much for their capital as for their expertise, and eager to gain a foothold in the Chinese market. HSBC took a 19.9 percent stake in Bank of Communications, China's fifth-largest bank. Bank of America and Temasek—Singapore's sovereign wealth fund—invested in China Construction Bank. Goldman Sachs took a 7 percent stake in Industrial and Commercial Bank of China (ICBC). Hank Paulson, at that time Goldman's chief executive, tells how the firm flew out senior executives to teach ICBC's cadres about risk management.[2] International standards on capital adequacy and strategic investments from foreign banks—both were a departure for a China suspicious of the destabilizing impact of global capital markets. Both were necessary, providing an international seal of approval as the banks prepared for listing on the global markets.

The final step was the initial public offering. Bank of Communications was the first to test international investors' appetite for a piece of China's financial story. Hong Kong, which combined global funds and standards with geographic proximity to the mainland and political alignment with its leaders, was chosen as the venue. Their June 2005 IPO raised $1.9 billion. On the first day of trading, the share price popped 13 percent. With the tone set, a positive reception for the other state banks was assured. Bank of China was next to market, raising $11.2 billion in June 2006. Seven months later in January 2007, the giant ICBC raised

$21.9 billion—the world’s biggest IPO.

China’s reformers had attempted something rather ingenious—a bailout of the banks that was tied to the introduction of modern management and market incentives for improved risk management. “This is the last time,” declared Lou Jiwei, then the vice minister of finance, reflecting hopes that this was the bailout to end all bailouts.

The listing of the state banks was a major step forward that left the reformers still significantly short of the goal of a modern, efficient financial system. On the achievement side of the ledger, taken together with the creation of the asset management companies in the late 1990s, the fancy footwork in deploying foreign exchange reserves cleaned up the banks’ balance sheets. The nonperforming loan ratio for ICBC, for example, came down to 4 percent in 2006 from 24 percent in 2003. Foreign strategic investors—among them some of the world’s leading commercial and investment banks—brought with them new technology and expertise. Stock market listings added market discipline to the incentives for good governance. Global investors’ appraisal of the banks’ performance was now reflected second by second in the ups and downs of share prices.

On the failure side, even after welcoming strategic investors and selling shares to the public, China’s banks remained firmly under control of the state. Foreign investors had a seat at the table. Equity investors could signal their displeasure by selling the stock. But the majority of shares, and the entirety of control, remained in the hands of the government. As the prospectus for the ICBC IPO spells out, the bank’s majority shareholders—the Ministry of Finance and Central Huijin—“have strong interests in the successful implementation of the economic or fiscal policies enacted by the State Council and/or the PBOC, which policies may not be . . . in the best interest of our other shareholders.”

GOVERNOR ZHOU’S TRILEMMA

Entry into the World Trade Organization (WTO) was one of the defining economic policy successes of the Jiang administration. Failure to capitalize on the opportunity that presented to upgrade China’s industrial structure, or to address imbalances in the drivers of growth it caused at home and abroad, came to define Hu’s term.

Combining cheap domestic labor and advanced foreign technology produced impressive results. By 2005, China’s annual exports were $763 billion, more than three times higher than in 2000, and rising rapidly. Chinese firms learned fast. Even as total exports rose, the share of domestic value added climbed to 68 percent in 2008, from 64 percent in 2000. National champions like Alibaba, the e-commerce giant that started life connecting Chinese firms with foreign buyers; Huawei, the telecom equipment firm and bête noire of US intelligence agencies; and Lenovo, one of the world's biggest producers of laptops, would not exist if China had not entered the WTO. For hundreds of millions of workers, life on the sweatshop production line was hard and sometimes bad for the health. But it provided a pathway out of hardscrabble rural poverty.

For China, WTO entry was a more or less unalloyed positive. What the rest of the world expected when they signed on the dotted line in Qatar, however, and what they actually got, were two different things. For many foreign firms, the door to the Chinese market remained closed. For others, the price of access was a joint venture with Chinese partners, with forced technology transfer eroding competitive advantage. In banking and financial services, behind-the-border restrictions—like strict controls on new branch openings—restricted foreign banks to tiny backwaters of the market.

More damaging than the foregone overseas gains were the manifest domestic losses. Wages in China were a fraction of the level in the United States and Europe. An exhaustive exercise by the US Bureau of Labor Statistics found that in 2005 China's factory workers earned—on average—about 83 cents an hour.[3] In the United States, the minimum wage was $5.15 and most earned more. An undervalued yuan, subsidized land, and cheap credit gave Chinese firms an additional competitiveness boost. Workers in the West found themselves first uncompetitive and then unemployed. An influential paper by a team headed by MIT professor Daron Acemoglu estimated that from 1999 to 2011, import competition from China led to US job losses in the range of 2 million to 2.4 million, with most concentrated in America's Rustbelt.[4]

In the 1970s and 1980s, Japan's rise had made it the job-stealing villain of the US economic morality tale. In 1985, in what became known as the Plaza Accord, Ronald Reagan's Treasury secretary James Baker strong-armed his Japanese counterpart into agreeing to a massive yen appreciation, aimed at restoring balance to bilateral trade. The results for Japan were disastrous: a slump in exports, a financial bubble, and a lost decade of stagnant growth. Fast-forward two decades, and it was China that posed the new threat to US jobs. The Treasury turned to the same playbook, calling for yuan appreciation to choke off China's exports and boost demand for US goods.

Faced with the same problem, it's no surprise that the United States would reach for the same solution. Learning from the Japanese experience, it's no surprise that China would resist. In May 2005, the US Treasury called China's exchange rate policies “highly distortionary.”[5] They threatened to name Beijing a currency manipulator, opening the path to economic sanctions if the PBOC didn’t loosen its grip on the currency. In the Senate, a bill called for across-the-board tariffs if the yuan didn’t significantly strengthen against the dollar.

It was July 21, 2005, when the PBOC finally ended the yuan’s ten-year peg to the dollar with a one-off 2 percent appreciation. It was, in a sense, a response to US pressure. The bigger picture, however, was that China had moved when it wanted, and by how much it wanted. Four years after entry into the WTO, exports were growing close to 30 percent a year. GDP was on track for another double-digit expansion. China, it was eminently clear, had been the major winner from the decision. A 2 percent yuan move, and a shift to a crawling peg against the dollar, was the blueprint designed by Governor Zhou. It was a move in the right direction, but nothing like the massive appreciation forced on Japan in the Plaza Accord, nor in any way big enough to narrow China’s trade surplus. To do that, the number crunchers at the US Peterson Institute for International Economics said that a revaluation of more than 30 percent was required.[6]

For Zhou, China’s lead financial technocrat, architect of many of its most important twenty-first-century reforms, the yuan strategy erred on the side of caution. Zhou did not want to repeat the mistakes of Deng’s big-bang price deregulation, when a one-off move resulted in a chaos of inflation and social unrest. Neither did Beijing want to fall into the same trap as Tokyo—caving to demand for extreme appreciation, and crumpling the export-driven growth model.

Gradualism made sense, but it came at a cost. Zhou found himself, if not trapped, then at least severely confined by what economists call the “impossible trinity.” The idea, which originates in 1960s work by Marcus Fleming and Robert Mundell, is that a country cannot simultaneously have a fixed exchange rate, free capital flows, and an independent monetary policy. That’s because capital flows to where returns are highest, so countries with an open capital account must accept either interest rates in line with the global anchor—the Federal Reserve—or a floating exchange rate.

Many economies opt for independent monetary policy and a floating exchange rate. Independent monetary policy—the ability to set interest rates in accordance with national conditions—provides a crucial tool to manage the ups and downs of unemployment and inflation. A floating exchange rate helps keep trade in balance and provides a cushion against shocks, depreciating in the bad times and appreciating in the good. A few, like Hong Kong, have a fixed exchange rate but sacrifice independence of monetary policy (the Hong Kong dollar is pegged to the US dollar, and the Hong Kong Monetary Authority sets interest rates that mirror those of the Federal Reserve).

China, characteristically, tried to stake out a position slightly outside the established rules. Instead of having two of the impossible three, they opted for a little bit of each. The yuan was managed but also reflected market pressure; capital flows were restricted but not banned; the PBOC moved rates independently of the Federal Reserve, but had to keep its objective of yuan stability in mind. What that meant in practice is that in the early years of the yuan peg, in order to avoid surging capital inflows, interest rates were kept low—too low for an economy growing at China's pace.

As a rule of thumb, loan rates should be roughly in line with the pace of nominal GDP growth—a proxy for the expected return on investment. If they're too much higher, no one will borrow, hitting growth and employment. Too much lower and demand for credit will be too great, fueling inflation and asset bubbles. Deposit rates should be at least above the rate of inflation—otherwise, household savers don't get a fair return and consumption suffers. In China, the decision to manage the yuan meant that both of these rules were violated. Borrowers could tap funds at way below their expected return. Savers were penalized with below-inflation rates. China's economic structure was thrown off-balance, constantly at risk of runaway inflation and asset price bubbles, and with a worrying tilt away from consumption toward investment and exports.

Twice in the early years of the Hu administration, inflation pushed past the pain point for China's households—touching 5.3 percent in August 2004 and 8.7 percent in February 2008. Online jokers wondered if the real rate of price increases was even higher, asking satirically: "Do the statisticians buy vegetables?"

On the first occasion, interest rates didn't move at all. On the second, the PBOC raised the benchmark one-year deposit rate from 2.5 percent to 4.1 percent—still way below the level of inflation. Zhou found himself trapped on the horns of Fleming and Mundell's trilemma. Higher rates were necessary to choke off inflation. But despite China's closely managed capital account, higher rates would also attract hot money inflows. Speculators had multiple routes to bring funds into the country, from overinvoicing for exports to disguising portfolio flows as investment in factories and other bricks-and-mortar assets. Hot money inflows made it harder to manage the exchange rate and supercharged growth in the money supply—adding a fresh source of inflationary pressure.

With no easy options, the central bank allowed the pace of yuan appreciation to accelerate. A stronger yuan chokes off inflation by reducing demand for exports—increasing slack in the economy, and lowering import prices. As more rapid yuan appreciation drove more capital inflows, the central bank increased the share of deposits banks are required to hold in reserve, locking up the influx of funds before it could spill over into inflationary lending. The National Development and Reform Commission—the powerful economic planning agency—put a stop on any increases in government-set prices, and sent inspection teams out to twenty-six provinces to keep a lid on food prices.[7]

Concerted efforts by the central bank and the economic planners succeeded in bringing prices under control. China under Hu never suffered the vertiginous rise in inflation that pushed the economy, and social stability, to the brink in 1989. At the same time, the exchange rate, which sets the relative price of foreign and domestic goods, and the interest rate, which sets the price of money, are the most important levers for managing the economy. Holding them too low for too long, as China had done, introduced serious distortions. Inflation at 8.7 percent would not be the most serious challenge China had to deal with.

LAND GRABS AND ONLY CHILDREN: THE SOURCES OF UNBALANCED GROWTH

"This is where my farm was," says Mr. Fu, pulling his battered sedan alongside Golden Lakeshore, a collection of luxury villas on the outskirts of Chengdu, a city of 11 million in China's southwest. The villas are out of Mr. Fu's price range. When government-hired thugs drove him off the small plot where he ran a fish farm, local officials paid Mr. Fu just 9 yuan per square meter for it. The plot was quickly resold for 640 yuan per square meter to a developer, which built villas that sell for 6,900 yuan per square meter.[8]

Mr. Fu found himself unemployed, one among tens of thousands of former farmers who inhabited the impoverished fringes of Chengdu. He had no heart to start another business. "What's the point if the government can just destroy it?" he said. The problem of poverty was compounded by inability to access social benefits. Despite having his farm destroyed to make way for the expansion of the city, Mr. Fu was classified as a rural resident. Without an urban *hukou*—the residence permit which entitles locals to tap welfare payments and social services—he had no access to unemployment and pension benefits. His family, no right to public education and healthcare.

Mr. Fu is not alone. China's urbanization boom was built on land wrenched from tens of millions of farmers. Huang Qi, a land rights activist in Chengdu, heard stories like Mr. Fu's every day, thousands a year. Operating from his spartan apartment, Huang acted as a clearinghouse for information on land grabs, fielding a constant stream of calls on his mobile phone and posting the information on his website in the hopes negative publicity would stop the worst extremes. The authorities tolerated that act of constructive dissent for a while, then apparently decided it was too much trouble and locked him up for sharing "state secrets." The Chinese Academy of Social Science puts the number of landless farmers at 40 million to 50 million. A larger group of migrant workers, some 200 million, left the rural farm for the urban factory but can't access urban social insurance or services.

Mr. Fu didn't know it, but he—and the millions of other farmers displaced by the property boom—was the victim of a deep imbalance in China's economy: an excess of saving that threatened the sustainability of the growth model.

The problems start with the one-child policy. Introduced in 1979 as a way of controlling population growth, government-set limits on fertility were an egregious intrusion of the state into the private realm of the family. They would also have an outsize impact on China's economic structure. The need to beat the gender odds (in 2006 there were 106 boys for every 100 girls) and find a wife meant that families had to save to get their sons onto the property ladder. Fewer children to buy diapers, clothes, and food for meant lower consumption. Fewer children to rely on in old age meant more need for precautionary saving.

Other factors also drove saving higher. For farmers forced off their land, and those who left of their own accord to seek a better life in the city, China's welfare state provided scant protections. Survey work by Xin Meng, an academic at Australian National University, found that more than 80 percent had no coverage for illness, unemployment, or old age.[9] For urban workers, the situation wasn't much better. As state-owned enterprises were closed, the share of urban workers covered by health insurance tumbled. The average value of pension payments dropped from 80 percent of salary to 50 percent.[10] Those were wrenching withdrawals, stripping Chinese workers of the social protections on which they had come to rely, pushing them into precautionary saving against the risk of sickness and old age.

Higher inequality, in part the result of a real estate boom that immiserated some and enriched others, meant more wealth in the hands of the high-saving rich. A survey by Landesa, a nonprofit focused on rural affairs, found that on average compensation paid to farmers was just 2 percent of the value of land.[11] For unscrupulous local officials, the opportunity to gouge land from farmers at close to zero cost and flip it to real estate developers who could sell apartments and villas at a high price created massive opportunities for graft. "They all smoke Chunghwa," said a neighbor of Mr. Fu's, referring to local officials' taste for China's most expensive brand of cigarettes. Based on data from the China Household Finance Survey, the wealthiest 10 percent of China's households save 60 percent of their income and account for close to three-quarters of total saving.

An undervalued yuan and low government-set interest rates were also part of the picture. A made-in-China exchange rate meant exports were cheap and imports expensive. Factories up and down the east coast benefited as surging sales pushed profits higher. With higher profits, corporate saving rose. Low interest rates reduced returns on saving. In theory, that should have meant reduced incentive to save. Empirical evidence is inconclusive, but in practice, with households saving for a defined objective (enough for a down payment on a house, for example), it may have increased the amount they needed to stash away.

In 2007, China saved 51 percent of its income. That was a remarkably high level. High in international comparison—the United States and Japan saved substantially less.[12] High also in historical comparison; in the early 1990s, China's savings rate was about 40 percent. It was also a problem. To support demand, preventing a slump in growth and employment, saving has to be recycled into spending. That can happen through investment. Or it can happen through exports—with savings loaned overseas and ending up as foreign demand. Expressed in the formal language of the economics textbook, savings minus investment equals the current account balance. Expressed in more straightforward terms, savings have to show up as either capital spending or overseas sales.

Turning 51 percent of GDP from saving to spending requires a lot of investment or a lot of exports. In China's case, it required a lot of both. In 2007, investment was 41 percent of GDP, and the current account surplus—the difference between exports and imports—was closing in on 10 percent. Once again, those were big numbers. During its period of intense industrialization in the 1970s, Japan's investment-to-GDP ratio peaked just above 40 percent of GDP. In 1986, at the height of concerns about made-in-Japan exports swamping US markets, Japan's current account surplus was just 4 percent of GDP. In 2001, the year it joined the WTO, China's capital spending was 36 percent of GDP, its current account surplus 1 percent.

In a developing economy, there are abundant opportunities for investment. China needed housing, office blocks, shopping malls, roads, railways, airports, power transmission, a telecom network, water treatment plants, steel smelters, and shipyards. Even after funding all of these projects, saving at 51 percent of GDP meant there were too many yuan chasing too few investment opportunities.

A major consequence of that was a housing bubble, with the price of property rising at a torrid pace. With developers scrambling to grab a share of the profits, and local governments hungry for land sales revenue, real estate construction rose from 450 million square meters in 1997 to 2,363 million square meters in 2007. Some got rich. Others were not so lucky. For Mr. Fu and other farmers who found themselves standing in the path of the savings-fueled real estate juggernaut, home, farm, and dignity were all crushed.

Property might have been the preferred investment option for China's high-saving households. It wasn't the only option. For many years, China's stock market had been moribund. In 2005, the stars were aligned for a change. A booming economy was driving soaring profits, with industrial firms reporting 42 percent gains in the first half of the year. A halt to new listings tilted the market from the chill of oversupply to the heat of excess-demand. The start of yuan appreciation added fuel to the fire, increasing the appeal of domestic assets and attracting hot money inflows from overseas.

In July 2005, just before the beginning of yuan appreciation, the Shanghai Composite Index touched a low of 1,011. It ended the year at 1,161, up 14.8 percent. In 2006 the market doubled, climbing 130 percent to end the year at 2,675. By the start of 2007, investors were in raging-bull mode. An honor roll of national champions—from ICBC to Air China—queued up to list. Millions of first-time punters piled in. Pensioner stock-pickers, staring transfixed at the flickering prices of the stock-trading screens, provided irresistible fodder for press photographers. The market roared to an October 16 peak of 6,092—up more than 500 percent from its 2005 trough. "Preventing asset bubbles is like preventing inflation, and it's the government's responsibility to ensure a fair, healthy and transparent stock market," said Premier Wen Jiabao, showcasing his signature combination of noble sentiment and missing action.

Oil major Petrochina's November 2007 initial public offering was timed to perfection, hitting the top of the market and briefly achieving a trillion-dollar market capitalization. If the Petrochina IPO captured the excitement of the China story in 2007, it also reflected the hype. A trillion-dollar price tag made it twice as valuable as Exxon Mobil, despite having barely half the revenue. A dual listing—with Petrochina traded in both Hong Kong and Shanghai—should have meant the same valuation in both markets. In fact, the two diverged, with the stock trading at 57 times earnings in Shanghai and 22 times in Hong Kong. The difference between the two reflected the speculative frenzy that gripped mainland investors—and, more than that, the massive store of savings trapped in the mainland market and looking for any investable assets.[13]

If Shanghai valuations looked too stretched to last, that's because they were.

A combination of tighter monetary policy, an increased supply of shares as state-owned firms rushed to market, and hints of a "through-train" link to allow mainland funds to flow to Hong Kong proved too much for the market to handle. By the end of November, the index had tumbled to 4,871. After a brief revival in December and early January the rout resumed, taking the market down to 1,771 in October 2008.

The pension stock pickers—now impecunious—placed their heads in their hands for one last photo, the shutter clicked, and the story was complete. Trillions of yuan in paper wealth had been created, and then almost immediately destroyed. Many factors were at work. Surging industrial profits, optimism in the future, and the irrational exuberance of China's inexperienced investors all played a part. Behind it all, however, were the one-child policy, the destruction of the iron rice bowl of welfare benefits, government-set interest and exchange rates, and socialist inequality that would make a capitalist blush. The result: savings at 51 percent of GDP looking for a place to invest, and all the stolen land and speculative bubbles that brings.

The busted boom of China's stock market made for great headlines. For China's economy, however, it remained small news. Stocks were too insignificant as a source of corporate fundraising and store of household wealth to boost growth on the way up, or bludgeon it on the way down. The same could not be said of another consequence of China's high savings rate—the great financial crisis.

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6

China’s Economy in the Great Financial Crisis

September 15, 2008, was not a good day for the global economy. Lehman Brothers, the storied investment bank with a history stretching back to the middle of the nineteenth century, filed for bankruptcy. That news tipped the markets into freefall. The pass-through to the real economy was swift and severe. US output contracted, falling 8.4 percent in the fourth quarter of the year. Unemployment hit 10 percent. As financial contagion ripped through global banks and US consumers chopped up their credit cards, the crisis spread around the world. Europe and Japan followed the United States into recession. Recovery would be slow and painful. Even after the crisis was over, the United States and the world found themselves on a permanently lower growth trajectory. Faith in free markets, faith in globalization, and faith in establishment political parties was shaken to its core.

Success has many fathers; failure is an orphan. Many had theories on who else was to blame for the financial crisis. None wanted to claim it as their own. John Taylor, a professor at Stanford, blamed the Federal Reserve. Based on Taylor’s own creation—the Taylor rule, which provides a rule-of-thumb guide to where the Federal Reserve should be aiming—rates had been “too low for too long.” The result: a real estate bubble, and a stash of dodgy mortgage-backed securities on banks’ balance sheets.[1] Ben Bernanke, a member of the Federal Reserve’s Board of Governors during the time of the supposed “too low for too long” misjudgment, had his own explanation for what triggered the crisis: China.

In the years ahead of the crisis, Bernanke pointed out, the Federal Reserve had raised rates. It had done so cautiously, reflecting uncertainty about underlying economic conditions, but even incrementally executed the move from 1 percent in 2004 to 5.25 percent in 2006 was significant. Strangely, however, even as the Federal Reserve had moved short-term interest rates progressively higher, long-term rates—the price everyone from the government to homebuyers paid to borrow for major projects—stayed low. The yield on ten-year government bonds rose from about 4.7 percent at the start of the tightening process to 5.2 percent at the end. The reason, Bernanke said, was a “global savings glut,” with most of the saving coming from China.[2]

China had learned from the rolling series of emerging market crises in the 1990s—from Mexico's "tequila crisis" in 1994 to the Asian financial crisis in 1997. These shared a common cause: a sudden exodus of foreign funding. Governments had followed the prescriptions of the Washington Consensus—opening to trade and capital flows. Instead of the promised accelerated development, however, they had suffered heightened instability. Observing events from a distance, it was natural for China to choose a different path. China would open to trade flows. It would not open its capital account or borrow from overseas. Instead, the People's Bank of China (PBOC) maintained close controls on cross-border capital flows, and built up a store of foreign exchange reserves.

As China's exports expanded faster than imports, a bulging trade surplus should have meant pressure for yuan appreciation. Instead, the PBOC intervened actively in the foreign exchange market, buying up trade-surplus dollars at a policy-determined rate. Those dollars drove the increase in foreign exchange reserves, which rose from $212 billion when China joined the World Trade Organization in 2001 to $1.9 trillion on the eve of the financial crisis. The lion's share of those reserves was invested in US Treasuries.

Put a different way, China saved 51 percent of its income. Much of that savings it used as investment at home—some going to worthwhile projects, some wasted on roads to nowhere or evaporated in speculative bubbles. What was left it lent to the US Treasury.

The consequence in the United States was bargain basement borrowing rates that fueled the real estate boom. With mortgage rates low, homebuyers took on more debt than they could manage. Investment banks, taking advantage of cheap funding, loaded their balance sheets with mortgage-backed securities. The increase in household wealth, or at least the illusion of it, reduced the US savings rate from low to nothing. Investment was channeled into equities and real estate rather than expanding productive capacity-capping growth in exports. With China in a self-reinforcing cycle of saving and trade surplus, and the United States in a self-reinforcing cycle of borrowing and trade deficit, the foundations of the financial crisis were laid. When the mortgage defaults began, the system toppled and then fell.

In the history of the great financial crisis, it is September 15, 2008—the day of the Lehman bankruptcy—that gets the most attention. It's November 9 that may end up having the larger long-term consequences. That's the day when a meeting of China's State Council, chaired by Premier Wen Jiabao, announced a 4-trillion-yuan stimulus package, a massive program of spending on infrastructure, affordable housing, and industrial upgrading aimed at keeping the wheels in the world’s fastest-growing major economy turning. “Over the past two months, the global financial crisis has been intensifying daily,” the State Council said. “In expanding investment, we must be fast and heavy-handed.”

Details were lacking, but the signal was clear. The United States had faltered on its financial rescue and stumbled on its stimulus response. China would be decisive. US Treasury secretary Hank Paulson went down on one knee, a theatrical gesture to beg congressional leaders for stimulus funding. The Federal Reserve agonized over the legality of its rescue operations. In China, with its single-party state and subservient courts, there would be no such quibbling over democratic checks or legal balances. With demand in the United States and Europe poised to plummet, hammering exports, China opened its wallet to boost domestic demand. The 4-trillion-yuan stimulus was equivalent to 15 percent of GDP—close to the magnitude that Zhu Rongji had put to work in respond to the Asian financial crisis ten years earlier.

It was two weeks after Wen’s November announcement before China’s policymakers filled in the details of their stimulus plan. Spending on transport and power infrastructure would be the largest element, accounting for 1.8 trillion yuan of the 4 trillion. There was a trillion yuan for reconstruction following a massive earthquake in May 2008 in Wenchuan—a mountainous part of southwestern Sichuan province—that killed sixty-nine thousand and left 4.8 million homeless. Rural infrastructure, environmental investment, affordable housing, technology, and health and education filled out the total.

Wen committed 1.2 trillion yuan in central government funds. The balance, 2.8 trillion yuan, was to come from local governments and state-owned enterprises. If the same thing happened in the United States—a big-headline spending commitment, but with inadequate federal funds to back it up—the White House would be pilloried for running a fake stimulus. In China, given the growth-or-bust mentality of local officials, the concern was the reverse: local governments would not be too slow to spend; they’d be too fast. Within a month, eighteen provinces had piled in with proposals for projects with a total expenditure of 25 trillion yuan—more than 80 percent of GDP. In Sichuan, a local official apologized that capital spending in the first nine months of 2009 had come in at a mere 870 billion yuan. “We need more investment projects,” he said.[3]

Funding was already moving into place. The PBOC had cut interest rates twice in quick succession, with one 27-basis-point cut at the start of October 2008 and one at the end. Following the State Council announcement, they sent a decisive signal, cutting rates another 108 basis points—the equivalent of four rate cuts at once. Before the end of the year they would cut again. The interbank interest rate (the rate banks pay to borrow from each other) fell from a high of close to 4 percent in July to below 1 percent at the start of 2009. In parallel, the reserve requirement ratio (the share of deposits banks have to keep in reserve) was lowered, releasing more funds for lending. The 4-trillion-yuan stimulus provided the motive for banks to lend; bargain basement rates and a lower reserve requirement created the opportunity.

And lend they did. In the first quarter of 2009, banks made 4.6 trillion yuan in new loans, more than triple the level in the same period a year earlier. By the end of the year, there was 9.6 trillion yuan in new lending. That was a lot of money: close to double the total for the previous year, equal to about 30 percent of China's GDP, and double the dollar value of the US Troubled Asset Relief Program—the largest component of the US stimulus.

A lot of the new lending flowed to local government. In theory, local governments were barred from borrowing—a common-sense rule aimed at preventing local chiefs dashing for growth at the expense of blowing up the public debt. In practice, a workaround already existed, allowing local governments to set up off-balance-sheet vehicles to borrow. A shift in the rules made it easier for them to do so—a fateful move that solved the stimulus funding problem at the expense of opening a Pandora's box of financial risks. Local governments began a massive construction program. Investment in the transport network, already clocking 19.7 percent growth in 2008, accelerated to 48.3 percent growth in 2009.

Real estate boomed, a reflection not just of the surge in new lending but also of targeted efforts to ramp up property demand. China dropped a policy mandating punitively high borrowing costs for homebuyers—part of a precrisis attempt to cool the market. Homebuyers were enticed with rates at 70 percent of the benchmark. Taken together with the PBOC rate cuts, that meant mortgage rates fell from 8.2 percent in summer 2008 to 3.7 percent at the end of the year. Minimum down payments were reduced to 20 percent from 40 percent. The five years buyers were normally required to hold a home before they could flip it tax-free was reduced to two.

China's property speculators are not a group that needs much encouragement. Now, not to be outdone by local officials in their patriotic support for China in her hour of stimulus need, they responded with alacrity. Mortgage lending quintupled. In 2008, property sales fell 13.7 percent. In 2009, they roared back to 67 percent growth.

The industrial planners at the National Development and Reform Commission were also hard at work. "Long-range plans for adjustment and rejuvenation" aimed to seize the opportunity presented by the crisis to upgrade sectors from steel and shipbuilding to autos and electronics.[4] Autos also benefited from massive tax rebates, pushing sales from 4.2 percent year-on-year growth at the start of 2009 to 61.5 percent at the end. For hundreds of millions of rural residents, the government rolled out subsidies to buy home electronics—aiming to boost rural consumption and offset the impact of slumping foreign demand. Retail sales of home appliances accelerated to a peak of 62.3 percent annual growth at the start of 2010.

It worked.

