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23-5 Why China's housing policies have failed

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ABSTRACT

This paper reviews the current housing crisis in China and explores the roles of supply-demand imbalances and local governments in the real estate sector. To prevent the housing downturn from further dragging down economic growth, Beijing suspended the financing restrictions on developers imposed in August 2020. These restrictions, known as the "three red lines" that limited new borrowing by developers, led Chinese property developers to default on a record number of debt obligations and triggered the most serious housing slump China has seen since 1998. The property sector saw its value added decline by more than 5 percent in 2022, even as the overall economy grew at 3 percent. But the current dynamics in the housing market reflect a repeated pattern: Loosening financing restrictions on developers and using housing as a macroeconomic stabilization tool risks reinforcing the boom-bust housing cycle. China's real estate sector is a systemic problem. Without serious reforms to address concerns such as supply-demand imbalances and local governments' deep connections with real estate, housing slumps like the one in 2022 may recur.

JEL Codes: H27, H72, N25, R31
Keywords: China, Real Estate, Land Policy, Local Governments, Property Tax

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1. INTRODUCTION

China's real estate sector is one of the most important in its economy. Since the establishment of the nationwide housing market in the late 1990s, the growth of the real estate sector has consistently exceeded the country's GDP growth.[1] Its GDP share increased from 4 percent in 1998 to 7.2 percent in 2020 before dropping back to 6.1 percent in 2022. Real estate in China's national accounts is classified as a tertiary or service sector that primarily involves selling, buying, renting, and managing property. If other real estate activities, such as construction, renovation, and maintenance, are also taken into account, the contribution of real estate to the economy is much greater.[2]

The commercialization of housing has also led to substantial improvements in living conditions. In 1990 per capita residential space in urban China was merely 7 square meters (m^2). Housing at the time was allocated by the state through one's work units (*danwei*, 单位) based on seniority, merit, and need (Man, Zheng, and Ren 2011, 3–4). One outcome of the public housing system was chronic underinvestment, leading to constant housing shortages and poor living conditions for most urban residents. In 2020 per capita residential space nationwide reached about 42 m^2 and in cities 36.5 m^2, according to the results of the 7th population census (Office of the Leading Group of the State Council for the Seventh National Population Census 2022). Measured in a different way, in 2020 the average home had roughly 1.07 rooms per person in China, and more than 94 percent of dwellings across the country had at least a toilet and a kitchen. Compared with the OECD averages of 1.7 and 97 percent, respectively, living conditions in China are now at a level not too different from the developed-world average.[3]

The housing boom in the past two decades also made real estate a preferred investment class for Chinese households. A 2019 survey by the People's Bank of China shows that the urban homeownership rate was 96 percent, nearly 70 percent of total assets owned by urban Chinese households are in commercial and residential properties, and, as more than 41.5 percent of urban households own two or more properties, average urban homeownership is 1.5 properties (People's Bank of China Department of Survey and Statistics 2020).[4]

1 In July 1998 the State Council of China issued "Notice on Further Deepening the Reform of the Urban Housing Policy and Accelerating Housing Construction," the starting point of a nationwide housing market in China. Since then, the government has repeatedly recognized real estate as a key "pillar" industry that drives growth. Most recently in January 2023, China's then vice premier Liu He at the World Economic Forum Annual Meeting in Davos reiterated real estate's role as a pillar industry in the Chinese economy. See his speech at https://www.weforum.org/agenda/2023/01/davos-2023-special-address-by-liu-he-vice-premier-of-the-peoples-republic-of-china/ (accessed on March 13, 2023).

2 Analysts have been debating the exact contribution of real estate and related activity to the economy, and estimates vary greatly depending on methodology. Rogoff and Yang (2022) estimate a 26 percent contribution from housing activity (including imported content) to China's GDP, while some other estimates suggest a lower contribution. See "Measuring the universe's most important sector," *The Economist*, November 26, 2021, https://www.economist.com/finance-and-economics/2021/11/26/measuring-the-universes-most-important-sector (accessed on March 8, 2023).

3 See OECD Better Life Index on housing, https://www.oecdbetterlifeindex.org/topics/housing/ (accessed on March 20, 2023).

4 The survey involved 31,100 urban households (or 99,868 urban residents) in 30 provinces selected through multistage sampling. It is unclear whether any migrant worker families were included in this sample.

Furthermore, for local governments, real estate has become an important source of fiscal revenue. Rising real estate prices throughout the country, especially in the large cities, allow local governments to generate substantial revenue from the sale of land to developers and collection of taxes from real estate development.[5] In 2021 local governments throughout the country made 8.7 trillion yuan from land sales, accounting for roughly 8 percent of China's nominal GDP that year. Some of these funds were allocated to building infrastructure such as highways and airports, contributing to the economy's productive capacity.

But the sector went into a slump in 2022, when property sales across the country fell by 27 percent compared to the previous year (National Bureau of Statistics of China 2023a). New loans to property developers from financial institutions in 2022 dropped to the lowest level in almost a decade. As a result, investment in real estate development dropped 10 percent from the prior year. And the liquidity shortages of many developers caused hundreds of ongoing housing projects to stall, leading to a 15 percent decrease in housing completions and a nearly 40 percent decline in housing starts by the end of 2022. On housing prices, first-tier and lower-tier cities saw a divergence. While the former saw new and existing home prices increase by 2.5 percent and 0.6 percent respectively, prices went down in second- and third-tier cities, with third-tier cities seeing the biggest drops (National Bureau of Statistics of China 2022b). Local governments also saw their land sale revenue shrink by 23 percent from the previous year's level (Ministry of Finance, Department of State Treasury 2023a). The housing downturn of 2022 was the sector's worst since a nationwide housing market was created in 1998.

What went wrong?

The current housing downturn began with the government's regulatory tightening on real estate developers' financing. The goal was to force heavily indebted real estate developers to deleverage and cut the financial system's exposures to real estate to keep potential systemic risks at bay.

Chinese developers run a business model that relies on rapid project turnover, fast-moving sales, and high leverage. One fragility of this model is that developers may face short-term funding stress if any of their financing channels falls apart. Moreover, financial resources devoted to real estate surged over the past decade and real estate developers started to expand into banking. The growingly deep and complex connections between real estate and the financial system set off alarms for Chinese leaders. In August 2020 Beijing introduced the "three red lines" policy limiting developers' new borrowing. The economy that summer was recovering from the COVID pandemic and the housing market was running hot. It looked like a good time to pour cold water on the hot housing market, which regulators had wanted to do for a long time. They saw some initial success in 2021 with gradual deleveraging and cooling off, while most indicators, including

5 Technically, what local governments in China sell is not land itself but the usufruct rights for up to 70 years of the land in their jurisdictions. All land in urban China ultimately belongs to the Chinese state, according to Article 10 of the Constitution of the People's Republic of China. What local governments collect from selling usufruct rights of land is usually referred to as "transfer fee of state-owned land usufruct rights (*guoyou tudi shiyong quan churang jin*, 国有土地使用权出让金)" in Chinese government documents. For the sake of readability, the practice of local governments in China selling the usufruct rights of land in their jurisdictions is referred to as "land sales