In the first quarter of 2009, with exports contracting and stimulus yet to gain traction, growth shuddered to a halt. The official GDP gauge showed the economy slowing to 6.4 percent year-on-year, the weakest growth in almost two decades. China's GDP numbers come with caveats: the jagged edges of the economic cycle smoothed by the necessities of political message management. In the bad times, the official growth rate is almost certainly too high. In the good times, it is likely too low. In an unguarded moment, Li Keqiang—who in 2013 would follow Wen as China's premier—remarked that China's GDP data is "man-made." Li, at that time the Party secretary of Liaoning province, tracked bank loans, electricity output, and rail freight as proxies for growth. As figure 6.1 shows, an index based on those inputs hit a trough of 2.6 percent growth at the end of 2008.[5]

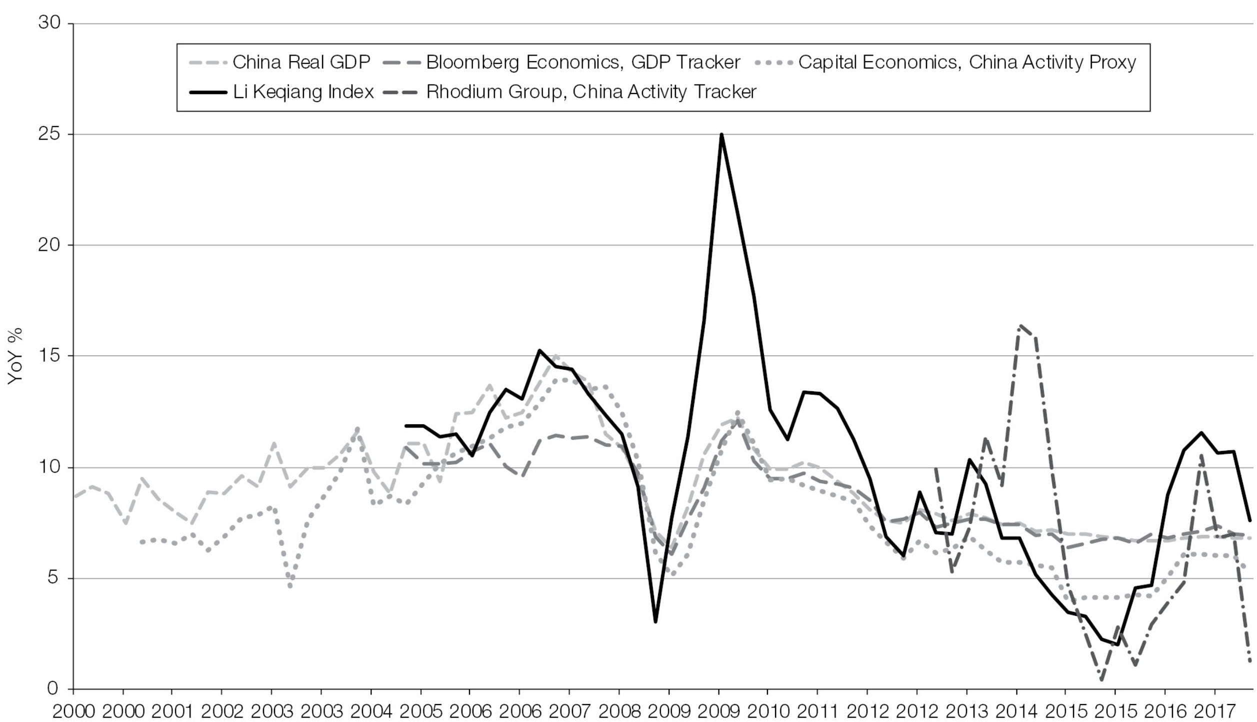

Figure 6.1 China Official GDP Growth and Proxies

Created by the author using information from Bloomberg, Capital Economics, China National Bureau of

Created by the author using information from Bloomberg, Capital Economics, China National Bureau of Statistics, and Rhodium Group.

Unemployment soared. A survey by Scott Rozelle, an academic at Stanford and an expert on China's rural economy, found that from September 2008 to April 2009 some 17 percent of migrant workers—45 million of them—lost their job or delayed a move from the farm to the factory.[6] Journalists gleefully reported on Taiwanese bosses fleeing out of factory back doors, their suitcases full of cash, while mobs of unpaid workers protested at the front, angrily inquiring about missing salary payments. For a Chinese leadership focused, above all, on social stability, these were troubling signs.

By the second quarter stimulus had started to take hold, however, and by the second half of the year the economy was humming again. GDP reaccelerated, rising to 8.2 percent year-on-year growth in the second quarter on its way up to 11.9 percent at the end of the year. The Li Keqiang index pointed to an even more rapid recovery, hitting a peak of 26.8 percent growth at year end. The Shanghai market roared from 1,706 in November 2008 to 3,471 in August 2009, more than doubling in value. Workers who had lost their jobs in the export sweatshops found new work on the construction sites. Rozelle's survey found that by August 2009, the unemployment rates for migrant workers had fallen to 4.9 percent.

It would be eight years before unemployment in the United States returned to its precrisis level. Ten years on, the jobless still haunted the streets of capitals in Italy, Spain, and Greece. High unemployment and low wage gains had a wrenching impact on the body politic. Establishment parties were swept from power, replaced by populists who did a better job of identifying the problems but no better at finding solutions. In France, the National Front candidate made it into the last round of the presidential election. In the United Kingdom, 52 percent of the population voted to exit the European Union. In the United States, Donald Trump won the presidency. In China, the recovery traced out a triumphant "V" shape and the specter of unemployment and social unrest was rapidly laid to rest; none challenged the Communist Party's grip on power. In the most straightforward terms, the 4-trillion-yuan stimulus was a success.

But even in the hurly-burly of 2009, as markets cheered the stimulus and world leaders lauded China's decisive action, doubts crept in. China's economic playing field was already tilted in favor of inefficient state-owned enterprises, against dynamic private firms. Investment was already running on steroids, at the expense of a stunted role for consumers. Now an unprecedented surge in credit was being channeled from state banks to state enterprises. A cement wave of capital spending crashed over the economy. The result could only be a system tipped further off-balance. Then there was the vexing question of how the borrowing would be repaid. Loans turned quickly into investment would buoy growth. Investment projects that were poorly chosen and sloppily executed would not generate sufficient revenue to repay the debt.

In the attainment of its immediate objective—securing growth and social stability—the stimulus announced on November 9, 2008, succeeded. As for the longer-term consequences, China's policymakers continue to wrestle with them.

TAKING AWAY THE PUNCHBOWL: THE FIRST EXIT FROM STIMULUS

"The Federal Reserve," said William McChesney Martin, who was chair from 1951 to 1970, "is in the position of the chaperone who has ordered the punchbowl removed just when the party was really warming up."[7] That was in 1955. Martin was speaking as the Federal Reserve sought to cool an overheated economy with a hike in interest rates. Approaching the end of 2009, more than half a century later and half a world away, PBOC governor Zhou Xiaochuan was also eager to start removing the stimulus. Wen's 4-trillion-yuan investment program had succeeded. The economy had returned to double-digit growth. A rapid rise in house prices was a tell-tale sign of overheating. With the economy drunk on credit, Zhou wanted to take away the punch bowl.

For the local governments that did the borrowing and the banks that did the lending, it was a different story. To local officials, the stimulus presented a unique opportunity. Major investment projects were the path to an easy life—a source of growth, employment, and opportunities for graft. The only problem in normal times was a lack of funds and the need for regulatory approvals. Now the stimulus had turned local banks into ATMs for infrastructure spending, and virtually any project would get the green light. For banks, more loans meant more profits. And with lending ordered up by the highest level of leadership, there was an implicit guarantee that the government would backstop any bad debts.

From June 2009, without making a formal move on interest rates, the PBOC quietly began withdrawing funds from the market. The China Banking Regulatory Commission, under the leadership of veteran financial reformer Liu Mingkang, insisted banks build up their capital buffer, and made an initial accounting of loans to high-risk local government lending platforms. In January 2010, reacting to a surge in new lending in the first weeks of the year, the central bank raised the reserve requirement ratio, requiring banks to lock up a larger volume of their deposits rather than lending them out. As banks' cost of funds started to edge higher, Beijing's money mandarins hoped, they would transmit higher rates to borrowers, taking the edge off demand for loans.

It wasn't until April 2010 that policy decisively turned toward tightening. On April 17, the State Council published its Ten New Articles plan to curb the runaway property market. All of the apparatus of control on the real estate sector—normally deployed in careful and measured sequence—was suddenly rolled out simultaneously. Taking aim at the speculators that accounted for about a third of the market, the new policy raised down-payment requirements and mortgage rates. Developers suspected of holding back project launches to benefit from rising prices would have their access to finance cut off. The supply of new land for housing would more than double, with a high proportion allocated to affordable homes. A real estate tax—necessary to punish speculators for holding empty property—would be trialed.[8]

The impact on the markets was immediate. Home sales plunged, dropping 70 percent in Beijing and Shanghai, according to reports from local analysts.[9] With real estate developers looming large among listed firms, the fortunes of everyone from steel firms to banks closely tied to the property cycle, and investors already nervous following hints of tightening from the PBOC, the equity market wasn't far behind. The Shanghai Composite Index fell from a peak of 3,166 before the announcement to a trough of 2,363 in July 2010, losing 25 percent of its value.

When there are bubbles in the real estate sector, China's central bankers typically turn to targeted policies to take aim at speculators and developers. They raise down-payment requirements for homebuyers, rather than hiking interest rates for the whole economy. By the final months of 2010, it was clear that rocketing property prices were a symptom of wider overheating. Credit growth, which dipped in the second quarter following the State Council announcement of the Ten New Articles, was accelerating again. The resumption of yuan appreciation—with the crisis-era peg to the dollar broken in June 2010—was a contractionary policy (denting exports), but it also added to price pressure (attracting hot money inflows). Inflation was moving out of the government's comfort zone. It was time to move from targeted controls toward a comprehensive tightening of policy.

In October 2010 the PBOC raised interest rates 25 basis points, the first of a series of moves that took the one-year deposit rate from an all-out stimulus low of 2.25 percent to a higher but still pro-growth 3.5 percent in July 2011. It wasn't enough. By the time the National People's Congress rolled round in March 2011, the consumer price index was pushing past 5 percent—the danger line at which inflation stops being a concern for the policy wonks and starts raising fears of social instability. “Inflation is like a tiger,” warned Premier Wen. “Once it gets free it’s difficult to get back in its cage.”[10]

A sign that the fight against inflation was swinging into mass-line campaign mode: the National Development and Reform Commission (NDRC)—the government’s powerful economic planner—got in on the action. The NDRC imposed price controls on coal and banned exports of fertilizer (an attempt to contain costs for food producers). In April, inspection teams were dispatched from Beijing to the provinces, aiming to strengthen the wavering resolve of local officials in the battle against real estate speculators. With indirect controls on mortgage rates and down-payment requirements ineffective in checking the expansion of the bubble, the inspection teams added a new performance metric to the report cards for local cadres: controlling property prices. Local officials who failed to cap increases in home prices could kiss their hopes of promotion goodbye.

The public mood also shifted. In July 2011 in Wenzhou—China’s entrepreneurial hub—two high-speed trains collided on a viaduct. Forty were killed and 192 injured. The story of Xiang Weiyi, a two-year-old girl who survived the crash but lost both her parents, tugged at the nation’s heartstrings. The government came under fire for secretive and insensitive handling of the aftermath. Millions of netizens on Weibo—at the time a raucous and freewheeling Chinese version of Twitter—looked on aghast as videos showed the cleanup operation, massive cranes pawing mechanically at the smashed carriages. The *Economic Observer*, a hard-hitting newspaper with a social conscience, defied the instructions of the propaganda ministry. In a “Letter to Yiyi” (a familiar name for Xiang Weiyi, doubling the last syllable) they published a special report calling out the “hypocrisy, arrogance, rashness and cruelty behind this tragic story.”[11]

The Wenzhou crash came hard on the heels of a corruption scandal, with Minister of Railways Liu Zhijun hauled off by the investigators. Among other blots on his official record, Liu was reported to have kept eighteen mistresses, a state of affairs more easily explained by his stash of 800 million yuan in bribes than by his diminutive stature or stringy comb-over. At stake for the government was the prestige of a project that had a totemic significance for China’s stimulus. Since the start of the financial crisis, close to 1.5 trillion yuan had been sunk into expansion of the high-speed rail network. The aim was to shorten travel time between China’s provinces and to give Chinese firms a leg up on replicating the

Japanese, French, and Canadian technology behind the trains. Coming amid a period of national soul-searching on the costs of high growth, the Wenzhou crash prompted a rethink. In 2009, in the first flush of stimulus, railway investment grew 69 percent. In 2011, it contracted.

DRINKING POISON TO CURE THIRST: THE DIFFICULTY OF EXITING STIMULUS

It was in Wenzhou, too, that the first consequences of the withdrawal of stimulus were felt. The combination of reliance on shadow finance (prone to dry up fast when the liquidity taps are turned off), heavy investment in real estate (a market now frozen by the government's tightening campaign), and the European sovereign debt crisis (prolonging the slump in exports) proved too much to handle. In the summer of 2011, the press was so full of lurid stories that it appeared Wenzhou's 9.1 million residents were having to pick their way cautiously through the streets between the bodies of suicide victims and fleeing factory owners toting suitcases stuffed with cash. Growth plummeted.

At the start of October, Premier Wen flew in, promising Wenzhou's shadow banking crisis would be resolved within a month. As an indication of seriousness, with him he brought central bank chief Zhou Xiaochuan and Minister of Finance Xie Xueren. A 100-billion-yuan government bailout fund (more than 25 percent of GDP for the city), strong-arming creditors to give debtors some breathing space, and permission for Bank of Wenzhou to go beyond normal limits in lending to local entrepreneurs, succeeded in restoring a semblance of order. (Strikingly, Wen did not condemn Wenzhou's informal financial system—the shadow banks that local entrepreneurs relied on to finance their business—as part of the problem. Instead, Wen identified it as an important innovation, a way of allowing private firms to tap credit and something the rest of country could learn from.)

The Wenzhou crisis was an attention-grabbing indicator of the stresses that accompany withdrawal of stimulus. It was not the beginning of a larger meltdown. For all its centrality to the local growth story, Wenzhou's network of informal lenders was too small to threaten contagion on a wider scale. Industrial and Commercial Bank of China, with its 15 trillion yuan in assets—more than forty times larger than the entire economy of Wenzhou—was not going to be knocked over by a bankruptcy at a button factory, or the collapse of a small loan shop with a few hundred million yuan in assets. After Wen's trip there were no more steps to tighten, but there wasn't a substantial move in the direction of loosening, either.

In April 2012, that changed. The Wenzhou crisis wasn't a trigger for contagion. It was a leading indicator of the stresses that accompany withdrawal of stimulus. The combined weight of tighter credit conditions, sustained real estate controls, and now a European sovereign debt crisis in full swing showed up in the national data. Factory output, consumer spending, and investment all slowed. Sales to crisis-stricken Europe contracted, dragging overall exports down to low-single-digit growth. The reserve requirement ratio had already been cut, freeing up more funds for the banks to lend. Now the PBOC moved on interest rates. A 25-basis-point cut in June and another in July took the deposit rate back down from 3.5 percent to 3 percent, reversing a substantial portion of the poststimulus tightening.

The central bank gave the move a reformist twist. Loan and deposit rates remained set by the government. But now the PBOC lowered the floor on what banks could charge for loans and raised the ceiling on what they could pay on deposits, giving the markets a larger role in setting the price of money. In addition, loan rates were cut slightly more than deposits—a signal that the central bank wanted to reduce banks' hugely profitable net interest margins, preserving income for household savers. Those were important steps toward more market-based interest rates, edging toward removing one of the major distortions in China's economy. They didn't hide the direction of policy: a return to stimulus.

There was no official about-face on the real estate sector. The central bank proclaimed loudly that policies aimed at controlling bubble-high house prices remained in place. But with the focus now swinging back to supporting growth, the signal was clear. Speculators rushed back into the market and sales reaccelerated. Credit growth, slowing continually from its peak at the end of 2009, now ran faster. On a visit to Jiangsu province in July 2012, Wen promised to "stabilize investment"—an ambiguous phrase, but in the context a clear indication that the government was moving into pro-growth mode. Rummaging around in their store of aphorisms, economists warned that another round of stimulus would be like "drinking poison to cure thirst." By then, however, it was too late. The first attempt to curb the excesses of the 4-trillion-yuan stimulus was over, and the market had learned something about China's policymakers' appetite for the pains of credit withdrawal: it was limited.[12]

Why was Wen so trigger-happy on a second burst of stimulus? One reason was concern about the impact of the European sovereign debt crisis. Central banks around the world were cutting rates and expanding balance sheets. The Bank of England moved into a second round of quantitative easing. The Federal

Reserve would follow at the end of the year. China, too, faced a blow from weaker European demand, and that accounts for part of the shift back toward pro-growth policies. A second reason was the unfortunate fact that withdrawing stimulus created a drag on growth. As China's leaders would discover repeatedly, and in myriad different ways, in the years ahead, getting off the stimulus tiger was harder than getting on.

There were also other factors at work. China doesn't have elections. It does have political cycles, and 2012 was a crucial year. After ten years at the helm, Hu's time behind the big desk in Zhongnanhai was drawing to an end. A Party Congress in November would begin the transition to a new generation of leadership. Xi Jinping was widely expected to take Hu's place as general secretary of the Communist Party. Li Keqiang was favored to take over from Wen as premier—a consolation prize after Hu Jintao failed to secure the top job for his preferred successor.

China's leadership transitions lack the public drama of a US election. They are still fraught affairs, with candidates and kingmakers maneuvering for support behind the scenes. This time around, the Bo Xilai affair exposed cracks in the façade of Party unity. Bo was Party secretary of Chongqing (a metropolis in southwestern China), a Politburo member, and a dark-horse contender for a position in the Standing Committee. Like Xi, he was Communist royalty, the son of Party elder Bo Yibo, who had fought alongside Mao in the civil war and served as the first minister of finance after the People's Republic of China was formed. Bo the younger had won adulation and approbation in equal measure for a populist style, including a massive social housing program, a strike-hard campaign against local gangsters, and the revival of Cultural Revolution–era Communist culture, complete with singalongs of revolutionary songs.

Wen was not a fan. The premier used his press conference at the National People's Congress in March 2012 to launch a thinly veiled attack on comrades who had not learned the lessons of history—an oblique reference to the dark days of the Cultural Revolution when the cult of personality around Mao had disastrous consequences. Days later, Bo was out of a job and under investigation, the beginning of a process that would see him expelled from the Communist Party and jailed for life. The catalyst for his downfall was a scoop from the *Wall Street Journal* on the murder of a British businessman by Bo's wife, Gu Kailai.[13] Behind the scenes, however, was a Communist Party closing ranks against a charismatic maverick who threatened the orderliness of the leadership transition and, ultimately, the rules- and consensus-based approach to governance painstakingly developed as a check against return to the chaos of the Mao era.

Perhaps with the situation in Europe deteriorating, Wen didn't need additional reason to add to the stimulus. If he did, the need to prevent the Bo scandal from generating instability ahead of the leadership transition provided it.

History has not been kind to the Hu Jintao era. There were some definite successes. After the growth-at-all-costs approach of Jiang Zemin, the shift in emphasis toward a more people-centered development model was a step in the right direction. There was some concrete progress: reducing the tax burden on hundreds of millions of farmers and moving the rudiments of a national welfare system into place. In the financial sector, shares in the big state-owned banks were sold in Hong Kong and Shanghai, the yuan moved off its dollar peg and started the long march toward fair value, and interest rates began their move away from government control toward determination by the market. In its response to the great financial crisis, China won plaudits for its swift and decisive action, keeping the wheels of growth turning at home, and playing a major part in propping up global demand.

Even as Hu eked out modest progress, the question is why he didn't achieve more. There was certainly no extension of Zhu's root-and-branch reform of the state sector, or the farsighted triumph over the narrow interests of state firms and local officials evident in entry to the World Trade Organization. Indeed, a combination of activist industrial policy, with a starring role for state-owned enterprises, and the 4-trillion-yuan stimulus channeled from state banks to state firms, meant movement was in the wrong direction. Even on his home turf of social policy, Hu failed to deliver on his early promise. Farmers were still without land rights. The creaking *hukou* system—which tied access to social benefits to place of birth—meant millions of migrant workers were second-class citizens in the cities where they lived and worked. Worst of all, the price of securing growth through the financial crisis had been an unsustainable surge in credit.

One reason Hu didn't achieve more was a leadership style that supporters lauded as consensus-based and procedurally thorough, but critics panned as weak and ineffective. Under Xi, that would be the first thing to go.

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7

Xi Jinping and the Start of China's Fourth Cycle

The Xi Jinping era, it was clear from the beginning, was going to be different. Contrasts between the new general secretary—in power from November 2012—and his predecessor were quick to emerge and sharply drawn. Hu Jintao was the son of a small business owner and a teacher. Xi was the princeling son of Xi Zhongxun, who fought in the revolutionary war and played a starring role in Deng Xiaoping's early reform and opening, steering the creation of the special economic zones in Guangdong. Hu rose through diligence and ability. So did Xi, but combined with that was the confidence and connections that come from birth into one of Communist China's ruling families.

Despite being handpicked by Deng, Hu had started his first term from a position of weakness. The Standing Committee was expanded from seven to nine members, making consensus harder to reach, and packed with supporters of retiring general secretary Jiang Zemin, making it harder for Hu to steer his preferred policies through. Jiang retained his position as chair of the military commission. Hu was denied the designation as core of the leadership—a term that signified something more than first among equals, and which had been applied to Mao, Deng, and Jiang.

Xi entered from a position of strength. The Standing Committee was reduced from nine back to seven members. Hu failed to pack the committee with his supporters, and relinquished chairmanship of the military commission. Xi wasn't immediately designated as the core of the leadership, but that would come before too long.

On policy too, Xi was quick to stake out a different direction of travel. Hu's first trip had been to Hebei, visiting the last Communist Party headquarters in 1949 before they seized power in Beijing—a signal of return to the Party's orthodox and egalitarian roots. Xi's first trip was to Guangdong, following in the footsteps of the 1992 southern tour that Deng had used to restart the reform process. "Empty talk endangers the nation," said Xi in one of his first remarks as Party secretary. "Only hard work achieves national revival." When Deng said something similar on his southern tour, it was read as an implicit criticism of the stalled reform process under Jiang Zemin. Now Xi was echoing those remarks, implicitly criticizing the wasted opportunities of the last ten years.[1]

Despite the symbolism of the Guangdong visit, Xi's first flexing of muscles was not on economics, but politics. Corruption, he warned the Politburo a few days after taking office, could end the Party and the state. He promised a crackdown, targeting both "tigers and flies"—high-ranking officials and lowly local bureaucrats. As a sign of seriousness, Wang Qishan, recently elevated to the Standing Committee and one of the Communist Party's most effective fixers, was placed in charge of the graft-busting Central Commission for Discipline Inspection.

The crackdown defined the first years of the Xi presidency. Tens of thousands of officials, from once-mighty members of the Politburo Standing Committee to humble local administrators, were caught in the investigators' dragnet. For China watchers, controversy centered on two questions: First, was this a genuine attempt to restore clean governance or a power play by Xi, ousting his rivals and installing his allies? Second, for all the undoubted benefits of reducing corruption, was the fear-driven campaign throwing government into disarray and hurting the economy?

On the first question, the answer was straightforward: it was both. Weeding out corrupt officials was good policy. It also instilled respect for Xi among officials who remained, and allowed him to quickly move his supporters into key jobs, making it easier to consolidate power and push forward his agenda.

On the second, the answer is more complex. The received wisdom, underpinned by a wealth of anecdotes, is that the campaign threw a wrench into the machinery of government and hurt the economy. Big-ticket construction projects, the story goes, were put on hold. Lavish official banquets were replaced with more modest affairs, emulating Xi's call for officials to be content with "four dishes and a soup." GDP growth slowed from an average of 9.3 percent in the three years before the crackdown to 7.3 percent as Wang's investigators spanned out across the country.

A careful look at the data, however, points to a different conclusion. Looking at corruption investigations on a provincial basis, and cross-referencing that against shifts in growth and economic structure, reveals that there is no consistent relationship between the number of officials investigated in a particular province and what happened to its growth rate. Indeed, the evidence points in the opposite direction. Ahead of Xi's crackdown, provinces that had a more significant problem with corruption grew more slowly. Corruption wasn't a growth accelerator; it was a growth depressor. That is consistent with the global experience of graft as a drag on development, and suggests that lower levels of corruption—if that's the result of the campaign—will be a long-term positive for China's growth.[2]

Deng had favored leaders who were "tough with both fists"—willing to wield the big stick on social order, and with the technical competence needed to push through complex economic reforms. Xi fitted the model. As the anti-corruption campaign swung into action, work was also underway on a comprehensive blueprint for economic reforms.

The World Bank, working with the State Council's Development Research Center, had already delivered *China 2030*—a major report on steps needed to sustain China's growth out to 2030.[3] The main message: reduce government controls on capital, labor, energy, and other factors of production, allowing the efficiency of the market to produce superior growth performance. Xi's top economist, Liu He, was marshalling inputs from the 50 Economists Forum, a group of distinguished, reform-minded Chinese policy wonks.[4] Both groups were providing input into a larger reconsideration of China's economic policy. It had been at the Third Plenum of the Eleventh Central Committee in 1978 that Deng had begun the reform and opening process. Xi wanted the Third Plenum of the Eighteenth Central Committee at the end of 2013 to be the launchpad for his economic program.

Before he could get there, there was another problem to deal with: a meltdown in China's money market. The money market is where banks and other financial firms tap funds to finance their operations. In China, that typically means big banks, which have a surplus of deposits, lending to small banks, which have a deficit. Back in 2013, the People's Bank of China (PBOC) was attempting to shift monetary policy away from crude volume-based controls (telling banks how much to lend) toward more sophisticated price-based tools (using interest rates to match credit supply and demand). That gave the money market additional significance as a channel for transmitting policy—higher rates to choke inflation, lower to buoy growth.

In general, money market rates were managed in line with the benchmark deposit rates set by the central bank. In mid-2013, that was 3 percent. On June 2013 the money market rate hit 28 percent, a nosebleed-inducing high that sparked a panicked global reaction. Rumors of a default by a major bank swirled across trading desks, adding to the unease. With investors scrambling for cash, the bond market sold off. The Shanghai Composite Index tumbled, falling 5.3 percent on a single day. In the United States, markets were already having nightmares about Federal Reserve tapering, after Chairman Ben Bernanke told Congress the central bank might cut the pace of bond purchases. Waking up to what looked like a "Lehman moment" in China—with the credit markets freezing and solvency of major banks at risk—the S&P 500 registered its biggest one-day drop since the Greek sovereign debt crisis in 2011, falling 2.5 percent.

The strange thing about the money market meltdown was that it reflected a deliberate policy action—or rather inaction—from the PBOC. The main concern for the central bank was that low and stable funding costs were enabling an unsustainable buildup of financial risks. That was evident in surging debt levels, with economy-wide borrowing rising from 162 percent of GDP in 2008 to 205 percent in 2012. It was evident also in a growing maturity mismatch, with banks and shadow banks financing long-term assets using short-term liabilities. One gauge of that: turnover in the money market rose from 56 trillion yuan in 2008 to 136 trillion yuan in 2012, equal to more than 250 percent of GDP for the year.

If all that sounds similar to the combination of helter-skelter loan growth and reliance on short-term funding that triggered the US financial crisis, that's because it was. When the banking system faced a seasonal liquidity squeeze, the PBOC saw an opportunity to send a message. June is typically a time of stress for China's money markets. Tax season and a holiday at the start of the month add to demand for funds. Big banks hoard funds ahead of mid-year reports, ensuring they meet regulatory requirements on the ratio of loans to deposits. This time around, there was an additional challenge. Bernanke's attempt to signal a slowdown in the Federal Reserve's quantitative easing triggered the "taper tantrum." Funds flowed out of emerging markets. China, despite maintaining close control on its capital account, wasn't immune.

Under normal circumstances, the PBOC would smooth out the problems, injecting funds to make up the shortfall in the market. This time, aiming to teach lenders that reliance on short-term funding was a risky business, they did not. Interest rates rose. As it became clear that the central bank didn't intend to fill the funding gap, they rose higher. With panic setting in, even banks that did have funds hoarded them rather than lending them out. Borrowing costs spiraled up. Chinese and global equity markets chased each other down.

Perhaps deciding they had made their point, possibly concerned about the consequences for the real economy, and maybe under pressure from higher levels of government, the PBOC relented. Even as money market rates touched 28 percent on June 20, the central bank was already quietly intervening, providing discounted funds to the banks that needed them most. Reporters for Bloomberg noticed a spate of transactions at the end of the day at rates far below the prevailing level in the market—a sign that policymakers were injecting discounted funds.

A few days later, the crisis was over. Ling Tao, the deputy head of the central bank's Shanghai branch, made a first and last appearance in the glare of the media, promising the bank would "strengthen communications with market institutions, stabilize expectations and guide market interest rates within reasonable ranges."[5] The money market rate headed down to less palpitation-inducing levels, reaching 3.8 percent by the first week of July. The crisis was over. The PBOC had given the borrow-short, lend-long cowboys in the shadow banking system a bloody nose, forcing them to reckon with higher financing costs and plunging asset prices. The cost for doing so—a moment of panic that had spilled from Chinese to global markets—had been high.

"Must we accept parenthood for every economic development in the country?" asked Benjamin Strong, the first head of the Federal Reserve Bank of New York. "We would have a large family of children. . . . Every time any one of them misbehaved, we might have to spank them all." The problem Strong identified is that "there is no selective process in credit operations."[6] Raising or lowering rates for one borrower means raising or lowering them for all.

That was in 1925. Almost ninety years on, the PBOC had discovered the same thing. They had a specific problem: shadow banks abusing access to cheap funding to grow their loan books too quickly. They tried to use a general instrument—very high interest rates—to solve it. By spanking all the children for the misbehavior of one, they almost brought the financial system crashing down.

Compounding the problem was that communication from beginning to end had been somewhere between inadequate and nonexistent, culminating in the appearance of an unknown third-tier bureaucrat as the public face of a system-shaking crisis. The threat to financial stability the PBOC had identified was real. The instruments they had to tackle it were inadequate. As stability was restored, attention turned toward the Third Plenum in November 2013—and hopes for a comprehensive solution to China's economic woes.

THE THIRD PLENUM AND XI'S REFORMS

In the 1990s and early 2000s, Yantian—a factory town in southeastern China—was a poster child for the country's economic rise. By 2013, it had become a symbol of the struggle to avoid a new mediocre of social fracture and slowing growth.[7]

In the early days of the reform era, bargain-basement wages, an open door to global markets, and a business-savvy leadership transformed Yantian from a sleepy farming hamlet to a humming factory town with a population close to 150,000. On the eve of China's 2001 entry into the World Trade Organization, there were more than four hundred foreign firms in the town producing cheap electronics, toys, and other goods for export.[8] A 27-hole golf course catered to the Hong Kong and Japanese factory bosses. “If every village in China were like Yantian,” a visiting Communist Party dignitary said, “we would already have overtaken the US.”

By 2013, the number of foreign firms in town had fallen to 150. Higher labor costs, a dearth of available land, and weaker export demand in the wake of the great financial crisis drove some into bankruptcy; others to cheaper locations. The number of migrant workers—human engines of Yantian’s development—halved. “The export sector doesn’t have a long future,” said Deng Zerong, Yantian’s Communist Party secretary, and—according to local folklore—a distant relation of China’s great reformer, Deng Xiaoping.

The city is a cluster of factories, bordered at one end by the golf course. A bust of Deng gazes down benignly from a family shrine on a hill overlooking the town. Centuries ago, the Yantian Dengs and China’s great reformer shared a common ancestor. When China’s reform and opening began in the 1980s, the city was ideally placed to seize the opportunity. A location an hour from Hong Kong and next door to Shenzhen—site of the first special economic zone—meant perfect conditions for an export boom. “It was like finding a hill made of gold right outside the door,” Mr. Deng says.

The risks attached to overreliance on exports started to become evident as early as the late 1990s, when the Asian financial crisis swept some Yantian firms into bankruptcy. The financial crisis of 2008 pushed others into the red. More than two hundred failed, or moved to other locations where labor and other costs were cheaper.

The factories that remained faced lower profitability. Rising wages and a Chinese currency that had gained more than 30 percent since the PBOC broke the peg to the dollar in 2005 took a toll. At Dongguan Shinano Motors, a Japanese firm that employed four thousand workers in the town, wages rose 40 percent from 2007 to 2013, withering profit margins. Aiming to cut costs, the parent company opened another factory seven hundred miles inland, where wages were lower. The next move might be to Southeast Asia, the factory boss said.

In miniature, Yantian’s growing pains were China’s growing pains. On the demand side, the great financial crisis cratered exports. Then, as factories struggled to get back on their feet, Europe’s sovereign debt meltdown prolonged and extended the downturn. On the supply side, Yantian’s factories could compete on price but struggled to differentiate on quality. “There are too many people making the same things,” said Mr. Deng.

As the pool of workers dwindled and the yuan rose, even competing on price became harder to do. China's working-age population shrank in 2012, breaking a rising trend that stretched over the reform era. In large part, that reflected the impact of the one-child policy. According to United Nations' projections, from 2010 to 2030 China's labor force is expected to shrink by 67 million workers—more than the entire population of France. As the supply of workers falls, wages rise and competitiveness is eroded.

Like other local leaders faced with slowing exports, Yantian's chiefs turned to real estate to bolster the economy. In summer 2013, three major residential projects were underway on the town's main drag, with scaffolding and cranes already up. Mr. Deng wanted to see more. "All of this needs to go," he said, with a sweeping gesture, taking in the swath of higgledy-piggledy low-rise buildings that covered the rest of the town. Local leaders also shifted into financial services, investing the town's funds in a loan guarantee company.

At the largest real estate project, a 270,000-square-meter villa development called Blue Mountain, yellow golf carts ferry potential buyers from nearby Shenzhen around the compound's man-made lake. In a neighboring project, the town has taken a majority stake. Sharply rising property prices suggested a bubble in the making. Home prices in the town doubled from 2007 to 2012 as developers offered buyers incentives from Apple computers to gold bars. Many of the locals own two or more homes, an indication that speculation rather than genuine demand is driving the market.

More sustainable growth in Yantian required a more hospitable approach to migrant workers, allowing them to make the town their long-term home. Despite providing the muscle that powers the export and construction boom, China's hundreds of millions of migrant workers find themselves locked out of full participation in the benefits. The *hukou* system ties access to social benefits to place of birth. Rural migrants can leave home to work. But when their own children need to enter the school system, or they need support through unemployment, illness, or old age, they have to return home. By their mid-twenties, 37 percent of China's rural residents move to work in cities. By the time they get to their mid-thirties, just 18 percent are still away from home.

Yantian is more hospitable to its eighty-thousand-odd migrants than most towns in China. Basic schooling, subsidized by local taxpayers, is available to some children. Eligibility is decided based on a scoring system that takes into account payment of social insurance, homeownership, and compliance with China's single-child policy. Factories also expanded coverage of health insurance to more workers—a requirement that is more strictly enforced in Yantian than some other parts of the country. But the conditions to qualify for basic schooling, for instance, are too onerous for many migrants, most of whom are too poor to buy a home.

Many still think like Ms. Lei, a thirty-year-old woman from inland Hubei province. She says she is in Yantian "only temporarily." With no local health coverage and no place for her thirteen-month-old son when he gets to school age, Ms. Lei and her husband planned to move back to their hometown. "We really need migrants," says Deng Manchang, the second in command in Yantian's local government, "but we cast them out."

In November 2013, as the 376 members of the Communist Party's Central Committee gathered in a freezing Beijing for the Third Plenum, it was problems like those of Yantian that they were attempting to solve. Expectations were high. Back in 1978, the Third Plenum marked a fundamental change in China's economic policy—the beginning of reform and opening. Deng Xiaoping's far-sighted decision to throw off the dogma of the Mao era and make "experience the sole criterion of truth" began a process that transformed China from an impoverished basket case to a global powerhouse.

Thirty-five years on, the old drivers of growth were running out of steam. A crisis-battered global economy could not absorb ever-increasing quantities of Chinese exports. China's households could only buy so many houses (after extensive research, economists have concluded that one each is about right). The *hukou* system was a self-inflicted wound, compounding the impact of China's demographic drag by locking hundreds of millions of rural workers out of long-term life in the city. Not visible in Yantian with its entrepreneurial hustle, but farther inland and in the industrial north, a moribund state sector was a drain on resources and drag on growth.

At first, it seemed the Third Plenum had fumbled. As the meeting ended on November 12, a flimsy communique mouthed familiar reform platitudes but provided little substance. The financial press piled in with derisive commentary. "This not a blueprint for reform," concluded one hapless economist, summing up the disappointed mood. They spoke too soon. At plenum feasts, the communique is just the appetizer. The main course comes in the more substantial decision.

When it arrived on November 16, the Decision on Major Issues Concerning Comprehensively Deepening Reform was, as the name suggested, comprehensive. China's leaders set out a framework for reshaping not just the economy and financial markets, but also the legal system, foreign policy, even Chinese culture. Xi Jinping, it was made clear, had held the pen—a departure from the past pattern where management of the economy had been the domain of the premier, and an early sign of Xi's expansive role.

The market should play the "decisive" role in resource allocation, the decision said. At first sight that looked like a victory for the reformers, a commitment to the market in line with the suggestion from the World Bank in its *China 2030* report. In almost the same breath, however, there was reassurance for conservatives: the state should remain "dominant." To some, that looked like a drafting fudge, a form of words aimed at appeasing both market reformers and socialist hardliners. Maybe. But it also represented continuity with policy stretching back to Deng's view on Gorbachev's failures—a strong state being not a barrier to market reforms, but a prerequisite for them.

The most striking immediate change—a relaxation of the one-child policy—exemplified the challenges and limitations of the reform program. China's families had been restricted to one child since 1979. The initial motivation was fear of overpopulation and resource scarcity. By a happy accident, the policy also primed China's economy for growth—minimizing the time prime-working-age parents were focused on childcare, and so maximizing participation in the labor force.

The costs were enormous. The one-child policy represented an intrusion of the state into the most intimate realm of the family, often brutally enforced. Apart from the initial boost from reducing working time lost to child care, the economics didn't make sense. Families with only one child spent less (fewer mouths to feed) and saved more (fewer children to take care of them in old age). That was a significant contributor to China's high savings rate—the original sin in its unbalanced growth model. As demographic destiny played out, China faced a shrinking working-age population and a burgeoning old-age dependency ratio, with every young person working to support two retired parents.

Change was overdue, and the Third Plenum decision was a move in the right direction. At the same time, the new policy demonstrated the challenges facing China's reformers. The shift was incremental, not absolute—the one-child policy was not abolished, just relaxed for families where both parents were only children. Worse, for many young couples, the one-child policy was no longer the binding constraint on fertility. More years spent in education, high-pressure jobs, and the high cost of housing, childcare, and education meant that many now voluntarily chose to have just one child.

The difficulties confronting reformers on the one-child policy encapsulated the challenges that bedeviled the broader Third Plenum agenda. Getting agreement on anything beyond incremental reforms was difficult, and incremental reforms might be insufficient given the magnitude of the challenges China faced. No surprise then that after the initial blaze of pro-reform propaganda, progress was hard to come by. On the critical questions facing China—what to do about the *hukou* for migrants like Ms. Lei in Yantian, what to do about land rights for farmers like Mr. Fu in Chengdu, what to do about ailing state-owned enterprises like Dongbei Special in rust-belt Liaoning—the decision set out sensible if unspectacular proposals:

On land, local governments' monopoly control of the rural land sales was to be broken, allowing farmers to sell at market price.

On *hukous*, rural residents were to be encouraged to move to small towns, but steered away from big cities.

On state-owned enterprises, an essential core of strategic firms like Petrochina and Industrial and Commercial Bank of China would stay under state control. Commercial firms—local steel or coal producers, for example—would be subject to market forces.[9]

The details, however, were disappointing. The New National Urbanization Plan, released in March 2014, mapped a path to urban *hukou* status for 100 million migrants by 2020—still leaving a floating population of 150 million. Reforms were targeted, with a policy of "opening small cities and controlling big cities." The problem with that approach was that opportunities are in the biggest cities. In the United States, no one dreams of leaving their small town for life in Fort Smith, Arkansas.[10] They dream of New York or Los Angeles. In China, no one dreams of life in Hefei, the benighted capital of Anhui province. Everyone wants to go to Beijing or Shanghai. Under the new plan, that path was blocked.

Reform of the state sector was never going to be easy. Taken as a group, China's state-owned enterprises have revenue as big as the GDP of Germany. Leaders of major firms have the equivalent of vice-minister status on the government's totem pole. At a local level, state firms are deeply embedded in the political system, the main instrument for managing the ups and downs of the economic cycle, and a critical provider of employment and social services. It was no surprise that the proposals contained in the decision went nowhere. In the aftermath of the Third Plenum, the only eye-catching initiative to emerge was a cap on pay for top managers—a gimmicky attempt to signal action against inequality, not the kind of far-sighted policy required to shift incentives across the sector.

In May 2014, attempting to frame the narrative on a period of slower but hopefully more sustainable growth, Xi adopted the phrase "new normal." Noting that much about China's development was copied from overseas, cynics were unsurprised to discover that Xi's was not an original formulation. Richard Miller, an economics correspondent with Bloomberg, coined the term to characterize the sluggish rebound in the United States and other developed economies after the financial crisis. In the China context, Xi was putting a more positive spin on it, suggesting that annual expansion in the 7 percent to 8 percent range, combined with energetic attempts to ameliorate imbalances, was preferable to a stimulus-supported return to the double-digit growth of the precrisis era.

Not to be left out of the “new + adjective” competition, International Monetary Fund managing director Christine Lagarde warned that the world was slipping into a “new mediocre,” and for China that was what it felt like. GDP growth had already decelerated from 10 percent in mid-2011 to 7.5 percent in mid-2014. With pressure from demographics and debt, and no prospect of a return to the export boom that drove pre–financial crisis growth, few expected it to linger there for long. Most foresaw a continued decline.

SHANGHAI’S BUSTED BOOM

The exception to the rule on lackluster reform came from the financial sector. Since 2007, there had been talk of a “through train,” punching a hole in the normal controls on cross-border capital flows to allow mainland investors to buy stocks in Hong Kong, and Hong Kong investors to buy stocks in Shanghai. Now those plans were coming to fruition. In April 2014, at the Boao Forum in Hainan—one of China’s more high-profile talking shops, where foreign CEOs hobnob with Communist cadres—Li Keqiang announced plans to connect the Hong Kong and Shanghai markets.

In theory, the price of a stock should be the same no matter where it is traded—a share in Petrochina in Hong Kong represents the same ownership of the company that one in Shanghai does. In reality, China’s controlled capital account meant that Shanghai and Hong Kong markets are moved by different forces. Investment options are different, with a more limited range of financial assets on the mainland. Supply of funds moves in different directions—mainland China’s driven by the pace of loan growth, Hong Kong’s by global capital flows. Sentiment can vary, with Shanghai investors marching to the beat of a national drum and Hong Kong more in tune with the international mood. As a result, share prices in dual-listed companies can diverge widely.

Announcement of the coming Shanghai–Hong Kong connection suggested cross-border flows would soon arbitrage away the differences. In April 2014, when Li’s announcement was made, Shanghai stocks were slightly cheaper than their equivalents in Hong Kong. By November, when the scheme went live, they were trading at a slight premium. With both markets rising, by the end of the year Shanghai had gained close to 50 percent, making it the best-performing market in the world by a wide margin. This wasn't China's first equity boom. The market had surged in 1992 and again in 2007. It was to be its most dangerous.

At the beginning, a rise in Shanghai stock prices on expectations the new connection with Hong Kong would drive an influx of foreign funds had made sense. As 2014 ended and 2015 began, a rational response to an arbitrage opportunity turned into a speculative frenzy. Top leaders, from Premier Li on down, cheered the market higher, with their words echoed and reechoed in the state press. The talk was of a "reform dividend"—with markets supposedly pricing in the coming gains as Third Plenum policies fired the next stage of China's development.

Novice investors, with more enthusiasm than experience, piled in. A survey by the China Household Finance Survey found that two-thirds of new investors lacked a high-school education—an echo of the famous story about the shoeshine boy sharing stock tips with millionaire Joe Kennedy ahead of the 1929 US stock market crash.[11] Margin trading—investors using borrowed funds to bet on ever-increasing gains—pushed the market into overdrive. Investing in stocks with borrowed funds was a risky business; a slight downturn in the market could wipe out an inexperienced investor.

On June 12 the Shanghai market hit a peak of 5,166, the highest level since the 2007 boom–bust cycle. In July 2015 the tipping point arrived. The China Securities Regulatory Commission—missing in action as the market was on the way up—decided that now was the moment to make its presence felt. A new policy threatened to cap funds that equity brokers could lend to investors. Fearing a reduction in the inflow of margin finance that had driven the market higher, traders pulled back.

As the market began to fall, China's investors discovered that margin calls could accelerate the way down just as much as leveraged bets did the way up. In three short weeks, the Shanghai index fell by a third. More than 11 trillion yuan ($1.6 trillion) of wealth was wiped out—greater than the entire annual output of the Canadian economy.

"We can close it down and reopen it later," said China's great reformer Deng Xiaoping, calming communist fears on the launch of a capitalist innovation—that is, the stock market. That was in 1992. Close to a quarter-century later, Deng's successors discovered that was easier said than done.

On July 4, 2015, Xiao Gang—China's top securities regulator—summoned executives of the twenty-one biggest brokerages to his headquarters at Focus Plaza. His objective was simple: corral the reluctant big shots into committing funds to a market rescue plan.[12] It was a tense ninety minutes. The brokers were fierce competitors, not used to working together or to giving over control of their investment decisions to the government. In the end, grumbling, they promised to put 120 billion yuan—some 15 percent of their net assets—to work in a market rescue fund. A statement issued after the meeting glossed over the differences. The brokers "have confidence in the development of the country's capital market, and agreed to resolutely maintain the stable development of the stock market," it said.[13]

For a while, it looked like it was enough. July 4 was a Saturday. When trading opened on Monday, the markets rose, and in the weeks ahead traced out a choppy upward path. Then the second shoe dropped.

For many months, China's foreign exchange market—still closely controlled by the government even as the forces of supply and demand played an expanded role—had been out of balance. Traders' view on the yuan had diverged from that of the PBOC. Traders thought the yuan should be weaker, reflecting pressure from falling exports and outflows through an increasingly porous capital account. Policymakers resisted. Every day traders would sell the yuan down, only to see the PBOC reverse those losses the very next morning—setting a new rate for the currency that ignored the market signals.

That tug of war had continued since the start of the year, but it wasn't a sustainable solution and the PBOC knew it. For one thing, the PBOC's intervention made nonsense of China's claim that the exchange rate was market-determined. For another, the International Monetary Fund wanted the gap between the PBOC and market view eliminated as a condition of awarding the yuan reserve currency status—a long-cherished goal for Beijing.

With the equity markets apparently stable, PBOC governor Zhou Xiaochuan decided it was time to act.

At 9.15 a.m. on August 11, the PBOC announced its yuan fixing—the rate it wanted the currency to trade against the dollar for the next twenty-four hours. On a typical day, the fixing would be set a fraction of a percent up or down from the previous day. That day's fixing was 6.2298, a drop of 1.8 percent from August 10. The PBOC had moved its fixing into line with the yuan's market price, a move they saw as a minor technical adjustment. That wasn't how the market saw it.

The fragile calm that followed the July 4 equity market rescue was shattered. A 1.8 percent drop was the largest single-day yuan depreciation ever. Far from interpreting the PBOC's move as a minor technical adjustment, the markets believed it signaled a major strategic shift. China's exports had been languishing, falling in all but two of the first seven months of 2015. That was a drag on growth, a threat to factory profits and, ultimately—if unemployment rose—to social stability. In the mind of the markets, China was now bowing to the inevitable by restoring export competitiveness with a yuan devaluation.

The 1.8 percent drop, investors assumed, was just the beginning. Traders recalibrated their expectations, pricing in a rapid yuan fall in the months ahead. PBOC deputy governor Yi Gang attempted to undo the damage with a press conference calling for calm. By then, it was too late. The central bank's surprise move had shifted market expectations toward a devaluation, maybe a rapid one—with the yuan falling from its new 6.4 handle to below 7 to the dollar.

Worse, the PBOC's yuan move seemed to confirm the darkest suspicions about China's real growth rate. Skeptical investors had long believed that China's GDP data was massaged upward for political reasons. Unwittingly, the central bank had lent credibility to that argument. After all, if growth was really robust at the 7 percent reported by the National Bureau of Statistics, why would the PBOC need to try a Hail Mary depreciation play?

Fearing further depreciation, investors scrambled for the exits and capital cascaded out of the country; about $540 billion left before the year was out. The plummet in the equity markets resumed, and this time there was no stopping it. By the time the rout was over, at the end of January 2016, the Shanghai index was down close to 50 percent from its peak and 18.8 trillion yuan in wealth had evaporated—more, if the drop in the Shenzhen and Hong Kong markets is added to the total. The contagion ripped around the world. "Heightened concerns about growth in China . . . have led to notable volatility in financial markets," said Federal Reserve chair Janet Yellen, her trademark technical language betraying a hint of alarm. The Federal Reserve had been planning four rate hikes in 2016. With the fallout from China hitting growth and markets, they only managed one.

More by luck than judgment, the worst for China's wider economy and financial system was avoided. China's equity market generates a lot of headlines. But as a store of wealth for households and a source of investment capital for businesses, it plays a limited role. Even during the boom—which saw novice investors piling in—the vast majority of Chinese households held no stocks. For those that did dabble, equity holdings were typically dwarfed by property and bank deposits. Businesses funded their capital spending mainly with loans from the bank and, to a lesser extent, borrowing from the bond market. Even at the height of the market boom, equity issuance accounted for just 5 percent of fundraising. The collapse of the markets would have only a limited impact on spending on roads, real estate, and factories.

As a result, the pass-through from market meltdown to how much consumers spent or businesses invested was limited. High-end eateries in Shanghai's Liujiazui financial district—the closest China has to Wall Street—might have sold less hairy crab (a local delicacy) and *baijiu* (the fiery liquor drunk at Chinese banquets). But in general, the economy weathered the storm. The financial system, too, was bowed but unbroken. Equity brokers bore the brunt of the crisis, but bankruptcies were in the main avoided. China's banks, the backbone of the financial system, were left holding the tab for unpaid margin loans. But even that 2.3-trillion-yuan price tag seemed to leave barely a ripple on their balance sheets.

China's reputation, however, was in tatters. Thirty years of rapid growth had built a lot of credibility. A decisive response to first the Asian financial crisis and then the great financial crisis had added even more. Now all that had been sacrificed. China's maladroit reaction to the equity meltdown had pulled back the curtain, revealing regulators that were no better equipped to deal with a crisis than their counterparts in the United States had been in 2008. China's policy team had shown themselves to be behind the curve, unable to grasp the complexities and interlinkages at work. The biggest funds and brokers in the market were state-owned. So were the majority of listed firms. But that hadn't made it any easier to restore stability. The tools of state control and ability to plan for the long term—which were supposed to set China apart from the free-market United States—proved illusory or ineffective.

Compounding the blow, a heavy-handed response had called into question China's commitment to market opening and reform. Some thirteen hundred stocks—close to 45 percent of the total—were suspended from trading. Hordes of investors were stuck holding positions that they didn't want. Foreign analysts and investors—minor players in an overwhelmingly domestic drama—were vilified in the state press as the evil masterminds of the market's collapse. To stem the tide of capital outflows, the central bank had imposed oppressive controls. Individual banks were required to be in balance on the foreign exchange transactions at the end of each day, so there were no more funds going out than there were coming in.

To prevent the market slide, the government had effectively done what Deng had suggested twenty-three years earlier. With trading in close to half the stocks suspended, the chill of the government intervention permeating the rest, and cross-border capital flows blocked, the market had been turned off.

Around the world, central banks and investment funds were taking careful note. The equity market might be little more than an entertaining sideshow. But the crisis there seemed to foreshadow what might happen if China faced a genuine system-shaking shock. The results were not reassuring.

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8

Deleveraging without Self-Detonating

From Wall Street's traders to the International Monetary Fund's PhDs, China's equity market meltdown and yuan devaluation trauma were confirmation of what many had long assumed to be the case. What looked like glittering success was in fact the iridescent patina on a rapidly expanding bubble. It might not have burst today, it might not burst tomorrow, but it would burst, and probably sooner rather than later. For China's leadership, the same events contained a different lesson—it was time to tackle risks to financial stability.

In 2016, when deleveraging was hoisted near the top of the government's list of priorities, the conventional wisdom was that policymakers faced an impossible choice. They could allow credit to run unconstrained, propping up growth for a few more years but inflating the bubble even further and making the ultimate day of reckoning even worse. Or they could slow the expansion of credit, hitting corporate profits, local government revenue, and household income, and making it harder for borrowers to repay their loans. By hammering confidence and triggering a wave of defaults, the attempt to deflate the bubble could bring about the crisis it was intended to avoid.

The conventional wisdom was wrong. Two years into the deleveraging campaign, China's policymakers had achieved faster growth, a steady debt-to-GDP ratio, and a shrinking shadow banking sector. How did they do it? The answer lies in a combination of the underlying resilience of the economy and financial system, the underappreciated ingenuity of policymakers, and the unusual resources of an authoritarian state.

The beginning of effective action came in January 2016, with a front-page article in the Communist Party's mouthpiece *People's Daily*. An "authoritative person"—widely believed to be Liu He, the chief economic advisor to President Xi Jinping—issued a clarion call for a new approach to sustaining growth. China's economy, the authoritative person said, reflecting the official penchant for numerical formulations, was suffering from "four downs and one up . . . growth is down, industrial prices are down, business profits are down, fiscal revenue is down, economic risks are up."

The solution wasn't just another round of stimulus. After all, "with global growth weak, using stimulus to use up excess capacity is like preparing food for two when there's only one guest; they could eat as much as they could and it still wouldn't all be gone." The only choice, the authoritative person said, was a new approach to economic policy: supply-side reform.

Supply-side reform is a term familiar in the West as the tagline for policies pursued by US president Ronald Reagan and British prime minister Margaret Thatcher in the 1980s. In China, it took on a different meaning. Following the precepts of pro-market thinkers like Friedrich Hayek, Western leaders aimed to boost growth by lowering taxes and reducing regulation—moves they hoped would liberate the dynamism of the private sector. In China, the end goal of a stronger economy was the same, but the path there was very different. Instead of reducing government intervention in the economy, China's supply-side reform agenda would significantly increase it.

China's policymakers had always found themselves caught between the imperative to support growth and the urgency of progressing reforms. Growth, employment, and social stability had to be maintained, even when that required stimulus that exacerbated the economy's imbalance toward excess investment and increased the burden of debt. Equally, there was a pressing need to restore balance and reduce debt, but it was thought that could only happen at a cost to growth. The grand vision of supply-side reform was that supporting growth and reforming the economy were objectives that could be pursued at the same time.

The authoritative person set out five objectives: reduce overcapacity in industry, reduce inventory in real estate, deleverage the economy, reduce costs from administrative approvals, and in case there was anything left out—fill in weak spots. "There's an arithmetic relationship among the five elements," the authoritative person explained. "Reducing housing stocks has an 'additive effect,' offsetting the 'subtractive effect' of cutting excess capacity."

With President Xi throwing his personal weight behind the policy, and much at stake with a leadership reshuffle on the cards at the Nineteenth Party Congress, provincial leaders rushed to get in line. Guizhou—an impoverished province in southwest China, its development impeded by a landlocked and mountainous geography—was near the front of the queue.[1]

In February 2016 Guizhou's government published a plan targeting the closure of 510 coal mines, a move that would shutter tens of millions of tons of capacity. Zombie firms would be dealt with by mergers, restructuring, or bankruptcy. Competitive firms would get subsidies to help them upgrade technology. Guizhou's governor—second in command after the Party secretary—would take charge. In 2016, 121 coal mines were closed, reducing capacity by 21 million tons. In 2017 the target was to close another 120 coal mines and shutter 15 million tons more in capacity.

In Jinsha, a coal-mining town of seven hundred thousand that is a two-hour drive from provincial capital Guiyang, it was Mr. Wan who made it happen. On loan to the local government from a major coal mining firm, and charged with managing the program of closures, he was a busy man. Ensconced in a spartan office—an electric heater whose top doubled as a tea table taking the edge off the mountain's foggy winter chill—he explained how it happened. "National targets are allocated out to the provinces," he said, "then provinces divide those targets up between prefectures, and so on down to counties and towns."

Under his supervision, Jinsha closed 44 coal mines in 2016 and 2017, cutting 5.5 million tons of capacity from a total of 16.8 million. It wasn't easy. Mr. Wan had to manage compensation payments for mine owners, coal shortages for power generators, and in one case backstop debts owed by a mine owner to shadow lenders. Unemployment, however, remained under control. Most of the workers in the small private mines targeted for closure were casual laborers who moved on to other opportunities.

The risk, as officials shuttered operations in the province's pillar industry, was that growth would take a hit. To prevent that, Guizhou opened the stimulus taps. Public–private partnerships—a financing innovation that shifted the initial cost of a project off the government's balance sheet and onto that of the construction company—were the main channel for support. From 2015 to 2017 infrastructure investment financed through the new partnerships came in at 305 billion yuan, equal to 22.5 percent of GDP. To help pay their share, local government financing vehicles issued a net 226 billion yuan in bonds. An even larger amount issued by the provincial government helped refinance existing borrowing at favorable rates. The result was a surge in infrastructure spending that connected every city in the province to the highway system, boring tunnels through the mountainous landscape. Capital spending surged, propping up GDP growth above 10 percent.

With those efforts replicated on a national level, 2016 and 2017 were a period of renewed energy on structural reform, and stabilization on growth. Taken together, efforts to close redundant plants and mines, and a drop in new capital spending, chipped away at excess capacity. In steel, the government cut about 65 million tons in capacity from the 1.1-billion-ton total in 2016, and roughly the same amount again in 2017. In coal, 400 million tons were cut in 2016 and 2017. Capital spending on steel production fell 10 percent in 2017. In coal mining, it fell 12.3 percent.

The government took aim at the problem of fragmented industrial organization, driving consolidation around the larger firms and forcing smaller ones to merge or close. That wasn't pretty to watch.

Mega-mergers—like the welding together of steel giants Baosteel and Wuhan Steel in October 2016—were dismissed by China analysts as mergers in name only. In most cases, the firms were already so large that scope for additional economies of scale was limited. Nicholas Lardy, an expert on China at the Peterson Institute of International Economics, argued that the track record of mergers between state firms is not impressive. In the period of consolidation ahead of the great financial crisis, even as the number of firms fell and the size increased, performance continued to deteriorate.[2]

This time there was a more positive dynamic at work. Merging firms changes the way they think about future expansion. As separate firms, Baosteel and Wuhan Steel might decide they both need to grab more market share with a new blast furnace. The result would be overcapacity. Operating as a single entity, they should plan capacity expansion more closely in line with the needs of the market.

A massive fiscal boost kept the wheels of growth turning. Taken together, the on- and off-balance-sheet fiscal deficit for 2016 and 2017 ran deeper than 10 percent of GDP. That's a very significant stimulus—equivalent to the amount the US government was shelling out to support growth in the depths of the great financial crisis, or the Greek government in its sovereign debt crisis. In China, it paid for a sustained high in infrastructure spending, which expanded 19 percent in 2017, offsetting the drag as capacity in steel, coal, and other heavy industry was shuttered.

EXORCISING THE GHOST TOWNS: HOW CHINA TURNED THE REAL ESTATE LIGHTS ON

Efforts to achieve Liu's second supply-side reform objective—reducing inventory in real estate—were no less energetic. Property oversupply was a major talking point for China market bears and a headache for policymakers. From 2011 to 2016, China built more than 10 million apartments a year. Demand averaged less than 8 million units. In the gap between those two numbers: ghost towns of empty property, cement shells of skyscrapers ringing the edge of major cities, and finished developments with no lights on at night. Zhu Min, at the time the deputy managing director of the International Monetary Fund and a former senior official in the People's Bank of China (PBOC), said in 2015 there were a billion square meters of empty property.

The consequence, if the market had been left to its own devices, would have to be a significant contraction in supply and fall in prices, as excess capacity was absorbed. Balance would be restored, but only at the expense of a crunching correction in GDP. That's why short-seller Jim Chanos called China "Dubai times 1,000"—referring to the overbuilding that triggered a 50 percent drop in property prices in the desert kingdom in 2009 and 2010. Happily for China's economy, and the commodity producers from Australia to Brazil that relied on demand from the property boom, the market was not left to its own devices.

In Guiyang, the capital of Guizhou province, the effort to reduce real estate inventory reshaped the urban landscape. Old properties were torn down, part of a massive program of slum clearance. As excavators clawed the old low-rise developments into rubble, cranes added stories to gleaming new skyscrapers. In 2017 the central government tasked Guizhou with clearing 429,800 slum properties—the second-largest number of any of China's thirty-one provinces. With an urban population of 15.7 million, that is equivalent to tearing down about 5 percent of the housing stock.[3]

With compensation from the government, slum residents could afford to move into one of the new skyscrapers. To lock in that process, compensation—typically about 3,000 yuan per square meter—wasn't paid directly to the residents. Instead it was placed in an escrow account, then paid directly to the developer once residents decided which apartment they wanted to occupy. That wasn't the end of efforts to boost demand. Anyone who bought a house got a local *hukou*—guaranteeing access to local welfare benefits and increasing the incentive for out-of-towners to buy.

It worked. Outside the showroom of Official Residence No. 1—an expansive new development of high-rises, villas, schools, and shopping malls—golf carts decked out as Rolls Royce waited to shuttle buyers back and forth. Attendants, clad in brown felt uniforms with chunky gold brocade—someone's idea of an old-time chauffeur, shivered ill-tempered in the cold. Inside, Mr. Zheng, the project manager, was more cheerful. He brandished a laser pointer—stock in trade for China's property impresarios—using it to pick out different parts of a scale model of the development. "Sales are going well," he said, grinning.

Strong sales and rising prices buoyed profits for real estate developers. Prices in the capital Guiyang rose 10.4 percent in 2017. Land sales were also buoyant, rising 27.9 percent, supporting revenue for the local government. Local residents say even that understates the actual pace of price gains. With ensuring housing affordability one of the performance metrics for local officials, most are unwilling to let new developments come to market at rising prices. To get around that, but also keep the market humming, developers report a low price to the government for the shell apartment. Buyers pay a substantially higher cost, with the increment recorded as a separate payment for decorations and furnishings.

Guizhou is an extreme case, but the same pattern was replicated across the country. The Ministry of Housing and Urban Rural Development set ambitious targets for slum clearance—6 million units a year from 2015 to 2017, and 5 million a year from 2018 to 2020. China Development Bank—the massive state-owned policy bank—provided funding, tapping cheap credit from the PBOC to do so. From mid-2015 through the end of 2017 the PBOC made about 2 trillion yuan in loans earmarked for slum clearance. Commercial banks, often owned by local governments, chipped in additional funds.

There's a "helicopter money" feeling to the process: the central bank printing money to cover the losses of real estate developers. At the same time, even if slum clearance started with the whirring of the PBOC's printing press, it ended with repayment of the borrowed funds. Local governments clear away slum houses, paying the former residents with borrowed funds and gaining ownership of the land. Residents whose slum homes are cleared use the funds toward the purchase of a new apartment. That absorbs excess inventory, pushing real estate developers' profits higher. With stronger profits and anticipating higher demand, developers buy more land from local governments. With the revenue they get from land sales, local governments repay the money they've borrowed, closing the loop.

Slum clearances might have been the most striking, but it wasn't the only measure used to bolster real estate demand. Mortgage lending also soared. Bank loans to households rose 21.4 percent over the course of 2017. PBOC governor Zhou Xiaochuan gave the nod of approval. At his annual press conference at the National People's Congress in March that year, he said mortgage loans supported an entire ecosystem of real estate developers, construction firms, and commodity producers. The implication: mortgage lending is a valuable contribution to society, and the regulators would take a positive view of banks that did more of it.

Administrative controls on who can buy a home were hardened or softened, depending on where excess inventory was greatest. In major cities like Beijing, where demand outstripped supply, there were strict controls on who could buy. For out-of-towners with no Beijing *hukou*, it was tough to find a rung on the property ladder. Even for locals, mortgages were hard to come by—especially for second- and third-homebuyers. In Guiyang, in contrast, it was a free-for-all, with no paper trail of tax receipts or residence documents required of buyers and banks eager to lend. "Home loans are the safest type of loans," said the manager of a Guiyang branch of one of the big-four banks, explaining why he made so many of them.

ELIXIR FOR ZOMBIES: HOW SUPPLY-SIDE REFORM TACKLED THE PROBLEM OF DEBT

The most highly indebted sectors of China's economy are heavy industry, real estate, and local government. The official data doesn't provide a breakdown of debt on a sector-by-sector basis. Using financial reports from listed companies gets around that problem. In 2015, at the height of concerns about a financial crisis, average debt for China's 181 listed real estate developers was 18.3 times annual income. With debt at 17.9 times annual income, iron and steel firms were not far behind. For some local government financing vehicles the problem was even more severe—with no regular income, they depended on land sales to repay their borrowing.

Those averages obscure more extreme levels of stress at the bottom end of the spectrum. The rustiest steel firms had debt equal to a hundred years of income. In Liaoning province, local government financing vehicles that had borrowed at rates of 8 percent or above were generating return on assets of 1 percent or below—making repayment a near impossibility.

Debt crises don't start with average borrowers; they start with the weakest borrowers. Their defaults trigger a reassessment of risk, lenders pull back, and higher-quality borrowers run into trouble. Based on the debt levels of the weakest industrials, real estate developers, and local government financing vehicles, in 2015 China was in a lot of trouble.

How has supply-side reform managed to turn that situation around? Stripping through the complexity of capacity closure targets and slum-clearance financing, the aim of supply-side reform was rather simple: make debt repayment easier by reflating the economy. For students of financial crises, reflation is a familiar tactic. The twist in the Chinese context, and evidence of the sophistication of the tools that Beijing could bring to bear in addressing the problem, was that reflation was targeted at the parts of the economy that had the highest debt.

From 2012 to 2015 the industrial sector was mired in deflation and profits sank. Industrial firms were fighting a losing battle, attempting to repay a fixed pile of debt with a shrinking income. Firms with the highest debt faced the biggest drop in prices and profitability. By closing down excess capacity and ramping up demand, supply-side reform turned that situation around. From 2016—coinciding with Liu He's launch of supply-side reform—prices rose and profits climbed. By the start of 2017, industrial profits were up 31.5 percent from a year earlier.

From 2013 to 2015 real estate was plagued by overcapacity. Home sales first decelerated and then contracted. Prices dropped with them, hitting profits for developers. New construction also contracted, dealing a blow to demand across the industrial sector and taking a chunk out of growth. By tearing down slum dwellings and relocating the residents to new developments, policymakers turned that problem around. By the end of 2016, property sales were up 22 percent and prices had climbed 10 percent. With profits rebounding, developers started to break ground on new projects.

What was good for real estate developers' profits was also good for local government finances. In some provinces, revenue from land sales accounts for more than a quarter of income. In 2015, with real estate sales slumping and developers swamped in overcapacity, land sales plummeted 23.9 percent. Local government finance vehicles, which relied on land sales to repay their borrowing, faced default and bankruptcy. By the end of 2017, with land sales roaring back to 49.4 percent growth, they were flush with cash.

Credit policy also worked to alleviate stress. Finance for slum clearance was provided by the PBOC, with more than 2 trillion yuan in low-interest-rate loans. An explosion in mortgage lending drove property demand to renewed heights, adding to debt for lightly leveraged households, and sparing the balance sheet of highly leveraged developers. Infrastructure spending was financed through public–private partnerships, with the up-front cost paid by the builder rather than requiring local governments to borrow more money.

In contrast to efforts decades earlier in the United States and United Kingdom, China's supply-side reform agenda didn't make the economy more efficient. Indeed, by inserting the hand of the state so forcefully into so many aspects of economic life, it almost certainly made it less efficient. There was more than a touch of accounting sleight of hand, reducing local government borrowing by requiring local-government-owned construction firms to borrow for them. On the key objective of lowering financial risks, however, by shifting so large a share of national income to the most highly stressed borrowers, it was brutally effective.

A TREE CANNOT GROW TO THE SKY: THE DELEVERAGING AGENDA

Deleveraging—a fancy word for reducing debt as a percentage of income—was already one of the objectives of supply-side reform when it was set out in

January 2016. Such was the importance of that aspect of the plan that it got an additional boost. In May 2016 the authoritative person reappeared, once again on the front page of *People's Daily*, this time proclaiming the end of China's debt-driven development model. "A tree cannot grow to the sky," the authoritative person said, "high leverage must bring with it high risks." The message was clear: financial risks were rising. The current course could only end in crisis. Preventing that from happening was one of the major tasks facing the government.

With the *People's Daily* article, financial risk moved from a fringe concern of a few pointy heads at the PBOC to the top of everyone's list of things to do. Supply-side reform addressed financial risks obliquely, by raising income for the most highly indebted borrowers. Now, alongside it, there was the deleveraging agenda, tackling financial risk directly by taking aim at the most overstretched parts of the financial system.

Some of the moving parts were already in place. As the guardians of the financial system—the smartest guys in the room, and the most international in orientation—the PBOC had long been vigilant on risks of a credit crisis. At the start of 2010, with the 4-trillion-yuan stimulus still in full swing, it was the PBOC that first attempted to edge policy back toward normalcy. In 2013 they fired a shot across the bows of financial buccaneers in the shadow banking industry, engineering a precipitate increase in short-term borrowing costs to choke off their source of finance. In 2016 they were ready with a more comprehensive and subtle approach to addressing the problem: the macro-prudential assessment.

A rather opaque term, "macro-prudential" actually means something quite straightforward. 'Prudential' regulation aims to secure the stability of individual financial firms—for example by requiring them to hold enough capital to cover potential losses. 'Macro-prudential' regulation attempts to do the same thing for the financial system as a whole.

In a meeting room at a bank in Zhengzhou, the capital of Henan province, the risk management department had no misunderstanding on the meaning or the importance of the PBOC's new tool. "We got a 'B,' " said the official charged with managing the process. "If we got a 'C' the PBOC would limit our business." Under the macro-prudential assessment, the Henan lender, like all banks in China, provided a quarterly report to the PBOC on its assets, liabilities, capital buffer, and interest rates. Across all of those dimensions, the central bank checked to see if they were crossing regulatory red lines. Too many loans to high-risk industries? Too much dependence on short-term sources of funding? Offering irrationally high interest rates to lure deposits? Inadequate capital buffer to absorb losses? All resulted in a lower score.

Banks that score high, with an “A” on the PBOC’s metrics, get rewarded with higher rates on their reserve deposits (all of China’s banks have to keep a substantial chunk of deposits on reserve at the PBOC; receiving higher rates on them would directly contribute to higher income). They also get more flexibility to expand their business. For banks that score a “B,” like the one in Henan, it’s business as usual. Banks unfortunate enough to come out with a “C” get punished with lower rates on their reserve deposits and a regulatory clampdown that makes it harder for them to grow their business.

The PBOC was not the first central bank to deploy macro-prudential tools to manage risks to financial stability. In the wake of the great financial crisis there was a global surge in activity, as policymakers developed new instruments to disentangle management of monetary policy from regulation of the financial sector. The Financial Stability Oversight Council in the United States, the European Systemic Risk Board, and the Bank of England’s Financial Policy Committee were all established earlier. The PBOC was the first to develop such a comprehensive toolkit, to implement it so actively and with such fine differentiation on a bank-by-bank basis, and to use it to tackle such an extreme risk to financial stability.

The macro-prudential assessment solved two critical problems for the PBOC. First, it got the bank past Benjamin Strong’s dilemma about spanking all the children when only one had misbehaved. As the PBOC had learned back in the June 2013 money market shock, pushing up borrowing costs enough to deter shadow banks also chokes off funds for responsible lenders, and deals a blow to the real economy. Using macro-prudential tools, the PBOC could separate financial regulation from monetary policy. Interest rates could be used to manage growth and inflation. Macro-prudential tools could be used to manage risks to stability. The system the PBOC put in place allowed for management on a bank-by-bank basis. Banks that stepped out of line could be punished. Banks that toed the line were rewarded.

Second, China’s attempts to clamp down on financial risks were often derided as a game of whack-a-mole. Regulators would clamp down on one area of sharp practice, only to see a new dodge spring up elsewhere. Barred from making loans to high-debt real estate developers, for example, banks instead made investments in shadow banks, and the shadow banks loaned the funds to the same end borrowers. By taking a comprehensive view of banks’ balance sheets, the macro-prudential assessment solved the problem. With multiple mallets and a bright light shining on all the holes, the PBOC was now positioned to whack all the moles, some of the moles, or none of the moles—as it saw fit.

The macro-prudential assessment wasn't the only show in town. The China Banking Regulatory Commission (CBRC) got a heavyweight new chief, Guo Shuqing. Guo, a former deputy governor of the PBOC and acolyte of pro-market reformer Zhou Xiaochuan, came out swinging against risks to financial stability. A series of new regulations made it harder for banks to dodge controls on expanding their loan book through complex arrangements with shadow banks. In June 2017 some of China's biggest corporations—titans like real estate developer Dalian Wanda and insurance conglomerate Anbang—were shaken by news that the CBRC was investigating their overseas borrowing, aiming to head off risks from capital flight.

The China Securities Regulatory Commission, embarrassed by its mishandling of the equity market boom and bust, also got a new face at the top. Liu Shiyu, another former deputy governor at the PBOC, quickly proved a more muscular presence than his predecessor, Xiao Gang. In December 2016 he took aim at "barbarian" insurance firms using leveraged finance to launch hostile takeovers of listed firms. The head of the China Insurance Regulatory Commission, who had turned a blind eye to such sharp practices, soon found himself out of a job and under investigation for corruption.

For local government loans—perhaps the biggest headache for the banks—a massive debt swap dialed down the stress levels. The program started at the beginning of 2015 with the promise of a trillion yuan in debt swaps. It expanded rapidly to 3.8 trillion yuan at the end of the year. By the end of 2016, 9.9 trillion yuan had been swapped, and at the end of 2017 the total reached 14.2 trillion yuan—equal to almost a quarter of GDP. Local governments were the big winners. Most had borrowed short-term at market rates, typically with a one-year loan at a rate of 6 percent or above. With those funds going to pay for public infrastructure projects that would generate no returns while under construction and only low returns after that, the financing structure made little sense. Now they were refinancing by issuing five-year bonds at 3 percent. The long-term, low-cost financing was more closely aligned with their long-term, low-return assets. And the immediate stress of debt servicing was substantially reduced.

Banks were pushed to divest themselves of bad loans and raise more capital. Many did both. Back in Zhengzhou, the government pushed through the merger of thirteen local lenders to form Zhongyuan Bank. Along the way, they sold off bad loans and injected fresh capital. The aim, according to the prospectus, as shares in Zhongyuan were marketed to investors in Hong Kong: to create a bank with "a higher capital base" and "stronger capability to withstand potential risks." In an initial public offering in July 2017, the bank raised a billion dollars.

On a small scale, Henan's provincial government had replicated the cleanup and listing that had taken Industrial and Commercial Bank of China and other giants to market in the mid-2000s—writing off bad loans, injecting capital, promising revamped operations, then tapping the market for funds.

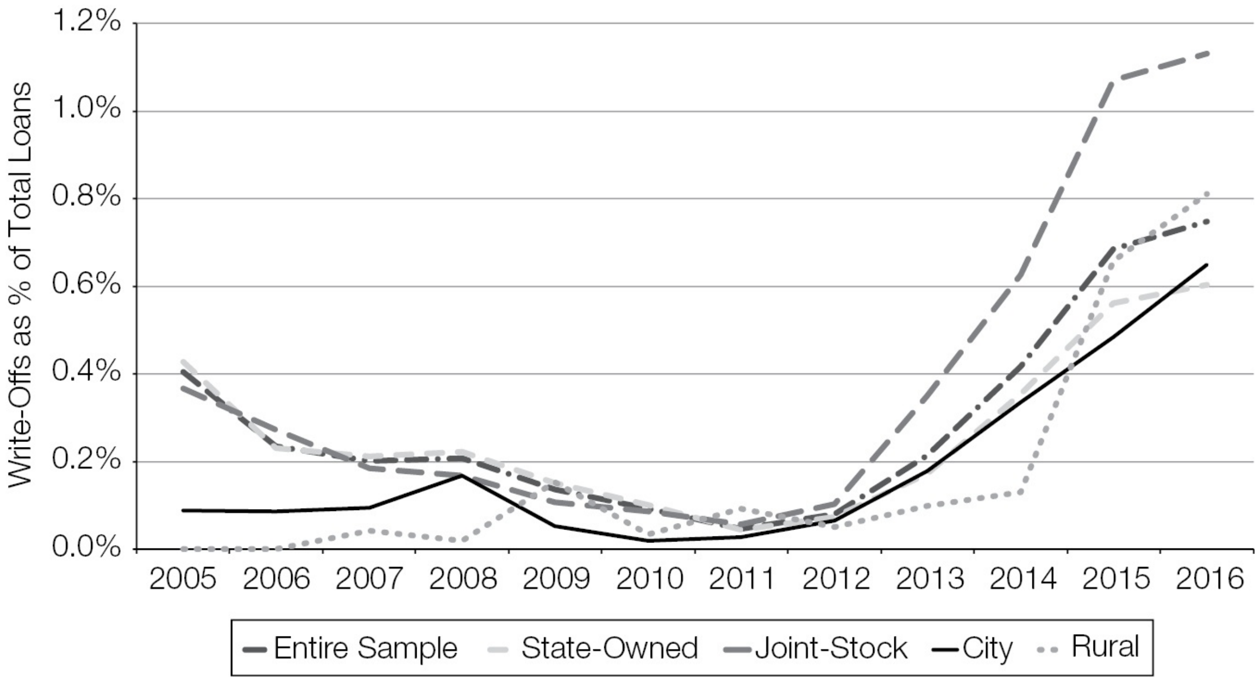

Figure 8.1 Loan Transfers and Write-Offs
Sample includes forty-one banks.
Created by the author using information from Bloomberg .

They weren't alone. As figure 8.1 shows, from 2015 to 2017, the volume of bad loans written off accelerated at a rapid pace. Trawling through the balance sheets of forty-one listed banks, from 2015 to the first half of 2017, 1.3 trillion yuan in bad loans were sold or written off. That was up from a total of just 400 billion yuan in the previous three years, and equivalent to about 1 percent of banks' total loan book. With every province in China setting up its own asset management company to buy bad debts from the banks, demand was strong. "We used to be able to buy bad loans at an 80 percent to 90 percent discount to face value," complained Mr. Li from the Wenzhou financial advisory. "Now demand is so strong the discount is sometimes just 30 percent."

The results were impressive. There are various ways of tracking growth in China's credit. The PBOC publishes a series on "aggregate finance," which includes bank loans, bond issuance, equity fundraising, and shadow bank activity. Netting out equity finance provides a high-frequency read on the pace of credit growth. In early 2016, that was expanding at 12.5 percent a year. By mid-2018 it had slowed to 9.9 percent. A more comprehensive read comes from the CBRC's series on total bank assets. That captures banks' on-balance-sheet lending activity, and their off-balance-sheet investment in shadow banking products. It shows an even sharper drop, from 16.5 percent annual expansion at the end of 2016 to 7.4 percent in the first quarter of 2018.

The slowdown in lending came almost entirely from the riskiest parts of China's financial system: shadow bank loans. Bank claims on other financial sectors—a series from the PBOC that captures bank loans to shadow banks—peaked at 73.7 percent annual growth in February 2016. By mid-2018 it was contracting. On the liability side, too, there was a shift away from risky short-term funding from the issuance of wealth management products back toward safe and boring deposits. At the end of 2015 bank funding from wealth management products was up 56.5 percent from a year earlier. In 2017, it didn't expand at all.

Focusing the slowdown on shadow banking didn't just lower financial risks, it also preserved growth in the real economy. Bank loans and bond issuance fund real activity: investment in factories, infrastructure, and real estate. Shadow banks—providing the equivalent of payday loans for cash-strapped private businesses, or funds for speculation in the property or equity markets—do not. Put simply: bank loans make the economy grow, shadow bank loans don't. By keeping the former turned on, and turning the latter off, China's policymakers could partially square the deleveraging–growth circle, slowing lending without cratering growth.

I AIN'T AFRAID OF NO GHOST TOWN: HOW CHINA DEFIED THE DOUBTERS

With the supply-side reform and deleveraging agendas, China had a working strategy in place to slow the debt machine. Supply-side reform stabilized growth and reflated the economy. Real growth held steady at around 7 percent. Nominal growth accelerated from a low of 6.4 percent year-on-year at the end of 2015 to 10.7 percent at the end of 2017. That acceleration in nominal growth is important. Steel smelters, real estate developers, and local government financing vehicles don't repay debt with earnings after adjustment for inflation. They repay debt with nominal earnings. Deflation—which means lower nominal earnings—makes debt repayment harder. Inflation—which means higher earnings—makes debt repayment easier. The deleveraging agenda slowed the pace of credit growth.

Put the two pieces together, and the combination of faster GDP growth and slower credit expansion started to bring China's leverage ratio under control. Based on data from the Bank for International Settlements, from 2008 to 2016 China's debt-to-GDP ratio rose from 142 percent to 250 percent. In 2017 and 2018, it levelled off, ending 2018 at 254 percent. Calculations by the McKinsey Global Institute show the same trend—with a marked slowdown in the pace of debt accumulation. China wasn't deleveraging. But it had stopped adding leverage, and done so without hammering growth. Relative to expectations—that was a major achievement.

In a German bar nestled incongruously under a giant illuminated corncob in Zhengzhou's newly built central business district, business is brisk. Young professionals in the Henan capital are enjoying ice-cold glasses of Weissbier and listening, slightly perplexed, to a British–Russian cover band belting out a passable version of "Angel," a turn-of-the-century hit by Jamaican pop star Shaggy. It's the kind of bizarre, engaging cultural mishmash on display by virtue of China's sudden arrival on the world stage. All the participants—band, patrons, bar staff—seem slightly unsure why they are there. It's also evidence of how successful China has been at turning around what many saw as a hopeless situation.

Back in 2013 a visit by cable news channel CNN to Zhengzhou's new central business district found buildings empty and property agents hustling to make sales. The CNN broadcast became part of the "ghost town" narrative that shaped the global understanding of China and reinforced the negative perception of investors. Fast-forward to 2017 and the new district is full to capacity—complete with illuminated corncob and German bar. Town planners are working on an additional new district to absorb the excess demand. "Where's the ghost town?" asks Mr. Zhao, a manager at the local government financing vehicle that paid for development of the new district. "Back in 2013 I couldn't get a taxi because there were none around," he added. "Now I can't get one because there's too many other people trying to get one."

At the Bank of Zhengzhou—one of the biggest local lenders—the government's deleveraging efforts are in full force. The shadow loan book crunched down from 82 percent growth in 2016 to 1 percent contraction in 2017. Funds raised from wealth management products swung from rapid expansion to mild contraction. Delving into corporate balance sheets for Henan's listed firms, the share of loans to zombie firms dropped sharply. Through it all, GDP growth for the province held steady at 8 percent a year.

A ghost town that turned into a thriving business hub, a runaway banking system brought to heel, and zombie firms that lurched back to life, all with the economy clocking steady growth: back in 2015, for Henan and for China, that Goldilocks scenario was beyond the imagination of the bears. By the end of 2017 it was an outcome that had—at least for the moment—been achieved. For Henan, there was another important factor at work: the upgrading of the industrial structure. In 2010, attracted by lower wage costs, strong transport connections, and a raft of government incentives, Taiwanese electronics giant Hon Hai Precision Industry moved an iPhone assembly plant to the province. Other manufacturers followed, setting up shop in the same industrial park. In 2016, Henan produced 258 million mobile phones.

That move up the value chain, driving an export boom that raised incomes across the province, was an important part of Henan's turnaround story. In charge at the start of the process was Li Keqiang, who served as Party secretary for the province up to 2004. Now ensconced as premier in Beijing, Li and his team wondered if a similar trick could be pulled off on a national level.

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2. Nicholas Lardy, *China's SOE Reform—The Wrong Path* (Washington DC: Peterson Institute of International Economics, 2016).

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9

Technology Transfer and Trade Tariffs

At 3 p.m. on October 16, 1964, China exploded an atom bomb, joining the United States, the Union of Soviet Socialist Republics, the United Kingdom, and France in an elite club of nuclear powers. Chairman Mao was pleased. “This is a major achievement of the Chinese people in their struggle to increase their national defense capability and oppose the US imperialist policy of nuclear blackmail and nuclear threats,” read the official statement. It was a hard-won achievement. Awestruck and terrified by the destruction of Hiroshima and Nagasaki by the United States in World War II, China’s rulers scrambled to develop their own nuclear capability—the threat of mutual destruction seen as the only guarantee against the threat of US imperialism.

At first, they found a willing partner in the Soviet Union. Moscow had successfully tested its own nuclear device in 1949 and, in a spirit of communist brotherhood, was open to sharing its technology. That cooperation came to an end in 1959, part of a broader deterioration of relations as Soviet leader Nikita Khrushchev denounced his predecessor Joseph Stalin and pursued a policy of peaceful coexistence with the West. Chairman Mao’s nonchalant attitude to nuclear war didn’t help either. “Let us imagine how many people would die if war breaks out,” Mao mused. “There are 2.7 billion people in the world. . . . I say that if the worst came to the worst and one-half dies, there will still be one-half left, but . . . the whole world would become socialist.”

For Khrushchev, even making the perfect socialist omelet didn’t justify breaking that many eggs. As the transfer of technology ended and Soviet advisors returned home, China’s ambition of a rapid march toward nuclear status was frustrated. “The Soviet side’s stranglehold on us on the crucial issue of key technology is really infuriating,” wrote Nie Rongzhen, Mao’s point man on the nuclear project, in 1960.

The end of Soviet assistance, however, was not the end of the project. “Maybe,” Nie continued, “this kind of pressure will instead become the impetus for developing our science and technology so we strive even more resolutely for independence.” Drawing on what they had already learned from some fourteen hundred Russian advisors, gleaning further insights from scientific publications in the United States and Europe, and peeking in on other countries' weapons tests, China completed the march toward nuclear status, detonating a twenty-two-kiloton device in Lop Nur, in the deserts of Xinjiang in the northwest of the country. The next step was to develop a mode of delivery. That was accomplished just eight months after the first test, with a nuclear bomb dropped from an aircraft. A year later, China was able to fit nuclear warheads onto medium-range missiles.

They would not match the size of the US or Soviet arsenal, but China's achievement of nuclear status was a watershed moment in modern history. With China a nuclear power, its southwestern neighbor—and potential challenger as Asian hegemon, India—was sure to follow. When India followed, so did Pakistan. President Richard Nixon's 1972 visit to China, and the alignment with the United States against the Soviet Union that followed, would have been impossible had China not achieved nuclear parity with the dueling Cold War rivals. Technology transfer, combined with China's determination, changed the world. It may do so again.

Fast-forward half a century, and China's fourth-generation leader—Hu Jintao, in power from March 2003—was casting around for a policy agenda. Hu had inherited an economy primed for growth. Entry into the World Trade Organization (WTO), closure of thousands of state-owned enterprises, and a cleanup of bad loans in the banking system were all significant positives bequeathed to him. It wasn't enough. Exports were booming, but even as annual growth in overseas sales topped 40 percent, the contribution of Chinese firms remained limited. High-tech inputs came from Japan, Korea, and Taiwan. Intellectual property and brands were owned by US and European multinationals. Multinationals did their research and development in their home country, leaving China in the dark on how new products and technologies were developed. Chinese firms and workers were confined to the low-value, low-wage task of snapping the pieces together. If China was going to move up the value chain—critical to sustaining its rise toward high-income status—something had to be done.

The first iteration of an answer came in 2006, with the snappily titled National Program for the Development of Science and Technology in the Medium- and Long-Term. At the center of the plan, and catching the attention of foreign governments and multinationals, was a commitment to "indigenous innovation." That opaque term—the original Chinese is close to "self-directed innovation"—actually means something rather simple: China wanted control of the technologies that were necessary to the next stage of its development. As a first step, the plan identified sixteen mega-projects spanning microchips, broadband, alternative and nuclear energy, aerospace, and healthcare. R&D investment would be increased to 2.5 percent of GDP in 2020, up from 1.4 percent in 2006. Given the size of the Chinese economy, and expectations of continued rapid growth, that was an eye-catching commitment.

Also eye-catching were the similarities between the approach taken by China’s fourth generation of leaders and that of its first generation. Western countries, with some notable exceptions for national priorities like nuclear weapons or the moon landing, followed a bottom-up innovation model. Academics select their own lines of inquiry, and corporate labs compete to spin theoretical insight into market application. China, with its weak science and technology base and pressing need to catch up with global leaders, would make the exception into the rule. The state would direct academic, military, and corporate research with a view to hitting specific objectives by a specific time. That was true when Nie led the nuclear project. It would be true again when Hu set the indigenous innovation engine in motion. Elder researchers, some of them involved in China’s atom bomb and ballistic missile programs, were consulted on early drafts of the Medium- and Long-Term Plan—a signal of continuity.

The great financial crisis threw industrial planning into higher gear. The 4-trillion-yuan stimulus funded nine sector programs, ranging from steel and shipbuilding to autos and electronics. Programs under consideration for years but not given the green light by the State Council were rushed into operation. The sixteen mega-projects originally planned for implementation over fifteen years from 2006 to 2020 were accelerated. In October 2010 the efforts of the Hu administration culminated with identification of seven strategic emerging industries, ranging from environmental technology to information technology and new energy vehicles, seen as essential if China was to achieve advanced-economy status.

Industrial planners were conflicted. On the one hand, their programs were now funded and operational. On the other, the farsighted objective of increasing efficiency and advancing toward the technology frontier was overwhelmed by the pressing short-term need to fire up investment, protecting growth above 8 percent through the global downturn. Ultimately, the wave of funding and top-level support worked in the planners’ favor, setting in motion a long-term program where they pulled the levers and China’s top leaders had a vested interest in success. In the early 2000s, following Zhu Rongji’s “grasp the large, let go the small” reform of the state sector, the private sector advanced and the market played an expanded role in allocating resources. Now that swung into reverse; “the state advances, the private sector retreats” was the spirit of the time.

Ascending to the presidency in 2013, Xi Jinping inherited an economy that was already tilting back toward industrial planning and an expanded role for the state in directing China's technology catch-up. Once in power, he pushed even further in that direction. The place where it all came together was in a blueprint for long-term industrial development called Made in China 2025. Published in May 2015 the China 2025 plan is based on the idea that the manufacturing sector is in the midst of a fourth revolution. The first came in the eighteenth-century with the invention of steam power, the second with electricity in the nineteenth century, the third with computers in the twentieth. The fourth will combine industrial robots, artificial intelligence, big data and cloud computing, resulting in a manufacturing sector that marries automation and efficiency with customization and a dynamic response to a changing market.

The focus was on ten sectors: information technology, robotics, aerospace, maritime equipment and ships, trains, new energy vehicles, power, agriculture, new materials, and pharmaceuticals and medical instruments. In some cases, the aim was to develop end products like airplanes or ships. More important, however, were technologies that would underpin leading-edge production across the economy, such as artificial intelligence and industrial robotics. Like the nuclear pioneers learning from Russian advisors, the aim was not to reinvent foreign technologies, but to reverse-engineer and replicate them.

What had changed from earlier plans was the scale of ambition. The 2010 plan aimed at innovation as an end in itself. The 2015 plan aimed at innovation as a way to reform the entire manufacturing system. The main China 2025 report was somewhat vague about objectives. In accompanying documents, the government set out specific targets. For sectors identified in the plan, China wanted domestic firms to produce 40 percent of key components by 2020. By 2025, China wanted the domestic share up to 70 percent.

To get there, China's industrial planners deployed a formidable arsenal of policy instruments and natural advantages. Those can be grouped under three headings.

Activist policymakers. China had a plan for industrial development and the determination to carry it out. Strategic direction came from the Leading Small Group for Building an Advanced Manufacturing Industry, chaired by Xi's economics tsar Liu He. Implementation came from the Ministry of Industry and Information Technology. Provincial governments rolled out their own versions of the plan. State-owned enterprises targeted acquisition of the requisite technology from foreign firms, with funding provided by state banks. Coordination between those groups was far from perfect. There were gaps, overlaps, missteps, and bureaucratic turf wars.

But no other major government had thought so long or so hard about technological development, and none had taken such far-reaching steps to achieve its objectives.

Massive resources. In 2017 China spent $444 billion on research and development (R&D). Only the United States—with R&D at $483 billion—spent more. The entire European Union spent $366 billion. In addition to spending on R&D, China was forking out billions to buy foreign technologies. Among the jewels in the crown: home appliance maker Midea's $4 billion acquisition of the German robotics firm Kuka. Accompanying the spending power: an ever-increasing supply of brain power. In 2017 China had more than two million research students, and 600,000 studying overseas.

A huge domestic market. Whether it's to tap the low-cost, integrated supply chain or to access the market of 1.3 billion customers, multinationals have to be in China. China's policymakers are masters at using that to their advantage, steering foreign firms into joint ventures, or requiring them to hand over valuable technology, as the price of market entry. Competitive dynamics between multinationals operating in the same sector, and between foreign governments attempting to promote their national champions, makes it hard for any individual firm to refuse.

Local governments piled in. A year after China 2025 was published, at least seventy provinces, cities, and county-level administrations had followed up with their own plans. Looking just at robotics, there was a flurry of local initiatives as officials rushed to align with national priorities and grab a piece of the industry of the future. In Guangdong province—China's manufacturing hub—capital Guangzhou offered a 20 percent subsidy to firms buying locally made robots. Dongguan, a grim expanse of factory towns whose migrant population made its name synonymous with prostitution,[1] promised 200 million yuan in support, and cheap loans for firms investing in automation. Not to be outdone, Zhejiang province offered 280 million yuan in subsidies. Ganyao—a town of forty thousand whose name means "makes kilns"—decided to reinvent itself as an advanced manufacturing hub, aiming to attract thirty robotics firms by 2023. "It was like building something from nothing," the Party secretary said.[2]

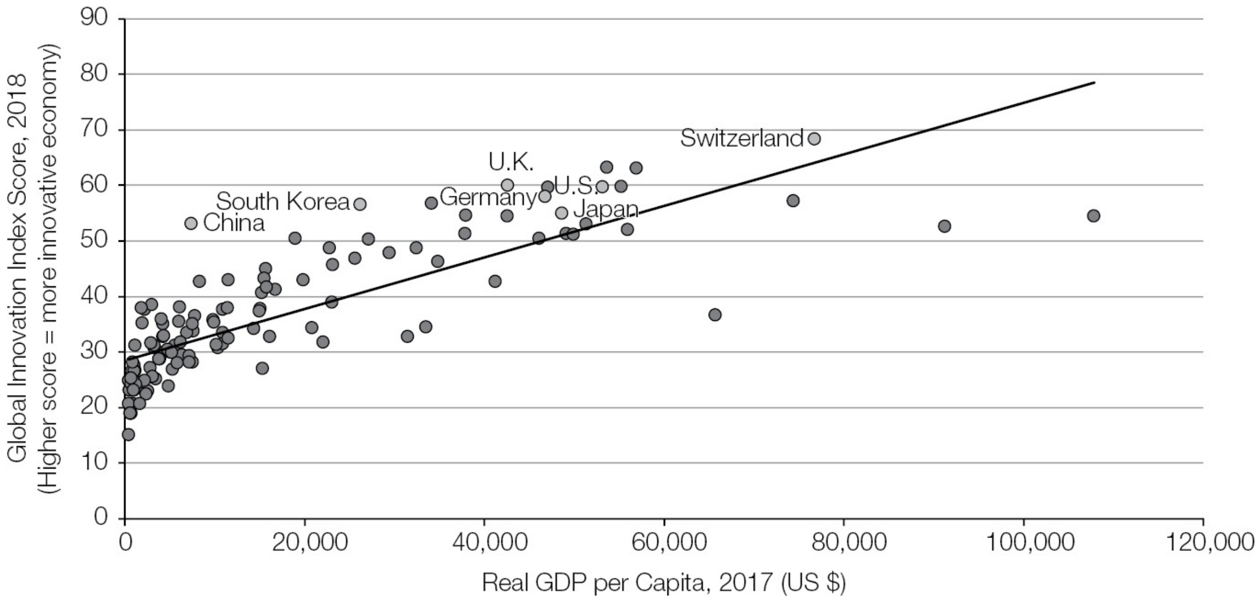

Figure 9.1 Innovation Score and GDP per Capita
Created by the author using information from the World Bank, Cornell University, INSEAD, and the World Intellectual Property Organization.

There are well-founded doubts about the value of input data as a gauge of the quality of science and technology outcomes. R&D funding can be wasted or misappropriated. Postgraduate students can lose themselves in the library rather than adding value in the laboratory. On outcome metrics too, however, China registered steady progress.

There were more inventions. The number of triadic patents—patents deemed valuable enough to register in the United States, Europe, and Japan—by Chinese inventors rose from 87 in 2000 to 3,890 in 2016. That's still considerably behind 14,220 for the United States, but the acceleration is impressive. A look at patents on an industry-by-industry basis shows that it's in priority sectors targeted in the China 2025 plan where the most progress has been made.

There were more innovative businesses. In 2008, the Chinese firm with the biggest market cap was Petrochina, a state-owned energy giant focused on the necessary but uninspiring business of pumping oil. In 2018 it was Tencent, started by technology entrepreneur Pony Ma, boasting the WeChat super-app that combines messaging with social network and payments, and investments in everything from leading-edge healthcare firm iCarbonX to Uber-slaying ride-hailing app Didi Chuxing.

Global rankings were up. The Global Innovation Index—a joint report by

Cornell University, INSEAD, and the World Intellectual Property Organization—is the most comprehensive effort to grade countries on their innovation capacity. In 2010 China ranked forty-third. In 2019 it had risen to fourteenth—the highest-ranked middle-income country, and one spot ahead of Japan. As figure 9.1 shows, relative to its income level, China is already an innovative economy.

WORKERS ARE COSTS, MACHINES ARE ASSETS: WINNERS AND LOSERS FROM CHINA 2025

What happens if China realizes its 2025 ambitions? For China, control of the commanding heights of industry would be a new growth driver. Chinese firms would claim a bigger piece of the pie in the home market, expand sales abroad, and account for a larger share of the value-added in finished products—displacing imported components from Japan, Korea, and Taiwan. Global demand for products targeted as part of China 2025 is measured in trillions of dollars. Claiming a progressively larger share of that market could buoy China's annual growth above 5 percent through 2025 and beyond. Assuming nominal growth of 8 percent and a US economy expanding at about 4 percent a year, that would put China on course to overtake the United States as the world's largest economy by the end of the decade.

A transition from heavy industry to advanced manufacturing and services would help tackle China's structural woes. In particular, a more innovative economy would be less dependent on debt. Capital intensity levels across China 2025 sectors vary. Building ships and airplanes is far more capital-intensive than researching new medicines. In general, however, China's industries of the future are less capital-intensive than its industries of the past. As a result, borrowing needs are reduced. If the China 2025 plan succeeds, corporations would be less dependent on debt and deleveraging will be easier to do.

A more innovative economy would be more environmentally sustainable. Advanced manufacturing and services firms are markedly less energy-intensive than traditional industry. Keeping growth on target by building a lot of infrastructure requires a lot of steel, which means burning a lot of coal. Keeping growth on target by enjoying the flow of income from intellectual property rights in new pharmaceuticals doesn't burn any coal at all. If the China 2025 plan succeeds, China should be able to continue growing at a rapid clip and achieve modest improvements in air quality and other measures of environmental sustainability.

Innovation would offset the drag from a shrinking workforce. Output per worker is markedly higher in advanced industries than it is in traditional industries. In 2017 Petrochina had 812,861 employees and 313 billion yuan in earnings—about 385,000 yuan per employee. Tencent had 38,775 employees and 96 billion yuan in earnings. More than 2 million yuan in earnings per worker makes Tencent five times more productive than Petrochina. As China's working-age population shrinks, technologies that boost productivity will be increasingly important.

For China as a whole, the benefits will be significant. Among the ranks of individual workers, however, there will be losers as well as winners. At Han Ma Electronic Technology, a smartphone screen producer in Dongguan, robots are the future. "Wage costs are rising," explains Mr. Gao, the chief financial officer. "So, we moved from Shenzhen to Dongguan and spent 8 million yuan to automate the factory." As of 2017 the company had just 130 workers, compared with 250 in 2014. Downsizing might not be good news for the workers, but from the manager's point of view, the advantages are clear. "Workers are costs," Gao says. "Machines are assets."

Economists have a way of thinking about what jobs are likely to be replaced by machines— exposure to routinization. The more a job can be broken down into routine and precisely defined tasks, the more easily it can be automated. In China, with hundreds of millions of middle-skill workers employed on the factory production line, exposure to routinization is high. None of the sectors targeted for accelerated development in the China 2025 plan are labor-intensive. All of them have production processes that operate with a high degree of automation. Two—robotics and artificial intelligence—explicitly aim at replacing workers with machines.

The risk of robot takeover is high enough to have Arnold Schwarzenegger saddling up for a final reboot of the *Terminator* franchise. It is also high enough to spark concerns about a sharp rise in inequality. The experience across Western societies is that advances in technology come hand in hand with a widening gap between rich and poor, often with wrenching consequences for social harmony and political order. Automation displaces workers. The shift from an organized workforce to casual employment managed through platforms like Uber (or its Chinese rival, Didi) erodes workers' bargaining power. Economies of scale and network effects concentrate the benefits of advances on a few superstar firms. Amazon in the United States and Alibaba in China are doing very well; smaller brick-and-mortar rivals are not.

Taken together with globalization - which further erodes workers' bargaining power - in advanced economies those forces have contributed to a decline in labor's share of national income and an increase in inequality. In the United States, in the fifteen years from China entering the WTO in 2001 to 2016, real income for the bottom 40 percent of earners was flat, and for the middle 20 percent it barely increased. Almost all the gains went to the top few percent, with the top 5 percent seeing income rise 10 percent. Labor's share in national income fell from 65 percent in 2001 to 60 percent in 2014.

In China, so far, that hasn't happened. Wage growth remains rapid. Low- and medium-skilled workers most at risk from displacement by technology are seeing some of the most rapid gains. That's because for China's blue-collar class, the gains from globalization have so far outweighed the costs from automation. US manufacturing workers didn't just get replaced by robots, they got replaced by cheaper Chinese workers too. Just as US workers suffered the costs of that transition; Chinese workers enjoyed the benefits. That state of affairs won't persist forever, or even for long.

There are already signs that China's robot army is advancing at the expense of its human workers, and at a larger scale than at Mr. Gao's Han Ma Electronic. At Hon Hai Precision Industry, the electronics giant that snaps together Apple iPhones, Chairman Terry Goh said back in 2011 that the firm planned to employ a million robots within three years. In the years that followed, the firm's workforce shrank from a peak of 1.3 million in 2012 to 987,000 in 2017—a drop of 24 percent. With revenue over the same period expanding 20 percent, it seemed like human hands were passing their work to more dexterous mechanical fingers. JD.com, the challenger to Alibaba for China's e-commerce crown, is moving toward automation of its warehouses. In one of its laboratories, a robot can sort thirty-six hundred objects an hour, four times more than a person.[3]

Inequality is not just a moral and a social problem; it is also an economic one. Economists going back to John Maynard Keynes recognized that concentration of wealth in the hands of the few erodes the spending power that keeps the economy at full employment. "In so far as millionaires find their satisfaction in building mighty mansions to contain their bodies when alive and pyramids to shelter them after death," Keynes wrote, "the day when abundance of capital will interfere with abundance of output may be postponed."[4] In less florid language: rich people spend a lower share of their income and save a higher share. As a result, assuming no offset from spending on mansions or pyramids, the larger the share of national income that goes to the rich, the lower the level of consumption, and the weaker growth.

China is already one of the most unequal societies in the world. In 2015 the Gini coefficient was 0.5, putting China among the ranks of extremely unequal

African and Latin American countries. China’s new rich are certainly trying to spend their money. That’s how LVMH—owner of the Louis Vuitton brand beloved of fresh-minted millionaires—grew its Asia ex-Japan sales from $3.3 billion in 2006 to $16 billion in 2018. It’s how Mercedes quadrupled its average monthly China sales from 2011 to 2018. The trouble is, even with LV-monogrammed everything and luxury SUVs parked two-deep at every intersection in Beijing’s business district, China’s new rich can’t spend enough to lower their savings rate.

The risk from China’s 2025 agenda is that even as advances in technology continue to expand supply, by reducing households’ share of total income and tilting what is left even more toward the richest households, the same advances in technology will reduce demand. The result will be a Chinese economy that looms even larger as a share of global GDP—rising from 16 percent of the total in 2018 to a projected 20 percent in 2025—but is an even bigger source of imbalance and instability. With consumption insufficient to fuel the economic engine, China would have to continue relying on debt-financed investment at home and protectionism-inducing exports abroad to keep growth on track. Trade partners would lose jobs—this time not to Chinese workers, but to Chinese robots.

For the rest of the world, then, the China 2025 agenda presents three interconnected risks. Most obviously, the risk confronting advanced economies is that China will eat their lunch. As Chinese firms gain market share in new-energy vehicles, industrial robots, and batteries, that will come at the expense of losses for foreign firms. A look at exports of China 2025 products on a country-by-country basis shows who has the most at stake. Germany, South Korea, and Taiwan stand out as the most exposed. German automobiles; South Korean electronics, autos, and shipping; and Taiwan’s semiconductors all face a new competitive threat. Strangely, given how President Donald Trump led the charge in opposing China’s industrial ambitions, the United States has less to lose—at least in terms of export market share. That’s a reflection of the low share of exports in GDP, and relatively limited presence in advanced manufacturing.

Figure 9.2 Wages for China and Other Emerging Markets
Created by the author using information from Wuhan University.

The challenge for countries like the Philippines, Vietnam, and Bangladesh that aim to follow China up the development ladder is that mastery of a new generation of automated production processes may enable China to retain its low-cost advantage. As figure 9.2 shows, years of rapid wage increases mean China's workers are no longer cheap. In Guangdong in 2016, the average factory worker could expect to make about $800 a month. In a factory in Bangladesh, workers earned just $147. Migration of low-value-added manufacturing out of China to new low-cost locations is already underway. That process is not inevitable. In the past, firms looking to dodge rising costs on China's coast could leave, or they could look for cheaper workers inland. Now they have a third choice: follow Han Ma's Mr. Gao or Hon Hai's Mr. Gou with an investment in labor-saving automation. China's technological gains won't end the migration of labor-intensive employment to Southeast Asia. But it could significantly reduce its scope.

Finally, if increased automation boosts production capacity at the expense of greater inequality, a China tilted further toward saving and away from spending, and toward exporting and away from importing, would be a drag on demand and a source of imbalance for the rest of the world. Measured as a share of GDP, China's trade surplus won't balloon back to the elevated levels seen before the great financial crisis. It's easy to imagine a situation where it plateaus and then rebounds a little higher. Given China's greater weight in the global economy, a trade surplus of 2 percent of GDP in 2025 would represent a bigger drain on demand from the rest of the world than a 10 percent surplus did back in 2007.

DONALD TRUMP AND CHINA’S NEW COLD WAR

To his more impassioned detractors, Donald Trump bears more than a passing resemblance to his disgraced predecessor Richard Nixon. Trump’s dog-whistle appeal to the grievances of white working-class voters finds its origins in Nixon’s Southern strategy, which tapped simmering resentment over the end of segregation. His disregard for legal niceties—critics say—echoes the indiscretions that ended with Nixon’s impeachment. When it comes to China, the similarity ends. Nixon opened China up. Trump tried to close it down.

Nixon called his 1972 trip to China “the week that changed the world.” That’s no exaggeration. Nixon’s meeting with Chairman Mao ended more than two decades of hostility between the two sides, and restored normal diplomatic relations. Mao died in 1976. In 1978, when Deng Xiaoping launched the reform and opening process, friendly relations with the United States provided the crucial underpinning. The path for Chinese goods to enter global markets was open. So too was the door for Western capital, technology, and expertise to enter China. Without the Nixon visit, China’s reform and opening would have been a more faltering process.

On June 16, 2015, Trump announced his bid for the US presidency. After descending the elevator into the lobby of New York’s Trump Tower, the real estate mogul gave a forty-five-minute speech to the assembled throng of journalists and supporters. It was his accusation that Mexican immigrants to the United States are rapists that hit the headlines. Nestled among promises to build a “great, great wall on our southern border,” repeal the “big lie, Obama-care,” and an accountant’s report on his net worth, was a promise to get tough with China. “Our country is in serious trouble,” Trump said. “When was the last time anybody saw us beating, let’s say, China in a trade deal?” Under a Trump presidency, he suggested, that situation would change. “I beat China all the time,” he said. “all the time.”

There’s nothing particularly surprising about candidates talking campaign-trail tough about China. In 1992, Bill Clinton inveighed against the “butchers of Beijing.” George W. Bush labeled China a “competitor” instead of a “strategic partner.” Courting the support of the unions, Barack Obama said China’s trade surplus came directly from manipulation of its currency. Once installed in the Oval Office, and despite sitting behind the Resolute desk, successive presidents found their toughness wavering. Clinton welcomed China into the WTO. Bush needed China’s support in the war on terror. Obama, preoccupied with the financial crisis, never followed through on his threat to call China out for its undervalued currency.

This time it looked like things could be different. Maybe it was because of the impact of China's rise on Trump's core supporters—blue-collar workers in the American Rustbelt. Maybe because US businesses, until now the chief cheerleaders for closer US–China ties, had turned sour on the relationship - irked by forced technology transfer and a playing field tilted in favor of domestic rivals. Maybe because China had overplayed its hand, Xi Jinping's muscular assertion of China's global interests—a departure from Deng Xiaoping's "bide our time, hide our strength" doctrine—was coming too early. Maybe it was Trump's long-standing antipathy to China. "You motherfuckers," he said in a 2011 speech. "We're going to tax you 25 percent." Whatever the reason, for Trump, China-bashing was more than just a campaign-trail talking point.

That was clear early from his appointments. As United States trade representative, he tapped Robert Lighthizer—a veteran of the Ronald Reagan administration and a longtime opponent of China's entry into the WTO. As economic advisor he appointed Peter Navarro, a professor at University of California Irvine and author of a book titled *Death by China*. Behind the scenes was the man credited with the successful strategy of the Trump campaign, Steve Bannon. Bannon saw the threat from China as similar to that posed by the "hyper-nationalist" rise of Nazi Germany in the 1930s. "China is everything," he said. "We don't get China right, we don't get anything right."[5]

It wasn't too long before Trump's China policy became clear from his actions. In January 2018, tariffs were introduced on solar panels and washing machines—a warning shot. Then, in March, tariffs on steel and aluminum were added, aimed at blocking China's efforts to export its overcapacity. In April, there were sanctions on Chinese telecom equipment firm ZTE. A ban on ZTE buying components from US firms threatened to put the Chinese firm out of business. If all of that added up to little more than small-arms fire, in July the heavy artillery boomed into action. Tariffs on $50 billion in Chinese imports sparked an immediate retaliation. In September, tariffs were imposed on a further $200 billion. A December meeting between Xi and Trump at the G-20 in Buenos Aires resulted in a temporary truce. In May 2019 the truce broke down and the artillery boomed back to life. Tariff rates were raised, telecoms giant Huawei—a much bigger fish than ZTE—faced sanctions, and Trump threatened that was just the beginning.

China had long accused the United States of a Cold War mentality aimed at blocking its rise. As successive presidents held the door to the global economy open for them, those accusations rang hollow. Under Trump, for the first time, they had the ring of truth.

Tariffs imposed through May 2019 were already significant enough to move the dial on China’s immediate growth prospects. Tariffs at 25 percent on $250 billion in exports threatened to knock a percentage point off 2019 GDP growth What concerned China’s policymakers more was the direction of travel. Trump warned that tariffs could be levied on the entirety of China’s $505 billion in exports to the United States. Tariffs at that level would reduce growth by 1.5 percentage point taking the expansion of GDP for 2019 down from an already lackluster forecast of 6.2 percent to a disastrous 4.7 percent.

Lower exports would be a direct blow to demand (though the impact would be partially diffused among Japan, Korea, Taiwan, and other suppliers of components snapped together in China’s electronics assembly shops). With exports weaker, there would be less incentive to expand manufacturing capacity, so investment would fall. Higher costs for imported goods—the result of reciprocal tariffs imposed on US imports—would dent household’s spending power. As the same dynamic played out in the United States, growth there would slow and demand fall, triggering a second-round impact on China’s exports. Plunging equity markets could compound the blow, denting business and household confidence.

The new barriers Trump threw in the path of technology transfer were a serious risk to China’s long-term development. From that first nuclear test back in 1964 China relied on overseas technology to accelerate its development. Khrushchev’s decision to pull support almost stopped the program in its tracks. Fast-forward to the Trump presidency, and sanctions on ZTE and Huawei highlighted China’s continued vulnerability. The two firms might not have been the absolute pinnacle of China’s technological achievements. But as telecom equipment producers that beat back US and European rivals for global market share, they weren’t far off. US sanctions, if fully implemented, would have pushed ZTE into bankruptcy, and placed Huawei in a precarious position. There was simply no Chinese capacity to produce the advanced US semiconductors that were essential inputs into their products. The threat of sanctions was a reminder that for all its impressive progress and overvaulting ambitions, China wasn’t ready to go it alone.

There would, of course, be a cost to the United States for slamming the door. US firms that sold high-tech products to China—like chip-producer Qualcomm, which counted ZTE among its customers—would lose revenue. US firms that produced in China, such as Apple, could find themselves with missing links in their supply chain. US universities that counted on revenue from Chinese students—there were 340,000 Chinese students in the United States in 2018—would lose out on lucrative fees. Perhaps that’s why the United States hesitated on the brink of across-the-board tariffs. At the same time, with the United States now viewing the China relationship through the lens of geopolitical rivalry, and technology one of the main battlefields, many feared the fall of an economic iron curtain dividing the world's two great powers.[6]

Other countries moved in the same direction. In the United Kingdom, successive governments cited a tradition of openness as justification for a relaxed attitude to Chinese investments. Huawei provided the pipes for parts of the telecom network. China General Nuclear Power—a state-owned enterprise—got the green light for investment in a nuclear power plant. But in 2018 the United Kingdom joined the United States in sanctioning ZTE as a risk to national security and considered removing Huawei equipment from its telecom network. Australia, Canada, and New Zealand—which together with the United States and United Kingdom make up the "five eyes" intelligence-sharing alliance—all moved in the same direction.

Perhaps there's no need for China's industrial planners to be overly concerned. The relationship between China and other major powers is like that captured in game theory's "stag hunt." The hounds—United States, Japan, Germany, and other major economies—can capture the stag (China), but only if they work together and don't get distracted. Unfortunately for foreign countries and corporations, each is easily distracted by the individual gains China dangles. As a result, cooperation breaks down and China wins. The lesson of the last few decades is that China is a very skillful stag, and other major economies are comically maladroit hounds. A German car company doesn't want to share its technology with a Chinese joint venture partner? No problem—we'll see if a Japanese car company would like more market access, providing of course they are willing to disclose what's under the hood. France's president wants to raise human rights issues? Very well; the next leaders' trip to Europe will skip Paris and bring deals to Berlin and London instead.

The bigger point is that China—for all its dysfunctions—can, when it needs to, move with unity of purpose. Market access, big orders from Chinese firms, regulatory approvals, and CEO invitations to an audience with the premier can all be turned off or on to achieve a desired end. For the West, that is not the case. Competition between nations means the United States, Japan, Korea, Germany, and other major economies find it hard to coordinate their actions. Competition between corporations is even more cutthroat, making cooperative outcomes even harder to achieve.

"Donald might not be Nixon in China," said Roger Ailes, the founder of Fox News and (before his death in 2017) confidant of the president, suggesting that Trump might not have the same transformative global vision as his predecessor.[7]

Perhaps, but a destructive vision can be equally powerful. For a China poised for growth at the end of the Mao era, Nixon's visit came at exactly the right time. For a China struggling with debt in the middle of the Xi era, Trump's darker view of China's rise may have come at exactly the wrong one.

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1. In Chinese, the phrase "Going to Dongguan" is slang for visiting a prostitute.

2. Yan Jie, *Firing Up Robotics in Small-Town Zhejiang*, Sixth Tone, October 16, 2017.

3. Dexter Roberts, "Resistance is Futile: China's Conquest Plan for Robot Industry," Bloomberg, April 24, 2017.

4. John Maynard Keynes, *The General Theory of Employment, Interest and Money* (New York: Palgrave Macmillan, 1936).

5. Michael Wolf, *Fire and Fury: Inside the Trump White House* (New York: Henry Holt, 2018).

6. Hank Paulson, "Remarks by Henry M. Paulson Jr. on the United States and China at a Crossroads," Paulson Institute, November 6, 2018.

7. Wolf, *Fire and Fury*.

10

This Time Is Different?

“There is a particular pattern by which a crisis developed,” wrote Liu He, chief economic advisor to President Xi Jinping. At first sight, “it seems that a crisis . . . is full of surprises caused by low-probability events and luck . . . but actually this is not true.” With a team plucked from the People’s Bank of China, China Banking Regulatory Commission, and Development Research Center of the State Council—the elite of China’s financial policymakers—Liu delved into the history of the Great Depression of the 1930s and the great financial crisis of 2008, aiming to discover the underlying patterns at work. “The primary purpose of the study,” he wrote, “is to predict what changes may happen in the future by understanding past events.”[1]

Liu wasn’t the first to examine past financial crises for clues on how to avoid a repeat. The classic theoretical treatment of the boom–bust dynamic inherent in financial capitalism comes from US economist Hyman Minsky in his book *Stabilizing an Unstable Economy*. “Stability leads to instability,” Minsky wrote. “The more stable things become and the longer things are stable, the more unstable they will be when the crisis hits.” In *Manias, Panics, and Crashes: A History of Financial Crises*, economic historians Charles Kindleberger and Robert Aliber populated Minsky’s abstractions with a lively relation of the details of crashes from the South Sea Bubble to the Bernie Madoff Ponzi scheme. “Historians view each event as unique,” they wrote. “In contrast economists search for the patterns in the data, and the systematic relationships between an event and its antecedents.”

It starts with a genuine innovation. In 1720 the South Sea Bubble—one of the first examples of a speculative frenzy gripping the British market—was inflated with prospects of high profits from trade with richly endowed colonies in the New World.[2] In the 1840s, railways raised the prospect of drastically reducing transport times, prompting an investment frenzy. In the twentieth century, automobiles and electrification were the catalyst for America’s Roaring Twenties. In the 1990s the Internet revolution promised to radically reduce communication costs. For those that move early and with determination, control of those technologies holds out the promise of massive profits.

In China there have been multiple mini-bubbles that started with hopes for game-changing innovation and ended in disaster for investors. Everything from hopes of a “reform dividend” boosting corporate profits, to a caterpillar fungus with aphrodisiac properties, has triggered investment manias. The larger picture, however, is that China itself is the innovation. A developmental state that combines cheap domestic labor with advanced foreign technology drove thirty years of 10 percent annual growth. A 457-billion-yuan economy in 1980 had by 2018 become an 88.7-trillion-yuan economy. Everyone wanted a piece of the action.

Hoping to seize the opportunity, businesses borrow money to invest. There’s a powerful pro-cyclical dynamic at work. An influx of funds pays for an initial wave of capital spending. With higher investment providing a boost, growth accelerates, profits rise, asset prices inflate, and confidence in the value of the innovation that initiated the boom is reinforced. John Maynard Keynes, the father of modern economics, spoke of “animal spirits”—that indefinable feeling of confidence that propels business and investment decisions. With animal spirits quickening, entrepreneurs become more eager to borrow, and banks and investors more willing to provide funds.

In 1846, at the height of Britain’s railway mania, proposed routes totaled ninety-five hundred miles—enough to stretch from the tip of Scotland to the toe of Cornwall eleven times over. Stock markets, at that time a recent innovation, provided the funds to pay for construction. As more investors piled in, stock prices rose, reinforcing belief in the value of the railway companies’ plans.[3] In the United States, ahead of the 2007 real estate meltdown, extending credit to low-quality borrowers pushed demand for property higher. Prices rose, collateral seemed adequate, and profits healthy. Even the experts were lulled into a false sense of security. “We’ve never had a decline in housing prices on a nationwide basis,” said Ben Bernanke.

In China, the 2015 equity bubble provides an example of credit extending the boom. As the Shanghai market rose, investors borrowed funds to buy more stocks. Speculation with borrowed funds rose from 400 billion yuan in mid-2014 to 2.1 trillion yuan in mid-2015. As credit poured in, stocks rose higher, conviction that rising markets reflected economic success was reinforced, and the incentive to invest was redoubled. The same dynamic has played out, over a longer period of time and with less extreme ups and downs, in real estate. Credit-boosted demand meant that house prices—and profits for real estate developers—spiraled higher, reinforcing the incentive to invest.

As excitement mounts and asset prices rise, the focus for investors flips from expectations of future profits to expectations of capital gains. Put another way, the basis for the investment decision shifts from “Will the asset I am investing in generate high returns?” to “Will I be able to find someone to buy this asset from me at a higher price?” At the start of 1720, shares in the South Sea Company traded at £128. By June they had risen to £1,100. In the dot.com bubble, the Nasdaq gained 255 percent from 1998 to 2000. The common refrain from the market bulls, and the title of Carmen Reinhart and Kenneth Rogoff’s classic treatment of financial crises: “this time is different.” Sure, past booms have been followed by an inevitable bust. This time, the innovation is genuine, the price gains sustainable, and wise investors set to enjoy outsized returns.

In China, evidence of investors speculating on capital gains rather than calculating on increased profits is not hard to find. From July 2014 to July 2015 the Shanghai Composite Index rose more than 150 percent. Over only a slightly longer period of time, the price of property in Shenzhen rose from 22,900 yuan to 60,700 yuan per square meter—close to tripling. The vast herd of tech unicorns (startups with a valuation of more than a billion dollars) frolicking around Shenzhen points to a venture capital bubble. Investors are not buying a share of future profits; they are chasing expectations of outsize speculative gains.

Information asymmetries allow valuations to run further out of line with fundamentals. The gap between the knowledge of wily insiders and gullible outsiders can be wide. In 1825 Scottish adventurer Gregor MacGregor was able to float a bond on the London market on the promise of outsize profits from investment in Poyais, a Central American principality. The only catch was that —outside of MacGregor’s outsize imagination—Poyais didn’t exist.[4] In the great financial crisis, complex derivative products enabled investment banks to shift risks off their own balance sheets onto those of their unsuspecting customers. “The whole building is about to collapse anytime now,” bragged Goldman trader Fabrice Tourre, and “the only potential survivor, the fabulous Fab.”[5]

In China, information asymmetries are not an unfortunate bug in an otherwise transparent system, they are a pervasive feature. “They have no idea what they’re buying,” said one of the financial engineers behind the 29-trillion-yuan wealth management product market, referring to retail investors ignorant of the risks they were taking on. The quality of assets on banks’ 27-trillion-yuan shadow loan book is invisible to everybody but the banks. In the equity market, insiders have access not just to confidential company information but also to government data and policy decisions before they are announced. “I can get any document I want,” bragged one equity strategist at a leading Chinese bank.

Moral hazard—belief by investors that a deep-pocketed government will prevent defaults—extends the boom. Ahead of the great financial crisis, Fannie Mae and Freddie Mac, the giant financing companies that were the final buyers of subprime mortgages, were seen as too official to fail. Lehman Brothers—with its $639 billion in assets—was too big to fail. Since the market-friendly chairmanship of Alan Greenspan, the Federal Reserve had a reputation for riding to the rescue in periods of turbulence. The erroneous belief in those multiple no-fail guarantees drove speculative imbalances past the point of no return.

In China the problem of moral hazard is even more entrenched. State ownership of the banks and borrowers fosters the belief that default is a distant prospect. Even in parts of the economy that operate more on market principles, China's stability-focused policymakers frequently intervene to put a floor under losses. The "national team" of state-backed investors buys into the stock market to prevent sharp drops. The central bank intervenes in the currency market to steady the yuan. At the economy-wide level, the government's commitment to its annual growth target acts like a giant put option—assuring investors that if things get really bad, stimulus support won't be long in arriving.

As valuations become increasingly stretched, financial distress sets in. Signs that borrowers are unable to service their debts make sellers more anxious and buyers less eager. Finally, the failure of a few highly leveraged borrowers triggers a rush for the exit. In Germany, they have a word for it: *Torschlusspanik*, or the rush to get to the door before it shuts.[6] In 1873, the US railway bubble ended when Jay Cooke & Co., one of the major banks financing construction, suspended deposit withdrawals, which triggered a panicked run on any banks linked to railway finance. In September 2008 Lehman Brothers' announcement of a $3.9 billion loss was the trigger for a pullback of lenders, making it impossible for the investment bank to roll over its borrowing.

China has never experienced an economy-wide door-shut panic. It has experienced it in particular markets. In June 2013, as rumors of default by a major bank swirled, all the lenders disappeared from the money market. In July 2015 the door slammed in the equity market. As leveraged bets unwound and share prices plummeted, there were no buyers to be found. In 2018, the trillion-yuan peer-to-peer lending market imploded. There was a flood of investors attempting to exit, but no new funds coming in.

The pro-cyclicality of credit works on the way down as well as the way up. In the financial markets, as asset prices fall, speculators who had borrowed to fund their investments face margin calls, forcing them to liquidate their positions. With the number of sellers increasing, asset prices fall further. In the real economy, lenders pull back and credit conditions tighten. That results in weaker demand, pushing businesses from profit to loss and turning households from confident to cautious. Seeing the deterioration in economic conditions they anticipated, lenders double down on caution and the supply of credit shrinks again.

In the Great Depression, the stock market crash triggered a run on the banks. As the financial system imploded, businesses and farmers dependent on credit went belly-up, defaulting on their loans. Deteriorating conditions triggered a further contraction in lending. Locked in a deathly embrace, the real economy and financial system spiraled down. Unemployment in early 1933 hit 25 percent. Eleven thousand of America's twenty-five thousand banks went under.

In China, the closest equivalent was the pullback of banks from the rustbelt northeast in 2015 and 2016—a dearth of credit compounding the problems of debt-burdened industrial firms and exacerbating the downturn. Premier Li Keqiang was alive to the dangers. "There's a saying that investors shouldn't go to the northeast," he said. "We can't let that become the reality."

If crises have a certain regular pattern, unchanged from the South Sea Bubble in 1720 to the great financial crisis in 2008, they also have important differences. The modern banking system, with its unlimited ability to create credit, is a different beast from the gold-hobbled lenders of the seventeenth and eighteenth centuries. A United States where the Federal Reserve can act as lender of last resort—preventing the failure of systemically important firms—is different from the United States of the nineteenth and early twentieth centuries, before the Federal Reserve existed or had realized the extent of its powers. A crisis in the United States, which can fund borrowing in its own currency, is different from a crisis in a Latin American or Asian country, where foreign funds exit at the first sign of trouble.

To gauge China's position in the cycle of leverage and deleverage, and the magnitude of the risks it faces, it's useful to place it in the context of recent crises with which it shares common features. Japan's yen appreciation, real estate boom and bust, and prolonged battle with deflation have more than a passing similarity to China's experience. South Korea's crony–capitalist ties between banks and corporations mirror the incestuous links between banks and businesses in China's state-owned family.

LESSONS FROM A LOST DECADE: JAPAN'S BUBBLE ECONOMY

December 1989 was the peak for Japan. On December 29 the Nikkei 225 stock index hit 38,915. Investors valued Japanese firms four times higher than their US peers. Stockbrokers feasted on foie gras sprinkled with gold leaf. Golf club memberships changed hands for tens of millions of yen. The land surrounding the Imperial Palace in Tokyo was said to be worth more than all the real estate in the state of California.

It was policymakers that spoiled the party. The Bank of Japan was concerned about the “dry wood” of rising asset prices—tinder for inflation—created by loose money supply. Public anger at the property bubble, which made millionaires out of lucky landowners but took the dream of home ownership out of reach for everyone else, prodded the government into action. Both groups were betting they could take the air out of the bubble without denting Japan’s development trajectory. They were wrong.[7]

On December 25 Yasushi Mieno, the Bank of Japan’s hawkish new governor, proved to be more Grinch than St. Nicholas when he jacked interest rates from 3.75 percent up to 4.25 percent. Two more rate hikes in March and August would take them to 6 percent. New property controls required bank loans to real estate to expand no more quickly than total credit. Given that real estate loans were growing about 15 percent a year and manufacturing loans were not growing at all, that was a significant new constraint. The legislative diet passed a land tax. Implementation wouldn’t come until 1992, but combined with higher borrowing costs and lower loan growth, the expectation of higher taxes was enough to spoil the party.

Markets went into freefall. The Nikkei hit its low point for the year at the start of October, touching 20,221, down close to 50 percent and with trillions of yen in wealth evaporated. In the years ahead it would continue its fall, ending in October 1998 down 67 percent from its 1989 peak. Land prices fell more gradually, but in the end fell further, with a 72 percent decline from peak to trough. In the unlikely event that the Imperial Palace found itself on the auctioneer’s block, the emperor would find himself reduced from California to merely Ohio real estate asking price.

With policymakers making a deliberate pre-emptive move to prick the bubble before it burst, and no immediate signs of a downturn in growth, the stimulus was slow to arrive. In 1991 contagion from plunging markets to the real economy swung the Bank of Japan back into easing mode. By then, it was too late. Japan’s economic miracle was over. Its lost decade had begun.

Like all bubbles, Japan’s had a basis in fundamentals. The era of supercharged industrialization, which saw annual growth above 10 percent in the 1960s, was over. But the economy continued to clock enviable growth rates, averaging 4.5 percent a year in the 1980s. The industrial planners at the Ministry of Economy, Trade and Industry remained sure-footed in their development strategy, directing the assault of Japan's corporates on the few remaining bastions of US competitive advantage. A novel based on their exploits, enticingly titled *Summer of the Bureaucrats*, was popular enough to be made into a TV drama.[8]

The Sony Walkman, Toyota cars, Panasonic videos, Seiko watches, Casio calculators, and Nikon cameras were demolishing their rivals. Fueled by their success, Japan Inc.'s share of global exports rose from 6.7 percent at the start of the decade to a peak of 9.5 percent in 1987—quite an achievement for a country home to only 2.5 percent of the world's population. Japanese corporates went on a buying spree, snapping up iconic assets like New York's Rockefeller Center and Hollywood's Columbia Pictures. A 1980 broadcast by NBC captured the hand-wringing mood of corporate America: "If Japan Can . . . Why Can't We?" In politics, the view among Japan's elite was that the United States was in a tailspin of debt dependence and decline. Japan was preparing for a future G-2, a world in which the United States would provide the security muscle and the innovation flair, Japan the manufacturing backbone.[9]

Such was the worldview that informed the thinking of investors in Japan's markets, and such was the environment in which the bubble was inflated. Five factors tipped a rational response to positive fundamentals into the irrational exuberance of a bubble economy.

Massive yen appreciation dealt a blow to the competitiveness of Japan's exports. With protectionist legislation rumbling through Congress, in 1985 US Treasury secretary James Baker summoned his counterparts from Japan, West Germany, France, and the United Kingdom to a meeting in New York's Plaza Hotel. In what became known as the Plaza Accord, the five agreed to coordinated action to weaken the dollar. For Japan, the effect was immediate, lasting, and disastrous. The yen strengthened from 242 to the dollar in September 1985 to 121 in January 1998, doubling in value. Exports, the main engine of Japan's growth, swung from 21 percent annual growth in late 1984 to 21 percent contraction in summer 1986.

The Bank of Japan cut rates, taking them from 5 percent when the Plaza Accord was signed to 2.5 percent in 1987. That too was a concession to the United States, which demanded not only a stronger yen but also a stronger Japanese economy to boost demand for US products. The hope was that cheaper funds would drive a wave of productive investment. The reality was that credit growth accelerated, but with Japan Inc. already lumbered with excess capacity, investment went mainly into unproductive assets. Real estate speculation boomed; manufacturing investment slumped. Outstanding loans to corporates and households rose from 143 percent of GDP at the start of the decade all the way up to 210 percent of GDP in 1990.

The banking sector was deregulated but not reformed—a problem that would resurface in Korea's crisis a decade later, and in China after the great financial crisis. With the rise of the corporate bond market in the 1980s, banks lost their most creditworthy customers. They turned to new lines of business: mortgage lending to households and loans to small businesses. Lack of experience in screening credit risks meant an explosion in collateral-based lending. In real estate, the result was a vicious circle of rising credit, high land prices, higher values for collateral, and further increases in lending—the classic destabilizing credit cycle that Minsky warned of.

The banking system remained governed by an antiquated set of regulatory and ownership arrangements. The "convoy system" meant that all banks were under the guidance of the Ministry of Finance, which directed lending toward national priorities in return for protection against the consequences of bad loans. Oversight was tight at the top, but progressively laxer for small banks and shadow banks, which found loopholes to work around the rules. Major banks like Sumitomo and Mitsubishi were the center of a "financial *keiretsu*," with cross-holdings of stocks and lending between a main bank and firms in other industries. In the good times, those close relations helped smooth out the bumps in the business cycle. In the bad times, they encouraged banks to keep zombie firms alive for too long.[10]

Japan didn't have as much development space as it thought. By 1989, Japan's households were about 80 percent as well off as those in the United States—an indication that the world's second-largest economy had all but closed the gap with the first. The main drivers of growth were close to used up. An urbanization rate of 77 percent meant property construction was no longer a powerful engine of demand. Japan's corporates were dominating electronics and making major inroads into autos, touching the outer limits of the technology frontier and grabbing a politically troubling share of global markets. Scope to grow by producing ever more advanced goods for export was depleted. With debt high and investment running at about a third of GDP, ramping up lending to pay for a wave of capital spending didn't look like an attractive option.

The bubble burst in slow motion. In the years following the market crash, policymakers did enough to stave off a financial system meltdown and outright recession, but not enough to put the economy on the path to recovery. Two parallel—and unhelpful—dynamics were at work.

First, continued belief in the no-bank-failure guarantee of the Ministry of Finance's convoy system, close relations between bank lenders and corporate borrowers, and accounting rules that permitted the banks to exaggerate their capital buffer and conceal their losses all allowed the wounded banking system to limp on. The day of reckoning on bad loans was delayed, at a cost to the vitality of the economy. Banks were locked into unproductive lending to zombie firms with little hope of a return to profitability.

Second, with land and equity prices collapsing, even viable firms found themselves technically insolvent, saddled with liabilities worth more than assets. The result was what Nomura Research Institute economist Richard Koo called a "balance sheet recession."[11] As a result, instead of investing in new machinery or workers, businesses used any profits they had to pay down their debt. That might have made sense for individual firms, but with everyone doing it at the same time, the result was a disaster, triggering a downward spiral of inadequate demand, falling prices, shrinking profits and wages, and further erosion of demand.

The obvious solution proved impossible to deliver. Regulators should have waded into the markets, separating the viable banks from the failures, recapitalizing the former and pushing the latter into restructuring or bankruptcy. That was easy in principle, but difficult in practice. Public hostility to a bank bailout—seen as slush funds for a corrupt nexus of politicians and financiers—was high. There was no legal framework for managing a bank bankruptcy. In an interconnected financial system, ring-fencing healthy banks as others failed might be impossible to do. Growth had slowed, but unemployment below 4 percent in the mid-1990s remained inside the comfort zone—meaning there was little sense of urgency to deal with the problems.

It wasn't until 1997 that the failure of Sanyo Securities, a mid-size brokerage, triggered a renewed crisis and a decisive response from policymakers. By that time the damage had been done. GDP growth, which had averaged 4.5 percent in the 1980s, fell to 1.6 percent in the 1990s. Japan ended the decade in contraction. Unemployment had ended the 1980s at 2.3 percent. It ended the 1990s at 4.7 percent and still climbing. Even that low number reflected Japan's unique labor market institutions, with workers accepting flat or falling wages as an alternative to unemployment. With banks locked into lending to zombie firms, and viable firms focused on debt repayment rather than expansionary borrowing, rate cuts by the Bank of Japan were unable to kick-start growth. That left the job of boosting demand to the Ministry of Finance. Government debt, a modest 67 percent of GDP in 1990, climbed to 132 percent in 1999.

Political stability crumbled. From the collapse of the bubble in 1989 to the beginnings of a turnaround under Prime Minister Junichiro Koizumi in 2001, Japan had eight different prime ministers—two of them in office for less than a year. After more than three decades in power, the Liberal Democratic Party was ousted by a series of unstable coalitions headed by breakaway members of their own party. Worst of all, Japan lost its leadership position in Asia. In 1989, Japan's economy was six times larger than China's. By 2010, as a lost decade segued into a lost generation, China had taken the lead. Japan, the country that had once dominated Asia militarily, then through its economic might and technological prowess, now watched in agonized and self-inflicted stagnation as China usurped its role as regional hegemon.

The parallels between Japan's bubble economy and lost decade, and China in the post–financial crisis period, are striking. That's not a surprise. China consciously followed Japan's development model, paving its path to prosperity with a combination of industrial planning, state-directed credit, and an undervalued currency. As a result, China suffered from many of the same distortions. Mercantilist policies aimed at grabbing export market share, stoking protectionist sentiment in the United States: check. Wasteful public investment resulting in a landscape littered with roads to nowhere: check. Government direction of the banks resulting in massive misallocation of credit: check. Pervasive moral hazard, behind-the-scenes deals to stave off bankruptcies, and an industrial landscape stalked by zombie firms: check, check, and check.

Even Western concern about China's rise echoes that about the land of the rising sun three decades earlier. Books like *When China Rules the World* by British scholar Martin Jacques, the evocatively titled *Becoming China's Bitch* by US author Peter Kiernan, or the ominous-sounding *The Coming China Wars* by Peter Navarro, the US academic who went on to serve as economic advisor to President Donald Trump—all channeled fears about the rise of the red star over China. Consciously or not, they were tapping the same sentiment that motivated books like Ezra Vogel's *Japan as Number One*, published in 1979. In China itself, hubris about the middle kingdom's manifest destiny also mirrored that of Japan's elites in the 1980s. Xi Jinping's call for a "new model of great power relations" was an echo of Japan's aspiration for a G-2 relationship with the United States.

China's equivalent of the Plaza Accord came in July 2005, when—under pressure from the United States—the People's Bank of China began the process of yuan appreciation. Learning the lesson from Japan's disastrous experience, China constrained its currency to strengthen at a much more moderate pace. From 1985 to 1988, the yen doubled in value against the dollar. From 2005 to 2008, the yuan gained a comparatively modest 20 percent—a blow to export competitiveness, but not the hammer blow suffered by Japan's firms. In the end, yuan appreciation wasn't needed to crush exports. The great financial crisis came alone and did the job.

When exports crunched down, contracting 16 percent in 2009, China, like Japan, turned to a massive monetary stimulus. Indeed, China's stimulus was significantly larger. From 1985 to 1989, Japan's private-sector credit-to-GDP ratio rose 42 percentage points. From 2008 to 2017, China's rose 96 percentage points. In China, like Japan, that resulted in distortions in two directions: overinvestment in industry and bubbles in stocks and real estate. Overinvestment left China's firms, like Japan's firms before them, burdened with excess capacity, falling prices, weak profits, and trouble servicing their debt. The situations are so similar that the models economists use to track zombie firms in China are borrowed from earlier analysis of Japan.

China's stock bubble burst in 2015, an event that had less serious consequences than Japan's implosion because of the smaller role the stock market plays in China's financial system. The real estate bubble continues to expand. The land around the Forbidden City—the closest thing China has to an Imperial Palace—isn't worth quite as much as all the real estate in California, but property is still plenty expensive. Shanghai, Shenzhen, and Beijing all rank among the most expensive ten cities in the world to buy a home.

There are also important differences. Back in 1989, Japan's GDP per capita was already closing in on that of the United States. Space for catching up with the global leader was all but used up. In 2018 China's GDP per capita was just 29 percent of that in the United States. It should have decades of rapid growth still to come as it closes the gap. Back in 1989, Japan was 77 percent urbanized. In China in 2017, that number was just 58 percent. Real estate won't return to its role as all-conquering growth driver, but neither is construction about to grind to a halt. Japan, with its 120 million population, has a big domestic market. China, with its 1.3 billion population, has a vast domestic market, making it more straightforward to transition away from exports as a source of demand, and easier for firms to achieve world-beating economies of scale.

On the policy response, too, the approach of Beijing has been different—and better—from that taken by Tokyo. In Japan in 1990, the year after the bubble collapsed, the Ministry of Finance ran a small fiscal surplus, adding to the problem by acting as a drag on growth. It was only in 1998, with the financial system melting down and the Asian financial crisis in full swing, that they ran an aggressive stimulus, with the fiscal deficit touching 10 percent of GDP. Even that was steadily managed down in the years that followed. Zombie firms were kept on life support, draining vitality from the system. In China, by contrast, the combination of demand-boosting fiscal stimulus and zombie-slaying supply-side reform gave the economy a shot at growing through its problems.

China didn't just learn the lessons from Japan's success on the way up; it also learned the lessons from Japan's missteps on the way down. The result: Japan suffered a lost decade that segued into a lost generation; China, so far, has not.

DE-CONTROL WITHOUT DE-PROTECTION: SOUTH KOREA AND THE PERILS OF FINANCIAL LIBERALIZATION

For Korea, the Asian financial crisis was slow to arrive. Throughout the summer of 1997 and into the fall, it seemed the speculative attacks that laid low first Thailand, then Indonesia, Malaysia, and the Philippines, would be a problem confined to Southeast Asia. Thailand's real estate bubble—with demand for office space in capital Bangkok running at less than half of construction—might be ready for a correction. In Indonesia, President Suharto's crony–capitalist regime, including among other things a monopoly on clove distribution for his son, hid a multitude of financial sins. But Korea was the poster child for development. Following in the footsteps of Japan, the population had been lifted from poverty in the wake of the Korean War to GDP per capita of $13,100—more than two-fifths of the level in the United States—in 1996.

A swath of indicators pointed to responsible economic policy and strong growth prospects. The government had been living within its means, running year after year of budget surplus. The Bank of Korea had kept a lid on inflation. Exports were notching double-digit growth and expected to continue to do so. In a report that was quietly shelved after the crisis broke, the IMF opined that "the situation in Korea is quite different to that in Southeast Asia, and our assessment is that the weaknesses in the financial sector are manageable if dealt with promptly."[12]

Korea's fundamentals, it turned out, were not as rock-solid as they appeared. The problem, according to Joon-Ho Hahm, who helped direct Korea's response to the crisis before going on to serve on the Monetary Policy Board of the central bank, was an explosive combination of "de-control without de-protection."[13] The government had liberalized the financial sector, but it had not put in place the regulations necessary for a market-based system to thrive, or shaken investors' belief in the implicit no-default guarantee enjoyed by the giant conglomerates—known as *chaebols*—that dominated the corporate landscape.

The consequence: *chaebols* were able to take on mind-boggling levels of leverage, with little oversight from lenders. For some of the largest, debt-to-equity ratios of 500 percent meant the slightest decline in their debt-servicing ability would push them into bankruptcy.[14] As Paul Blustein, a journalist who chronicled the Asian financial crisis, notes, three factors made the high debt levels especially problematic:

- Financial deregulation led to a mushrooming of shadow banks, often the captive financing arms of major *chaebols*. Continued belief in the blanket no-default guarantee meant they were able to offer savers higher rates than mainstream banks, rapidly expanding their market share.
- Funds were used for empire building and vanity projects that contributed little to the *chaebols*' bottom line. SsangYong Group and Samsung piled into autos, a market already dominated by Hyundai, Daewoo, and Kia. The Halla Group invested in a world-class shipyard, apparently motivated by sibling rivalry between its owner and his older brother, the owner of Hyundai.
- Reliance on short-term foreign funding was high. From 1994 to 1996, Korea's debts to the rest of the world rose by more than $45 billion.[15]

Put the pieces together and the result was a financial system stuffed with nonperforming loans, and reliant on the rollover of short-term foreign finance to stay afloat. According to Hahm's estimate, bad loans added up to 28 percent of GDP in 1998. It was a system set for collapse. When the Asian financial crisis triggered a reappraisal of risks across the region, that's exactly what it did.

The crisis played out in two stages. In the first, with Asian economies toppling like dominos, foreign investors started paying attention to Korean risks. When they did, borrowers that had looked rock-solid started to look shaky. Foreign reserves that had appeared ample started to appear inadequate. All at once, the foreign funds that had seemed like an inexhaustible flood slowed to a trickle, and then dried up completely. In November 1998, six months after speculators first started asking questions about the Thai baht, Korea called the IMF to ask for a loan.

For a country with a bitter history of colonization, and fiercely proud of its recent rise, it was a moment of shame. The headlines in the next day's newspapers told the story: "National Bankruptcy," said one; "Humiliating International Trusteeship," ran another. That's not too far off. Encamped at

Seoul’s Hilton Hotel, the IMF and US Treasury held out the promise of rescue, but only at a price. Korea got $55 billion to cover its foreign debts and fend off default. In return, it was forced to accept tough new policy settings, sweeping structural reforms, and market openings at a moment when a battered won guaranteed foreign buyers a bargain price.[16]

Short-term interest rates were raised to 25 percent from 12.5 percent—a move the IMF said was necessary to bring foreign funds back in. Necessary or not, elevated rates hammered the highly indebted *chaebols*, exacerbating the crisis. Caps on foreign ownership were removed, a measure demanded by the US Treasury. The principled argument was that greater competition in the financial sector was required to break the incestuous relations between local lenders and borrowers. This was true, but it certainly didn’t hurt that US firms would be able to come in and snap up bargains.

Even worse, the rescue package didn’t work. After a respite of a few days, the second stage of the crisis began. Funds resumed their exodus and the won resumed its plunge, dropping by the 10 percent limit for five consecutive days. The United States blamed Korean politics. With an election looming, all the candidates had signed off on the IMF rescue package. Then Kim Dae-jung—a former pro-democracy dissident, then head of the pro-worker opposition party and the leading candidate—broke ranks, striking a populist chord with a promise to get better terms for Korea if he was elected.

Politics aside, the rescue package sums didn’t add up. Korea’s foreign-exchange reserves had depleted to $6 billion. In 1998 there was $116 billion in foreign debt falling due. There were also questions about the real size of the IMF’s $55 billion package, with a $20 billion tranche pledged by the US Treasury seeming to flicker in and out of view. When leading Korean newspaper *Chosun Ilbo* published the debt and reserve numbers, apparently from a leaked IMF report, the game was up. Realizing that even after the rescue Korea still lacked funds to cover its debts, foreign investors resumed their exodus.[17]

Facing an imminent default by the world’s eleventh largest economy, the IMF and US Treasury had no easy options. The outcome of the election—with a victory for Kim—helped tip policy makers toward attempting one last stand. The election result removed the overhang of political uncertainty. Despite outsider status, and his pre-election wobble, Kim signaled a willingness to implement tough pro-market reforms. On December 22, the Federal Reserve Bank of New York called in representatives of the six biggest banks to ask them to participate in a bail-in, rolling over their loans to Korea. Their response: why didn’t you ask us sooner?[18]

A frenetic end to the year, with policymakers across the United States, Europe, and Japan working the phones to reach the biggest banks, brought the crisis to an end. For Korea, however, the pain was just beginning. Financial chaos on its own would already have dealt a severe blow to growth. Combined with higher interest rates and bone-crunching reforms imposed as conditions of their rescue, it plunged the economy into recession. In 1995 the economy had grown 9.6 percent. In 1998 it contracted 5.5 percent. Workers accustomed to a job for life faced wage cuts and—in many cases—redundancy. Unemployment rose from 2 percent in 1997 to 7 percent in 1998. The ultimate cost of the bailout rose to 160.4 trillion won, about 21 percent of 1997 GDP.

For China's leaders, the parallels were clear. China, like Korea, relied on exports as a major driver of demand—placing them in the row of Asian dominos that could be knocked over if one country faltered. China, like Korea, managed rapid industrialization through a nexus of closely controlled banks and corporates—a crony–capitalist system that accelerated development but allowed problems to build behind the scenes. China, like Korea, had banks stuffed with nonperforming loans, estimated at about a third of GDP in 1998.

Korea had plunged into recession, the government forced to go cap-in-hand to the IMF. US officials had dictated terms, forcing through a market opening in which Korea's prized corporate assets sold for a song. The political order had been shaken, with a former dissident pro-democracy protestor winning the presidency. None of that could be allowed to happen in China. The Korean experience was a catalyst for Premier Zhu Rongji's purge of the state-owned enterprises and reform of the big banks, ending with a massive write-off of bad loans and listing on Hong Kong's public markets. Korea's experience with foreign lenders pulling the plug was also a reason for China to go slow on capital account opening.

Two decades on, the Korea crisis remains a useful point of comparison for China. Beijing has taken tentative steps to solve the problem of moral hazard, including carefully managed defaults by small-scale borrowers. Despite that, the belief that the government stands behind the debts of major state-owned firms, and the investment products sold by state-owned banks, remains pervasive. The rise of China's shadow banking system mirrors the experience in Korea—liberalization of finance running ahead of necessary regulations or removal of the no-default guarantee. Bottom-up calculations, based on the share of loans to firms without enough earnings to cover their interest payments, put bad loans in mid-2016 at about 13 percent of GDP. That's not quite as high as Korea's 28 percent, or the 30 percent estimate for China back in 1998. Given the massively increased size of China's economy, the dollar amount is much larger: about as large, coincidentally, as Korea’s GDP.

The differences are also important, and in the end may prove to be decisive. Korea was behind the curve in responding to its problems. China has been ahead of it. Korea’s *chaebol* chiefs were allowed to run wild, investing in vanity projects that resulted in massive misallocation of capital. In China, wayward executives have been brought to heel, with some falling into the clutches of the corruption investigators. In Korea, growth in shadow banking ran unchecked until the crisis hit. In China, from 2016, the government moved aggressively against the shadow banks—bringing asset growth for the sector down to zero. Perhaps most important, China is a lender to the rest of the world, not a borrower from it. Learning from Korea’s experience, China allows foreign funds to play only a limited role in the economy. “Big financial crocodiles”—as foreign speculators are known in China—might have been allowed to gobble up Seoul. They would not be able to so much as nibble Shanghai.

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11

War-Gaming a China Crisis

China Dream, a novel by exiled storyteller Ma Jian, tells the story of Ma Daode, a local official with a plan to wipe out uncomfortable memories—his own and everyone else's—with a new, high-tech "China Dream device." Ma, whose name translates as "morality," finds his grip on reality slipping away. Land is needed for an industrial park to develop his dream-killing brain implant. To make way for construction, Ma oversees the destruction of the village where he stayed as a youth during the Cultural Revolution. The return to the home of his past rekindles memories of the suicide of his parents, following persecution that he instigated. His phone rings constantly as rival cadres, self-serving subordinates, and demanding mistresses jostle for attention. The action ends with Ma leaping from the balcony of his mistress's apartment. In his mind he's taking a great leap into a "glorious future." In reality, like a depressing number of Chinese officials, he's committing suicide. The China Dream device, needless to say, never gets off the drawing board.[1]

In Liu Cixin's science fiction fantasy *The Dark Forest*, the universe is a dangerous place where predators stalk and the best hope for planetary survival is to hide. When a Chinese scientist, thrown into despair by the extremities of the Cultural Revolution, sends out an intergalactic signal, the earth's location is discovered and a fleet of alien colonizers sets out to take possession. In a trilogy that spans the early days of the People's Republic of China to humanity's fight for survival hundreds of years in the future, Chinese scientists, detectives, and entrepreneurs are the leaders of the global resistance. Chinese, melded with English, is the lingua franca. When one of the characters goes into hibernation and awakes in the distant future for the final battle against the aliens, they find their bank account at Industrial and Commercial Bank of China still open, and—more wonderful still—with significant accumulated interest, an early vote of confidence in the long-term benefits of Liu He's deleveraging campaign.[2]

Which vision of China's future is correct? Is it Ma Jian's dystopian rhapsody in which a society is trapped by its failure to come to terms with its past, where officials spend more time in the brothel than planning the next stage of development, and technology is an instrument of control rather than a lever for growth? Or is it Liu Cixin's vision of a China that is effortlessly part of global political, economic, and technological leadership, its centuries-old banks making a mockery of the Cassandras of collapse? It's possible to make a powerful case for both. In the end, the latter is more likely to be true. First, let's take a look at the former.

At the start of 2019, according to calculations from the Bank for International Settlements, China's debt was equal to 259.4 percent of GDP. Calculations by Bloomberg Economics come in around the same level: 276.2 percent of GDP. Most calculations of China's debt focus on the borrower side, adding up loans to business, households, and government. Using an alternative approach that focuses on lenders, University of California San Diego professor Victor Shih gets to 328 percent of GDP in mid-2017.[3] A straight look at bank assets puts outstanding borrowing at 312 percent of GDP, suggesting that Shih's higher estimates are not out of the ballpark.

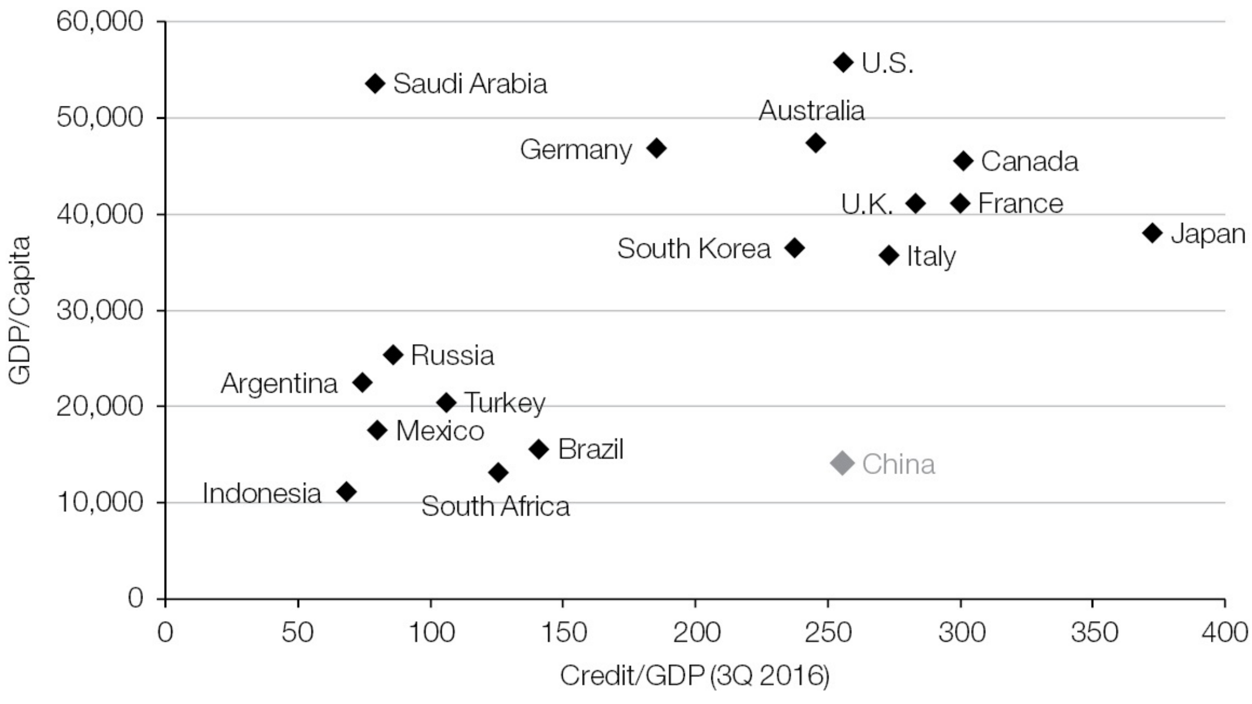

Figure 11.1 Debt to GDP and GDP per Capita for Major Economies
Created by the author using information from the Bank for International Settlements and the International Monetary Fund.

Even using the lower end of those estimates, debt at 259.4 percent of GDP presents China with two serious problems.

First, as figure 11.1 shows, China has advanced-economy debt levels but emerging-market income levels. Based on the same Bank for International Settlements metrics, in early-2019 the United States had debt at 249.3 percent of GDP, slightly lower than China. US GDP per capita, however, was $56,500, more than three times higher than China. Looking at major emerging-market economies, GDP per capita was closer to China's $17,000. Debt levels were markedly lower. In mid-2018 the average debt for Brazil, Russia, India, and South Africa—which together with China make up the emerging-market BRICS club—was 123.3 percent of GDP.

China's combination of advanced-economy debt levels and emerging-market income levels is a unique disadvantage. Along with exports, credit is the fuel that powers the development engine. Borrowing pays for upgrades to industry and to infrastructure. China's income level should mean it has years of catch-up growth ahead. By maxing out on debt at a middling level of development, China has made it more difficult to close the gap with high-income countries.

Second, the pace of debt accumulation rings an alarm bell on the risk of crisis. In the four years from 2004 to 2008, outstanding borrowing in China's economy was steady at about 150 percent of GDP. Buoyed by exports, the economy grew without increasing its dependence on borrowed funds. In the decade from 2009 to 2018, debt rose to 254 percent of GDP, an increase of more than 100 percentage points. It's hard to find examples of other major economies that have taken on debt at a similar pace. It's easy to find examples of those that have taken on less, and still faced a crisis.

In the United States, outstanding borrowing rose to 229 percent of GDP in 2007, from 190 percent in 2001. That 39 percentage point increase came ahead of the biggest financial crisis since the Great Depression. In Greece, debt rose to 244 percent of GDP in 2010 from 171 percent in 2001—a 73 percentage point increase that anticipated the plunge of Greece, and the eurozone, into a rolling five-year crisis. Closer to home, in the eight years ahead of the Asian financial crisis, Korea's debt-to-GDP ratio rose only 44 percentage points. The International Monetary Fund (IMF) counted forty-three countries where the debt-to-GDP ratio had increased more than 30 percentage points over a five-year period. Among them, only five ended without a major growth slowdown or financial crisis. Narrowing the sample to look only at countries that started with debt above 100 percent of GDP, as China did, reveals that none escaped a crisis.[4]

The peculiar features of China's financial system add to the risks.

On the borrower side, the outsize role that state-owned enterprises like Dongbei Special play in the economy, and the implicit guarantee that government stands behind their debts, tilted credit allocation in their favor. The same was true of local government investment platforms, the off-balance-sheet vehicles city cadres use to raise funds for infrastructure spending. It is China's private-sector firms that show the highest return on assets: 9.5 percent in 2017. Based on the official data, the return on assets for state-sector firms was just 4 percent. Taking account of subsidies state firms receive in the form of cheap access to credit and land, even that overstates actual performance.[5] Local government investment vehicles, many of which have no income except from selling their endowments of land, do even worse. By concentrating credit on the least efficient borrowers, China's banks added to the problems innate in a rapid rise in lending.

On the lender side, China's major banks moved closer to the market and made attempts to improve efficiency. At root, they were still state-owned and operated on a logic dictated as much by policy as by profit. In the early stages of development, directing lending to priority projects makes sense. It's easy to see that a road from the factory to the port would increase efficiency, obvious that a larger steel plant would generate economies of scale. At a later stage, when the economy is more complex and development depends on innovation rather than infrastructure, policy-directed lending is unlikely to do the job. Banks end up funding projects like Caofeidian, the failed port development in Hebei. Lending based on the orders of bureaucrats rather than the logic of the market, they are more likely to end up with an unsupportable stash of nonperforming loans.

Adding further to the risks is a creaking system of macro-economic controls. For much of the period in which debt was building, the central bank kept a tight rein on interest rates and the yuan. The price of money and the price of domestic versus foreign goods are key instruments for control of the economy. Set by the market, they drive efficient allocation of resources. Set by the government, they do not. In China's case, an artificially weak yuan encouraged businesses to focus on capital-intensive manufacturing for exports, not capital-light services for domestic consumption. Artificially low interest rates made it cheap to borrow, providing funds for projects that had little commercial rationale. Both contributed to the rapid increase, and inefficient allocation, of credit.

The rise of the shadow banks compounded the problems. Shadow lenders, with inadequate capital to absorb losses, an expensive and unstable funding base, and exposure to the riskiest borrowers, played a larger role in the financial system. Mainstream banks—especially joint stock and city commercial banks like the Bank of Tangshan—increased their reliance on short-term, high-cost funding and ratcheted up their exposure to opaque shadow loans. In summer 2019, the failure of Baoshang Bank—a small lender operating out of Inner Mongolia, showed the cracks starting to appear.

Evidence of stress is not hard to find. The incremental capital output ratio—a measure of how much capital spending is required to buy an additional unit of GDP growth—rose from 3.5 in 2007 to 6.5 in 2017, the highest level in the reform era.[6] The additional GDP generated by each new 100 yuan of credit fell to 32 yuan in 2018, down from 95 yuan in 2005. According to the Bank for International Settlements, close to 20 percent of GDP has to be used to service debt—higher than the United States on the eve of the great financial crisis. The picture that emerges is of a Chinese economy where an ever-increasing volume of debt-fueled investment is required to fuel an ever-decreasing volume of growth. The consequence is an unsupportable burden of repayment and a burgeoning stash of hidden bad loans.

In the past, China was able to outrun its problems. At the end of the 1990s, China's bad loans were close to a third of GDP—a seemingly insurmountable burden. After a decade of double-digit growth, the same bundle of bad loans was a forgotten footnote in the history of China's rise. The same trick will be difficult to pull off again.

At the end of the 1990s, China had a young and growing population. Zhu Rongji's root-and-branch reforms of the state sector retooled the economy for growth. Entry to the World Trade Organization opened the door to an untapped global market. The ratio of bad loans to total lending was high, but overall debt levels were low, making recapitalization of the banks relatively affordable. In 2018, all those factors were reversed. The working-age population was aging and shrinking. What looked like a far-reaching commitment to pro-market reform at the Third Plenum in 2013 petered out, with Xi Jinping calling for "bigger, better, stronger" state-owned enterprises. The world was no longer an untapped market. With China's biggest trade partner—the United States—swinging toward a protectionist stance, it looked like it might be tapped out. Recapitalizing the biggest banking system in the world would be neither cheap nor straightforward.

Attempts at innovation and entrepreneurial endeavor are ineffective within a controlling, state-dominated system. On innovation, a torrent of funding has created the sheeny veneer of success. Critics say the reality behind it is mediocrity and asset price inflation. Firms that succeed often benefit from massive government subsidies, protection from foreign competition, and what friends call technology transfer and rivals technology theft. By flooding target industries with investment, government planners don't generate the scale they need to succeed; they do generate a rush of new entrants and rampant overcapacity. The result—evident in China's robotics sector—is firms struggling just to stay afloat, cutthroat competition on price, and no one spending on research and development. "I think the future is bright," said one robotics entrepreneur, speaking in 2018. “I just hope we get there.”[7]

For private firms, the story is equally uninspiring. After falling consistently throughout the reform era, the share of the state sector in industrial assets steadied in 2014 and then rose slightly. Supply-side-reform mastermind Liu He insists his program is not anti–private sector. The reality on the ground is that it’s mainly private firms facing closure, and state firms enjoying expanded market share and higher profits. Since the start of the supply-side reform campaign, state investment has outpaced spending by the private sector—often by a wide margin. Superstar technology firms faced a Communist Party determined to prevent threats to social stability, even if it meant wading into their affairs and data. Foreign firms marking up the organization chart for their China venture found they had to include a place for a Communist Party committee.

Finally, if a crisis does occur, the lesson of the 2015 equity meltdown is that the government would be ill-equipped to respond. As the Shanghai Composite Index halved in value, wiping out trillions of yuan in wealth, policymakers tried repeatedly to arrest the decline. State-owned investment houses were instructed to put together a rescue fund. The state-owned press was told to shore up sentiment by focusing on good news. The People’s Bank of China (PBOC) slashed interest rates. Ultimately, it was only when more than a thousand shares were suspended from trading—effectively turning the market off—that the fall ended. China’s policymakers are celebrated for their far-sighted approach to economic planning, a marked contrast with the short-termism and partisan bickering that too often characterizes the United States. In the face of a fast-moving crisis, the curtain was pulled back and they were revealed as no better able to manage than governments anywhere else in the world.

That, more or less, is the lens through which most economists and investors view China. The economy has too much debt, taken on too quickly, and allocated by a deeply flawed financial system. Bad loans, unrecognized in the official data, are already high enough to pose a threat to stability. A shrinking working-age population, state-encrusted corporate sector, and wrong-headed policy agenda mean the chances of outrunning the problems are slight. If a crisis does break out, China’s policymakers will prove unequal to the task of ending it. Viewed from that perspective, the question on China’s financial crisis is not if but when, and how bad it might be.

THE PAST IS PROLOGUE: IMAGINING A CHINA CRISIS

What could trigger a crisis? China’s own recent history provides abundant examples:

- In 1989, following years of runaway loan growth, there was a misstep on reform—moving too quickly from government- to market-set prices. And there was a misjudgment in how to deal with an overheating economy—slamming on the brakes and bringing growth screeching to a halt. GDP growth for the year fell to 4.2 percent, and social unrest shook the regime to its core.
- In 1998 the Asian financial crisis hammered exports, at the same time as profitability for industrial firms was slumping and banks were struggling with nonperforming loans. The official data shows growth for the year resilient at 7.8 percent. Academic estimates based on tracking electricity, airline passengers, and other proxies put it at 2.2 percent or below.[8]
- In 2008 the great financial crisis hammered exports again—and this time with more at stake, as overseas sales had become a more significant driver of growth. The official data showed growth sliding to 6.4 percent. The reading from the Li Keqiang index—the proxy gauges used by China’s premier back when he headed Liaoning province—suggest it may have actually dropped as low as 2.4 percent.
- In 2012, in Wenzhou, a combination of the European sovereign debt crisis pounding exports and tighter policy whacking shadow lenders and real estate speculators brought the local economy to its knees. Plunging property prices, fleeing factory owners, and an emergency visit by Premier Wen Jiabao painted a picture of a city on the brink.
- In the 2013 money market crisis, the PBOC’s maladroit attempt to contain shadow banking by jacking up borrowing costs froze the financial system. With rumors swirling of default by a major bank, lenders pulled back, money market rates soared, and the world feared that China was facing a Lehman moment.
- In 2015 the equity market crash threatened a wider blow to confidence, and mishandling of yuan depreciation triggered a wave of destabilizing capital outflows. The government was forced to halt trading on the equity market, and erect barriers to capital outflows, to prevent a systemic crisis.
- In the same period, in Liaoning and other northeastern provinces, the end of the stimulus exposed a creaking industrial structure, triggering a plunge in growth and leaving many firms unable to service their debts. A 5.4-trillion-yuan regional economy—equivalent to Turkey in size—faced a slide into recession and bankruptcy.

That brief history of national-level near misses and local-level direct hits should convince that China is not crisis-proof. It also provides a checklist of potential triggers. A slump in exports, a plunge in real estate, overly ambitious reform, draconian tightening, market meltdown, capital outflows, or simply the inertial weight of zombie firms all have the potential to push China into crisis.

In the past, when problems occurred, China always had the growth momentum, policy space, and political determination to manage through, fending off a hard landing. That won't always be the case. Flip the calendar forward to 2024 and consider a pessimistic but plausible scenario for what China's economy might look like:

A shrinking working-age population, stalled reform of the state sector, and unending trade war have put a cap on growth . Based on projections from the IMF, growth will have slowed toward 5 percent. On a more pessimistic scenario, it could already be in the low single digits. Reviewing a swath of historical evidence, Harvard economists Lant Pritchett and Larry Summers conclude that China's annual growth is on a path down to 2 percent.[9] Capacity to grow through problems is much depleted.

Successive rounds of credit-fueled stimulus have pushed debt to vertiginous heights. Taking account of projections on growth, credit intensity, and bad loan write-offs, economist Fielding Chen projected that by 2024 China's debt will have risen toward 330 percent of GDP.[10] Within that, government debt approaching 100 percent of GDP (even on the conservative official measure) would limit space for infrastructure stimulus. Higher household debt would make it harder to ramp demand by leveraging mortgage borrowing. Policy space to respond to the crisis would be used up.

Xi Jinping has broken through the two-term limit that would have seen him step down in 2022. Seventy-one years old and in power for twelve years, Xi faces a challenge familiar to other long-serving leaders—policy ideas that looked fresh in 2012 are now looking stale, wise counsel is harder to find, potential successors are jostling for position. The policy imagination and unity of purpose that enabled China to ride through past challenges might be harder to find.

Checks and balances that could have provided a corrective against policy mistakes have disintegrated. The freewheeling press that turned Deng Xiaoping's southern tour into a national conversation on reform has been silenced. The space for constructive dissent—where activists like Huang

Qi, the Chengdu land-rights advocate, call out bad practice without challenging Communist Party rule—has narrowed to the point of nonexistence.

In the past, a blow to growth from crumbling real estate or exports, a misstep on reform, a market meltdown, or capital outflows were triggers for a decisive and ultimately successful response from the government. In the future, that might not be the case.

If China does slide into crisis, what would happen to the economy? A look at the international experience provides a window into thinking about the problem. In 1997, when the Asian financial crisis was just a glint in a hedge fund manager's eye, Korea's economy expanded 5.9 percent. In 1998, with the crisis in full swing, it contracted 5.5 percent. Closer to the epicenter of the crisis, Indonesia suffered an even more extreme blow, with its economy swinging from 4.7 percent expansion to 13.1 percent contraction. The United States slid from a 3.5 percent expansion in its pre–financial crisis boom to a 2.5 percent contraction in its financial crisis bust. Before the European sovereign debt crisis, Greece was clocking a 5.6 percent growth rate. In the depths of the crisis, its economy contracted 9.1 percent.

Carmen Reinhart and Kenneth Rogoff's seminal work *This Time Is Different* cuts through a thicket of historical evidence, emerging on the other side with calculations on the average impact of major banking crises on asset prices, growth, unemployment, and government debt:

Asset prices collapse, with an average 35 percent drop in real house prices stretched over six years, and equity prices falling 56 percent.

Output falls more than 9 percent, with a recession lasting on average two years. The unemployment rate rises an average of 7 percentage points, with the increase stretching over four years.

Government debt increases 86 percent, as the state takes on the burden of financing the recovery and recapitalizing the banks.

Those are not encouraging numbers. More troubling, given that the extent of the financial imbalances that have built up in China are larger than those in almost any other country, the cost if imbalances unwind in a disorderly way would very likely be higher.

CORRIDORS OF CONTAGION: TRACKING GLOBAL RISKS FROM A CHINA CRISIS

Call it “Sinophrenia”: the simultaneous belief that China is about to collapse and about to take over the world. Reading the news headlines, and listening to commentary on China’s economy and foreign policy, it seems both are true. On the one hand, debt is too high, the property bubble too big, and the shadows of the financial sector too dark for the economy to steer clear of crisis for much longer. On the other, China has a master plan for taking over the technologies of the future, a muscular diplomacy that is extending influence around the world, and an economy poised to challenge the United States for global leadership.

In few places are the contradictions so evident as in thinking about the Belt and Road Initiative—Xi’s signature attempt to lift China’s geopolitical heft into line with its economic might. It was in September 2013, on a visit to Kazakhstan, that Xi announced plans for the silk road economic belt—stretching from China, through central Asia, the Middle East, and Europe. A month later, in Indonesia, he set out plans for the maritime silk road, spanning Southeast Asia, Oceania, and Africa. The names were fancy but the plan was straightforward: leverage China’s financing and expertise to strengthen infrastructure links with the rest of the world. More construction would provide an immediate boost to growth, and use up some of China’s spare industrial capacity. Better trade links would boost exports and support longer-term development. Dangling major investment projects would give growth-hungry foreign governments reason to think twice before stepping out of line with Beijing.

For some it was a masterful power play, evidence of China’s enormous resources and long-term vision. As Washington, DC—still reeling from the great financial crisis—began retreating from its international commitments, the contrast between a China on the advance and a United States on the decline was sharply drawn. The Philippines, a key player in the disputed South China Sea and a bellwether for sentiment in Southeast Asia, was quick to switch sides. President Roderigo Duterte called President Barack Obama a “son of a bitch” and headed to Beijing to see what goodies Xi was handing out. The unfortunately acronymed Belt and Road Forum drew twenty-nine heads of state to Beijing. They listened politely to Xi promise a “new type of international relations featuring win-win cooperation,” but were probably more interested in the 540 billion yuan in funding that was up for grabs.

For others, it showed that Beijing’s reach continued to exceed its grasp. The initiative was long on ambition and publicity, short on actual investment. In 2016, with controls on capital outflows hardened following the yuan meltdown, China’s outbound investment actually fell. Foreign exchange reserves, once seen as an undepletable hoard that China could use to buy overseas assets and influence, suddenly appeared barely adequate to ensure currency stability. Chinese provinces that were meant to benefit from improved infrastructure links did no better—and in many cases worse—than the rest of the country. In 2018 the incoming government of Malaysia—another Southeast Asian bellwether—cancelled Chinese-sponsored projects, and warned that the Belt and Road Initiative represented a "new colonialism."

As ever, in cases of acute Sinophrenia, it turns out that both sides have a point but neither are entirely right. Belt bulls missed the dysfunctions, missteps, overlaps, and overreach that characterized the early stage of the initiative. Belt bears couldn't see the wood for the trees. Pointing gleefully at project-level failures, they missed the bigger picture as China began steadily pouring more concrete and stealthily pulling more strings across Asia, the Middle East, and Europe.

One thing all sides could agree on: the Belt and Road Initiative showed that China's global influence had increased. As of 2018, China's economy was the second-biggest in the world, accounting for close to 16 percent of total output. It was the world's second-biggest importer, receiving $2.1 trillion in shipments. Metal producers from iron ore majors in Australia and Brazil to copper mines in Chile count China as their biggest customer. China ranks second behind the United States in terms of oil consumption. Everyone from Apple to Walmart depends on Chinese factories as a critical link in their supply chain. China's stock market is the second-largest in the world (behind only the United States) and its bond market is the third-largest (behind the United States and Japan). Linkages between China's markets and the rest of the world are small, but growing at a rapid pace.

As long as China's growth remains on track, those avenues of influence remain a positive for the rest of the world. In a crisis, they would become corridors of contagion.

- To its trading partners, China is a combination of competitor, partner in production, and customer. In a crisis, a collapse in exports as factories failed might benefit some competitors. The dominant impact, however, would be a drag on growth as the main link in Asia's manufacturing supply chain breaks and China's demand for imports collapses. Asian economies, integrated in the global production chain with China, would be especially hard hit.
- China's limited capital market ties with the rest of the world mean the direct impact through financial channels would be small. As the experience of China's 2015 equity market plunge demonstrates, the indirect impact

from a collapse in confidence could be severe. A plummet in China's stock and bond markets would send tremors across global markets.

Commodity prices are the intersection where trade and financial channels meet. With China the swing factor in demand for everything from soybeans to iron ore, a collapse in China's demand would trigger tumbling prices. Commodity exporters would suffer. Advanced economies that import commodities would benefit as prices fall—but not enough to offset the blow from falling exports and financial market contagion.

The Belt and Road Initiative got off to a slow start. Over time, however, China's investment in the rest of the world can only increase. A crisis in China, causing a sudden pullback of planned projects, would dent capital spending. The impact would be particularly marked for developing countries that rely on Chinese funding to get projects off the ground.

In 2015, China's economy came close—perhaps the closest it has come since 1989—to a hard landing. The combination of equity market crash, yuan slide, and massive capital outflows raised fears that the end was nigh. After the dust had settled, policymakers around the world decided it was time to take a long, hard look at exposure to China, and the potential for contagion from a China collapse.

The IMF devoted a chapter of its 2016 World Economic Outlook to "spillovers from China's transition." The European Central Bank pondered "the transition of China to sustainable growth—implications for the global economy and the euro area," a tactful euphemism for the real focus: what happens to Europe if China crashes?[11] The Bank of England weighed in, worrying that financial ties through Hong Kong, and the growing role of Chinese investors in the London real estate market, could amplify the blow to Britain if China stumbled.[12]

The headline conclusion from all that research: the impact of a China crash on the rest of the world would be big. The IMF estimates that a 1 percent drop in China's demand would result in a 0.25 percent drop in global GDP. Putting that together with Reinhard and Rogoff's conclusion that countries experiencing a banking crisis typically see a 9 percent drop in output, a crisis in China could knock 2.25 percent off global GDP, bringing the world to the brink of recession.

It's China's Asian neighbors that face the biggest risks. Economies like South Korea and Taiwan find themselves exposed to China both as a final source of demand for exports, and as a critical link in the supply chain that takes their products to consumers in the United States and Europe. In 2018, South Korea's exports to China were equal to close to 13 percent of GDP. That reflected a combination of final goods—like the dewy cosmetics coveted by China's fashionistas, and intermediate goods like the parts Samsung feeds into China's smartphone assembly plants. Based on estimates from the IMF, a 1 percent drop in China's demand would lower Korea's GDP by 0.35 percent. A crisis in China, with demand falling 9 percent, would plunge Korea and other Asian neighbors into recession.

Next in line are major commodity exporters. Economies like Australia, Brazil, and Saudi Arabia would suffer a double blow. First, they would suffer as China's crumpling investment hammered demand for commodities. In 2018, Australia's exports to China—mainly iron ore—were equal to almost 7 percent of GDP. For Saudi Arabia, oil exports to China were equal to almost 6 percent of GDP. Second, they would suffer as China's collapse hammered financial market confidence, resulting in plunging commodity prices. Australia faces the biggest risks, with a 1 percent drop in China's demand taking its GDP down by 0.2 percent, according to estimates from the IMF.

For major advanced economies the impacts would be smaller, with the blow from weaker exports and financial contagion offset in part by a boost from lower commodity prices. Germany and Japan stand out as exceptions. Japan, deeply enmeshed in Asia's electronics supply chain, would face a 0.2 percent blow to output if China slowed 1 percent. Germany, a major supplier of the engines, turbines, and other advanced manufacturing products required by China's industrial sector, would take a smaller but still significant hit.

For the United States, United Kingdom, and other European countries, the blow would not be as severe as that suffered by China's Asian neighbors or commodity exporters. Even so, it would be significant, and likely amplified by growing financial linkages. For the United States and the United Kingdom, the outsize role that financial markets play in the economy add downside risks. In August 2015, as China's equity markets crashed, the S&P 500 fell 3.9 percent on a single day. If a China crash sent US markets into a tailspin, the blow to consumer confidence and corporate financing would amplify the impact of falling exports.

China's holdings of US Treasuries are a complicating factor in the relationship, but unlikely to be a critical factor in the event of a crisis. At the end of 2018 China held $1.1 trillion in US Treasury debt—slightly more if holdings stashed away in other financial centers are added to the total. China's position as one of the largest foreign holders of US debt (they jostle for first place with Japan) has been a perennial source of concern. Part of China's first bank bailout —ahead of the listing of the big-four state-owned banks—was financed with a sale of foreign-exchange reserves. What if a financial crisis forced China to recapitalize its banks on an even larger scale, and it raised the funds with a fire sale of its Treasury holdings? Would that trigger a financial meltdown, with the US dragging the rest of the world down with it?

Maybe, and for that very reason, it's not likely to happen. Facing a crisis at home, China's leaders would hope for strong global demand to lift the economy out of its slump. A fire sale of Treasury holdings, triggering a crisis in the United States and potentially the rest of the world, would be counterproductive in the extreme. Back in 2007, Larry Summers coined the term "balance of financial terror," neatly encapsulating the idea that China had to keep lending to the United States, because if they didn't, the resulting crisis would sweep them away too. China has stopped adding to its Treasury holdings, which have been roughly stable since the end of 2013. Still, the balance of financial terror remains in place. Even in a crisis, China would find other sources of funds rather than risking a meltdown of its biggest trading partner.

The further in the future a crisis occurs, the bigger the impact would be. In 1989, when China's economy experienced its first system-shaking shock, its GDP was just 2.3 percent of the global total. In 1998, when the Asian financial crisis hit, it was just 3.3 percent of the total. In 2015, when equity market collapse and capital outflows raised fears of a hard landing, it had risen to 15 percent. By 2024, it will be close to 19 percent. China's financial markets are expanding and opening at an even more rapid pace. Based on projections from Bloomberg Economics, from 2017 to 2025 China's bond market could double in size. An expanding Belt and Road Initiative will accelerate financial linkages, and create new dependencies on Chinese trade and investment. In a crisis, the bigger China's economy is, the larger the impact through the trade channel. The bigger and more open China's markets are, the greater the potential for financial contagion.

A financial crisis in China is possible. If it does occur, the consequences for China and the world would not be pretty. A crisis, however, is not the most likely scenario.

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12

It’s Never Too Late

To read the history of modern China is to read the history of China collapse theories. In 1978, as Deng Xiaoping announced that “practice would be the sole criterion of truth,” few anticipated that he was opening the door to four decades of rapid growth. In 1991, as the Soviet Union fell, the read across to the situation in Red China appeared clear, and regime collapse was anticipated. As the Asian financial crisis swept away crony–capitalist regimes from Thailand to Korea, it seemed like the days for China’s inefficient state firms and bad-loan-laden state banks must be numbered. In 2001, China’s entry into the World Trade Organization (WTO) was seen as a win for the United States. “Who will defend the Party when workers lose their jobs in the WTO economy?” wondered one of the grizzlier of the China bears. “Will some economist from Beijing University explain trade deficits and the concept of comparative advantage to an angry mob as it marches on the Communist leadership compound in Zhongnanhai?”[1]

The rise of the middle class, and their demand for participation in the political process, was expected to sound the death knell for Communist Party rule. China was expected to languish in a middle-income trap, unable to transition from an economy based on cheap labor and brute investment to one driven by high skills and high productivity. The great financial crisis was expected to topple China’s exports, driving unemployment higher and threatening regime stability. The transition from investment to consumption as a driver of growth was expected to be unmanageable. Ghost towns of empty property, local government debt, and shadow banking were all identified as triggers for a system-shaking crisis.

Collapse theories have been many and varied. So far, they have one thing in common: they have all been wrong.

Why so? One reason is that they’re not wrong, they’re just early. MIT economist Rudiger Dornbusch’s famous line, “Crises take longer to arrive than you can possibly imagine, but when they do come, they happen faster than you can possibly imagine,” will one day prove prescient in China, as it has in so many other countries.[2] Beyond that, there are four factors at work.

- China has underappreciated sources of strength—substantial room for development, stable funding for the financial system, and a determinedly developmental state.
- The tradeoff between policy choices is overstated, or—a different way of saying the same thing—the creativity of China's policymakers is underestimated.
- As a single-minded, single-party state, China has unique resources it can bring to bear on dealing with problems.
- For those looking in from outside, there's a combination of low transparency and high emotions, which make it more difficult to form an accurate and unbiased view.

"What can we make?" asked Chairman Mao, launching the first five-year plan back in 1953. "Tables, chairs, and teapots . . . we cannot make automobiles, airplanes, and tanks." China's history since then, and more successfully since the beginning of reform and opening under Deng Xiaoping, has been an attempt to rectify that problem, with industrial planners marshalling resources to move the economy up the development ladder. One reason they've been successful: something economists call the "advantage of backwardness," a path to growth simply by following in the technology and management steps traced out by global leaders. In the early stages of the People's Republic, China had it in spades.

Even more than half a century after Mao's remarks, China still benefits from the advantages of backwardness. In 2018, GDP per capita measured in purchasing power parity terms was $16,000, less than 30 percent of the level in the United States. That's a fact often overlooked by global visitors. Flying into Beijing's ultra-modern airport, staying in the Ritz Carlton on the west side of town or the other Ritz Carlton on the east side, attending meetings in newly built office towers, watching smartly dressed young professionals ordering ride shares on their smartphones, it's easy to forget that China remains a developing country. Countries with development space have room to grow through financial problems that might stop a more advanced economy in its tracks.

On its own, backwardness isn't particularly advantageous. Many African countries are poor; that hasn't helped them. What's accelerated China up the developmental ladder is its 1.3 billion population and can-do government. The 1.3 billion population was important initially as a source of cheap labor, enticing foreign firms to set up production in factories up and down the east coast. That's one of the big reasons WTO entry didn't play out like the China bears anticipated. In the years that followed, as labor costs rose and consumer power increased, incentives tilted toward producing for China's massive domestic market. Either way, foreign firms were ready to strike a bargain—access to China's market in return for transfer of production technology and management know-how.

The earlier adventures of Japan, South Korea, and Taiwan provided a ready-to-go blueprint for how to manage the process. Just as China didn't have to reinvent the wheel on technology—instead copying what already existed in more advanced economies—so also they didn't have to reinvent the model of a developmental state, instead copying what had already worked so well for their East Asian neighbors. Surprisingly, given the poisonous historical relations between the two countries, in the early days of China's reform and opening Japan was generous in its provision of technical advice. Liu He, the chief economic advisor to Xi Jinping, is part of a school of Chinese economic planners trained in the Japanese approach.[3]

The combination of space for development, enormous size, access to foreign technology, and a ready-made blueprint for development gave China a major head start. On top of that, add a high savings rate, controlled capital account, and a state-owned banking system. As a nation, China saves almost half of its income; a controlled capital account means it's difficult to move those savings offshore. As a result, the vast majority ends up in the domestic banking system. That's important because it guarantees China's banks a steady flow of cheap funding. And with the banks state-owned, that means government planners have a constantly replenished piggy bank for funding priority projects.

Put those pieces together, and the result is a formidable engine of development. China had space to grow by catching up to the advanced productivity levels in the United States, Japan, and Germany; a 1.3 billion–strong population as a lure for foreign firms and their technology; a made-in-Japan blueprint on how to put all the pieces together; and a captive pool of savings to pay for it all. For evidence of how successful that has been, look no further than China's own development record. Close to four decades of growth, averaging 9.6 percent, and (leaving aside questions about the official data) never dropping below 3.9 percent. Only the East Asian tigers come close to matching that. The rest of the developing world isn't even close.

Despite those strong fundamental drivers, China has faced and continues to face very serious structural problems. Critics portray China's leaders as stuck between a rock and a hard place, confronted with a series of damned-if-you-do, damned-if-you-don't dilemmas:

> Development means creation of a middle class. A middle class will demand

political rights. The challenge to the Communist Party's authority will result in regime collapse. Failure to develop will leave the population in poverty, undermining the legitimacy of a government that promised continued improvements in quality of life, causing regime collapse at an even earlier date.

The creaking state sector must be reformed if China is to avoid stagnation. But the state sector is the lynchpin of China's industrial planning and demand management, as well as the basis of patronage networks for leaders. Without it, the government will lose control.

Runaway real estate prices must be curbed, or would-be homeowners will agitate against the political order. But taming prices will prick the property bubble and crater the construction boom that has been the biggest contributor to China's growth.

So far, none of those tradeoffs have bitten, or at least bitten hard enough to dent China's development trajectory. The middle class has acquiesced to single-party rule—as long as they keep getting richer. The state sector is big and complex. Closing down some of it and striving for efficiency gains in the rest enabled increased economic dynamism without sacrificing control of the commanding heights. The real estate boom turned out to be more durable—and policymakers' capacity to deflate bubbles without puncturing the economy greater—than analysts anticipated.

One reason China's policymakers are able to evade the lose–lose choice the bears say they are confronted with is that they are more imaginative and flexible than their critics give them credit for. Jiang Zemin's "three represents"—which opened the Communist Party to membership by entrepreneurs and other members of the bourgeoisie—is the outstanding example. Instead of crumbling in the face of a rising private sector and middle class, the Communist Party simply broadened its church to include their leading representatives. In 2017, Wang Huning - the political theorist credited as one of the creators of the three represents, became a member of the Standing Committee, China's highest level of leadership. Jack Ma, founder of e-commerce giant Alibaba and one of the richest men in the world, is a member of the Communist Party. Pony Ma, the founder of Tencent and also one of the richest men in the world, is a delegate to National People's Congress.

Management of the ups and downs of real estate illustrates the same creativity. China bears thought there were only two settings for the real estate sector—boom or bust. By developing a wide range of instruments, and the capacity to deploy them with varying degrees of intensity and differentiate on a city-by-city basis, policymakers demonstrated that there are multiple positions on the spectrum in between. Moving mortgage rates and down-payment requirements, and shifting administrative requirements on who can buy a home, proved an effective way of modulating demand. Setting different requirements for first-, second-, and third-homebuyers added to the flexibility. China's real estate sector has extreme cycles, but so far that refined set of instruments has enabled policymakers to avoid anything that looks like Japan's meltdown or the US subprime crisis.

Capital account opening is a third example. The received wisdom was that China faced a stark and unattractive choice. A closed capital account—blocking the flow of funds between the mainland and the rest of the world—would present a barrier to capital flight but doom China's economy to the inefficiencies of financial autarky. An open capital account would deliver greater efficiency but expose China to risks of an Asian financial crisis–style sudden stop. The son of one of China's top officials, himself a major player in the financial sector, said that opening the capital account was the equivalent of "seeking death." Despite that dire warning, China's policymakers found a middle path—opening the capital account to long-term, patient investors while keeping it closed to the destabilizing influence of short-term speculators.

If underlying strengths, energy, and imagination all fail, China's policymakers can also fall back on the unusual resources of a Leninist party state. Chief among these is the ability to shift policy decisively, comprehensively, and without regard to procedural or legal niceties. That was on display in the response to the great financial crisis. The 4-trillion-yuan stimulus—already effective in timing and size—was the tip of a spear that comprised monetary, fiscal, industrial, and financial regulation policies. It was in evidence again during the 2015 stock market meltdown, which ultimately came to an end when trading in more than a thousand stocks was suspended by administrative fiat, locking unfortunate investors into losing positions.

The stock market collapse also showcased the state's ability to contain flows of information. Press, television, and online media all received instructions on how to report the market fall, with policymakers aiming to stem the panic by eliminating the bad news. One unfortunate reporter with *Caijing*, a leading Chinese finance magazine, founds himself detained for allegedly fabricating and spreading false information. In a televised confession, Wang Xiaolu admitted to causing "panic and disorder" and apologized for causing "the country and its investors such a big loss." Wang wasn't alone; nearly two hundred people were punished for online rumor-mongering.[4]

China's government only gets to pull those additional policy levers at a considerable cost. Doing away with due process in government and free debate in society risks missteps in both directions. Policymakers can overdo it—which is what happened with the 4-trillion-yuan stimulus. They can also leave problems to fester for too long, as with the one-child policy, a large-scale policy error and one that a government benefiting from democratic checks and balances would surely have avoided. In almost all cases, the short-term flexibility and resilience enjoyed by authoritarian regimes has proved a source of long-term rigidity and brittleness. Many analysts have argued that ultimately will be China's undoing. Someday, that call will put them on the right side of history. So far, it has put them on the wrong one.

Behind all the challenges in making the right call on China are two hard-to-acknowledge truths. First, it is genuinely difficult understanding what is going on. For many foreigners, language is a barrier. Even for native speakers, or the few foreigners who have devoted the thousands of hours required to attain fluency, barriers remain. Policy statements are long on boilerplate platitudes, short on substance. Official data is patchy in coverage, flaky in quality at the best of times, and sometimes fabricated for political purposes. Officials are in no hurry to meet with inquiring outsiders. With government propaganda warning about spies on every corner, even previously forthcoming academics and think tank policy analysts have clammed up. A plucky band of investigative journalists, many of them working for the foreign press, do a great job under the most difficult of circumstances. Under the watchful eye of the propaganda police, there are fewer and fewer local reporters competing to splash scoops on the front page.

It is also genuinely difficult to come at the China question with an open mind. China is a single-party state with a history of scant regard for individual liberty. The state dominates the economy, with the biggest banks and industrial firms following the directives of industrial planners more than shareholders, and regulators intervening in markets before breakfast, lunch, and dinner. China is already disrupting US military supremacy in the Asia Pacific, and in the next decade will likely do so on a global scale. Looking through all these emotive issues, it's hard not to see China through a red mist. Dispassionate judgments are hard to come by.

Criticism of the different leadership styles of Hu Jintao and Xi Jinping illustrate the point. Hu operated through consensus, attempting to get agreement between all stakeholders before moving ahead. That had its advantages; policymaking was deliberative and thorough. But it was also slow-moving and, by attempting to placate all interests, ended up avoiding difficult decisions. Foreign analysts concluded that Hu was ineffectual, and that China needed a strong-man leader to bang heads together and get things done.

Xi adopted a diametrically different approach. Consensus discussion was out; unilateral decisions were in. “The Chairman of Everything,” he was called (“Xi Who Must Be Obeyed” was the wisecrack). Following criticism of Hu for his wobbling prevarication, analysts might have been expected to embrace Xi’s muscular decisiveness. They did not. Xi was cast in the role of a twenty-first-century Mao. A commentariat that until Xi’s arrival had been calling for decisive leadership now took the view that this particular decisive leader was not what China needed. If dispassionate observation is pushed aside by perennial criticism, forming an accurate view of China’s politics, economy, and finances, is harder to do.

THE END OF THE FOURTH CYCLE

Reform-era China has been through three cycles. The first started with Deng Xiaoping’s decision to break with the ideological extremities of Maoism and ended with the student protests and conservative crackdown. The second started with Deng’s southern tour and ended with the Asian financial crisis. The third started with Zhu Rongji’s reform of the state sector and China’s entry into the WTO, and ended with the great financial crisis. In each case, a successful policy generated a decade of growth but ultimately ran into its limits. In each case, the cycle ended in crisis, but that crisis proved a trigger for far-reaching reforms that—combined with the economy’s underlying strengths—catalyzed the next decade of growth.

A decade after the great financial crisis triggered the 4-trillion-yuan stimulus, China is at the end of the fourth cycle. The surge in lending that started at the end of 2008 buoyed the economy through the global slowdown but ran too strong for too long. A decade on, banks are overextended on their lending and vulnerable on their funding. Industrial firms, real estate developers, and local governments have borrowed too much. Funds frittered away in wasteful projects compound the difficulty in repayment. The inertial weight of high debt and inefficient capital allocation mean that a rapid pivot to a new growth cycle is hard to envisage. A more hostile world—with the United States viewing China more as threat than opportunity—adds to the difficulties. So does a shrinking working-age population.

That doesn’t mean a crisis is imminent. To begin the fifth cycle, China needs to engineer a series of interlinked and mutually reinforcing transitions:

On the supply side of the economy, a transition from capital-heavy, labor-light industrial firms to capital-light, labor-intensive services.

Within industry and services, a shift from inefficient state-owned enterprises to a dynamic, productive private-sector.

On the demand side of the economy, a move from exhausted exports and overdone investment to household consumption as the main driver.

In banking, a restoration of the relationship between credit expansion and economic output, enabling deleveraging to take place without hammering growth.

In different ways, those transitions are either already underway, or—given other changes taking place—could be soon.

In 2000, industry accounted for 46 percent of total output and services just 39 percent. Fast-forward to mid-2019, and industry's share has fallen to 40 percent with services rising to 53 percent. The share of investment in GDP peaked at 48 percent in 2011, and by 2018 had edged down to 44 percent. Over the same period, the share of household consumption rose from 36 percent toward 40 percent. In 2018, consumption contributed close to 80 percent of growth—indicating that the handoff from capital spending is accelerating. It's possible the official data are understating the pace of change. Analysis of China's GDP numbers by academics at the Chinese University of Hong Kong and University of Chicago suggested growth was exaggerated, and the main channel for exaggeration was investment.[5] China's economy may be smaller than the National Bureau of Statistics reports, but it may also be less unbalanced than China bears believe.

A larger role for services firms, higher income for households, and rebalancing from investment to consumption are mutually reinforcing trends. The services sector is more labor-intensive than industry: a restaurant or hospital has a lot of employees and not much physical capital, while a steel mill or cement kiln has a lot of physical capital but not many employees. More labor-intensive production drives higher demand for workers. The pass-through from higher demand for workers to higher wages isn't straightforward. Many services jobs are low-skill, and workers have less bargaining power than they did on the factory floor. Still, all else being equal, more demand for workers pushes wages higher. As incomes rise, households consume more, and a larger share of incremental spending goes on services. As demand for services increases, employment rises and the virtuous circle begins again.

On the shift from inefficient state firms to dynamic private firms, progress is harder to see. Indeed, viewed from a certain perspective, the movement is in the wrong direction. In 2014, the share of state firms in industrial assets ended a decades-long decline and started rising again. The supply-side reform agenda privileged state firms over private competitors, many of whom faced shotgun mergers or bankruptcy. Major private and foreign firms discovered that the Communist Party committee was eager to play an expanded role in their operations.

Viewed from a different perspective, however, the picture is not so bleak. The state sector might be growing as a share of traditional industry, but traditional industry is shrinking as a share of GDP. Private steel mills and coal mines are going under. But steel and coal are China's past, not its future. In the industries of the future—e-commerce, electric vehicles, robotics, artificial intelligence—private firms are at the fore. Go back to 2007, and China's top-twenty listed firms were all state-owned, with the biggest banks, oil companies, telecoms, and industrial and infrastructure firms all represented. Fast-forward to 2019, and a number of private firms—Tencent, Alibaba, home appliance maker Gree Electric—have muscled into the top ranks. If they have any sense, Communist Party cells in foreign and private firms will focus on defending the Party's political bottom line, not calling the shots on business strategy.

On deleveraging, progress has been halting, but the structural features of the financial system mean policymakers have time on their side. A refrain running through this book is that financial crises do not start on the asset side of a bank's balance sheet; they start on the liability side. In China, the high savings rate and controlled capital account mean a continual buildup of new deposits in the banking system, locking in a cheap and stable source of funding. State ownership of big and small banks means policymakers have unusual resources to manage liquidity within the system. Control of the media is not a positive for China. It does mean they are unlikely to face a downward spiral of market shock, amplifying press reports, and crumbling confidence.

With breathing room to manage down financial risks and drive efficiency gains in the real economy, China has made some smart and significant moves. The deleveraging and supply-side reform agendas took aim at the biggest problems, and registered immediate results. Shadow lending, clocking an annual 73 percent gain at the start of 2016, ended 2018 in contraction. Banks' reliance on expensive short-term funding from wealth management products followed the same trajectory. Forced rehousing of 8 million families a year absorbed overcapacity in real estate. The broader point is not that the supply-side reform and deleveraging agendas completely solved Chinese problems. Clearly, they did not. It's that they showcased the ability of policymakers to take extreme measures to shift the economic aggregates in the right direction.

Building an innovative economy is a longer-term process, and may have hit a major obstacle as the United States shifts toward viewing China as a strategic threat, imposing sanctions on major Chinese technology companies. Set against that impediment are two significant positives.

First, China's enormous size. As long ago as 1776, Adam Smith—the father of classical economics—wrote that "the great extent of the Empire of China [and] the vast multitude of its inhabitants . . . render the home market of that country of so great extent, as to be alone sufficient to support very great manufactures." Prescient in this as in so many other things, Smith said all China needed to take off was a little commerce with the rest of the world. Trade would enable them to "learn for themselves the art of using and constructing . . . all the different machines made use of in other countries." It took more than two-hundred years, but China's combination of vast domestic market and rapid learning from abroad mean that Smith's "very great manufactures" are now a reality. Even if relations with the United States stay frosty, the vast domestic market will remain a lure for foreign firms and their technology.

Second, no government anywhere in the world is making such strenuous, sustained, and well-funded efforts to move their economy up the development ladder. State-driven initiatives to move the economy toward the global technology frontier have been clumsy and wasteful. They have also been noticeably successful. In telecom equipment, high-speed trains, nuclear power, and sustainable energy, Chinese firms are either world leaders or jostling toward that position. In the next ten years it is entirely plausible that they will make similar strides in electric vehicles, industrial robots, and artificial intelligence.

Starting with the high savings rate, the fundamental forces that drive China's imbalances are starting to unwind. The generation born in the affluence of the reform era is more free-spending than their Mao-era parents and grandparents. The end of the one-child policy, aging of the population, buildout of the welfare state, and development of a more sophisticated financial system all pull in the same direction—increasing households' propensity to spend, reducing their propensity to save. There's a risk to lower saving; with less deposits flowing in, the funding base for banks will become less secure. But as less saving also means more consumption, there will be a parallel reduction in the need for bank-financed investment. As the imbalances caused by a high savings rate unwind, the need for a high savings rate to guard against the consequences of those imbalances is reduced.

Liberalization of interest rates and the exchange rate mean the price of money and the price of foreign goods are now being set by the market. The capital account is still managed, but with foreign investors now welcome in the bond and equity markets, cross-border capital flows are rising. A steady increase in defaults, including for state-owned borrowers, is starting to chip away at the problem of moral hazard. Taken together, those represent significant moves to increase the efficiency of capital allocation. That's a prerequisite if China is to restore the link between credit expansion and economic output—deleveraging without self-detonating.

China's policymakers are not all-knowing or all-powerful. They do, undeniably, get a lot done. Infrastructure building is overdone, but it has left major Chinese cities with world-class roads, railways, airports, power, and communications. Coverage of education and healthcare has expanded rapidly. Spending on research and development has accelerated. In the last twenty years China has faced down the Asian financial crisis and the Lehman shock, recapitalized and listed its major banks, halted two equity market routs, and stemmed capital outflows that threatened to trigger an old-school emerging-market crisis. If China's leaders appear confident in their abilities, there's a reason for that.

SEEING THE FUTURE IN A BOWL OF NOODLES

In the shadow of Beijing's financial district, a corner-hole noodle store does a lively trade. For 15 yuan ($2.20) hungry diners get a steaming bowl of homemade noodles swimming in a rich pork broth. For those with no afternoon appointments or disdain for high-falutin concerns about halitosis, cloves of raw garlic are available to nibble on. Vinegar from the owner's native Shanxi province and chili flakes are more universally accepted condiments. When I arrived in Beijing in 2008, cash was the only currency, and waitresses—most hailing from the same Shanxi village as the owner—shuttled back and forth carrying payment to a till at the front and change back to the customers. When I left in 2018 payment had shifted online, with customers using their smartphones to order and pay over the Alibaba or Tencent networks.

Over time, the explosive growth of mobile payments—on display not just at Beijing's noodle restaurants but in all kinds of transactions all over the country—could also be a game-changer. In 2011, the value of mobile payments was inconsequential. In 2018 it was 277.4 trillion yuan—more than three times larger than GDP. That's an important development for two reasons. First, it provides a means to integrate more entrepreneurs into the modern economy. There are more than 10 million small businesses operating on China's e-commerce platforms, accepting payments over the Alibaba or Tencent systems. A disproportionately large share of them are located in the backward hinterland, where—absent the connections e-commerce provides—they would be unable to access the opportunities created by China’s rapid development.

Second, the record of e-payment transactions forms a database that can be used for accurate credit scoring for even the smallest micro-business. “All their data is fake,” said Mr. Li, the Wenzhou financial consultant, explaining why banks favored loans to big state-owned firms over providing credit to ambitious private startups. As of early 2019, Ant Financial—the banking arm of the Alibaba empire—had provided no-collateral loans to more than 8 million small businesses. In the future, the combination of credit scoring from the mobile payments network and lending from a major bank could provide financing for entrepreneurs on an even larger scale.[6]

Back in the early 1980s, at the start of the first cycle, the return of land to the tiller—the “household responsibility system” that drove a step change in agricultural productivity and fired the starting pistol on China’s reforms—was not the result of a policy directive from Beijing. It started with the local initiative of farmers in Anhui province. In the early 2000s, the factories that seized the opportunity of China’s entry into the WTO were not state-owned. They were owned and operated by entrepreneurs, driven by the desire to get rich first, and providing a path out of rural poverty for millions of migrant workers.

The narrow point, is that by creating a link to customers, a channel for payment, and access to loans, China’s e-commerce and mobile payment revolution has the potential to empower a new generation of entrepreneurs to begin a new cycle of growth. The broad point is that the catalysts for China’s past growth cycles have come from unexpected places. They could do so again. The digital economy is a potential game changer. So is China 2025—which could mean China owns the industries of the future. So is the Belt and Road Initiative—which could make half the world a welcoming market for Chinese firms. Bets against China ignore how good the country has been at solving problems. They also ignore how successful it has been at creating and seizing opportunities.

It is the summer of 2017 and Hong Kong swelters in the heat. President Xi has just concluded the financial work conference. His announcement that financial stability is now the basis of national security fires the starting gun in the race to deleverage. Liu Mingkang, the former chair of the China Banking Regulatory Commission and one of the first to sound the alarm on risks from the excesses of local government borrowing, is addressing a room filled with Hong Kong’s financial elite. Close to seventy years old, with an impeccable grasp of detail and meticulous English, Liu explains Xi’s plan for stabilizing the financial sector. His presentation is drawing to a close. He pauses, gathering his thoughts for a resolution. The room is silent. “For an economy as big as China,” he says, “it’s never too late.”

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6. Long Chen, *Digital Economy and Inclusive Growth* (Hangzhou: Luohan Academy, 2019).

FURTHER READING

On the Deng Xiaoping Era

Growing Out of the Plan by Barry Naughton (Cambridge: Cambridge University Press, 1996)—a comprehensive and insightful treatment of China's early reforms.
Deng Xiaoping and the Transformation of China by Ezra Vogel (Cambridge, MA: The Belknap Press of Harvard University Press, 2013)—a magisterial biography of China's great reformer.
Burying Mao by Richard Baum (Princeton, NJ: Princeton University Press, 1996)—sets out a framework for understanding the cycles of liberalization and control that characterized the early reform period.
The Political Logic of Economic Reform in China by Susan Shirk (Berkeley: University of California Press, 1993)—a deeply researched treatment of reform in the 1980s.

On the Jiang Zemin Era

The Man Who Changed China: The Life and Legacy of Jiang Zemin by Robert Lawrence Kuhn (New York: Crown, 2005)—a comprehensive biography of Deng's successor.
Zhu Rongji Meets the Press by Zhu Rongji (Oxford: Oxford University Press, 2011) - a collection of speeches and interviews from China's hard-charging premier.
China's Unfinished Economic Revolution by Nicholas Lardy (Washington, DC: Brookings Institution Press, 1998)—a detailed examination of the challenges confronting China's reformers at the end of the 1990s.
Integrating China into the Global Economy, also by Nicholas Lardy (Washington, DC: Brookings Institution Press, 2001) - a contemporary view on China's entry into the World Trade Organization.
Back-Alley Banking: Private Entrepreneurs in China by Kellee S. Tsai (Ithaca, NY: Cornell University Press, 2004) - an early and insightful look at the shadow banking sector.

On the Hu Jintao Era

Barry Naughton's regular quarterly essays in the *China Leadership Monitor* provide an analytic chronicle of China's economy, from Hu Jintao to Xi Jinping.
Privatizing China: Inside China's Stock Markets by Fraser Howie and Carl Walter (New York: Wiley, 2006) casts a world-weary eye over the partial privatization of the commanding heights of the economy.
Red Capitalism, also by Fraser Howie and Carl Walter (New York: Wiley, 2012)—the book that first fired investors' imagination on the risks lurking on China's bank balance sheets.
China's Trapped Transition by Minxin Pei (Cambridge, MA: Harvard University Press, 2008) sets out a framework for understanding the dynamic between reform and politics.
Factory Girls by Leslie Chang (New York: Spiegel and Grau, 2009) tells the little-told story of life for migrant workers.
Dealing with China by Henry Paulson (New York, Twelve, 2016)—an insider's account of China's bank privatizations and U.S.—China relations.

On the Xi Jinping Era

The Great Rebalancing by Michael Pettis (Princeton, NJ: Princeton University Press, 2013) sets out China's economic challenges at the start of the Xi era.

China's Economy: What Everyone Needs to Know by Arthur Kroeber (New York: Oxford University Press, 2016)—a comprehensive, insightful, and accessible guide.

Avoiding the Blind Alley: China's Economic Overhaul and Its Global Implications by Daniel Rosen (New York: Asia Society, 2014)—a detailed look at Xi Jinping's Third Plenum reforms.

Made in China 2025 by Jost Wübbeke (Berlin: Mercator Institute for China Studies 2016)—an early assessment of Xi-era industrial policy.

The Fat Tech Dragon by Scott Kennedy (Washington DC: Center for Strategic International Studies, 2017) dives into China's state-driven innovation strategy.

China's Great Wall of Debt by Dinny McMahon (Boston: Houghton Mifflin Harcourt, 2018) – on the ground reporting on China's financial risks.

Credit and Credibility by Logan Wright and Daniel Rosen (New York Rhodium Group, 2018) **-** a deep dive into the problems of the financial sector.

The State Strikes Back by Nicholas Lardy (Washington DC: Peterson Institute of International Economics, 2019) tracks the resurgence of state control.

Patriot Number One: American Dreams in Chinatown by Lauren Hilgers (New York, Crown, 2018) chronicles one village's struggle against government land grabs, as well as the experience of Chinese migrants to the US.

On International Experience

The Greatest-Ever Bank Robbery: The Collapse of the Savings and Loan Industry by Martin Mayer (New York: Scribner, 1990) – tells the story of the US savings and loan crisis.

Turning a Crisis into an Opportunity: The Political Economy of Korea's Financial Sector Reform by Wonhyuk Lim and Joon-Ho Hahm (Washington, DC: Brookings Institution, 2006) offers an insider's take on Korea's 1998 crisis.

The Chastening: Inside the Crisis That Rocked the Global Financial System and Humbled the IMF by Paul Blustein (New York: PublicAffairs, 2001) provides a detailed account of the Asian financial crisis.

"The Bubble Burst and Stagnation of Japan" by Etsuro Shioji (a chapter in *The Routledge Handbook of Major Events in Economic History*, edited by Randall E. Parker and Robert M. Whaples) sets out the factors at work in Japan's bubble economy.

The Holy Grail of Macro-Economics: Lessons from Japan's Great Recession by Richard Koo (New York: Wiley, 2009) uses Japan's experience as the basis for the theory of balance-sheet recessions.

This Time Is Different: Eight Centuries of Financial Folly by Carmen Reinhart and Kenneth Rogoff (Princeton, Princeton University Press, 2011) marshals a formidable array of data on the history of financial crisis.

Stabilizing an Unstable Economy by Hyman Minsky (New York, McGraw-Hill Education, 2008)—a prescient and challenging theoretical treatment of the causes of financial crises.

Manias, Panics, and Crashes: A History of Financial Crises by Charles Kindleberger, and Robert Aliber (London, Palgrave Macmillan, 2015) combines the theory of financial crises with a lively relation of the history.

Source acknowledgments

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Homes" (*Wall Street Journal*, February 14, 2013). I'd like to thank Bloomberg for permission to use material and charts from "Is Supply-Side Reform Momentum Ebbing? View from Guizhou" (Bloomberg, February 11, 2018); "How Slum Clearance Exorcised Fear of Ghost Towns" (Bloomberg, April 2, 2018); "What Ghost Town? How Zhengzhou Filled Up" (Bloomberg, November 6, 2017); "Winners and Losers from Made in China 2025" (Bloomberg, November 1, 2018); "China Shadow Banking Topic Primer" (Bloomberg, September 12, 2017); and "China Financial Risks Topic Primer" (Bloomberg, September 12, 2017).

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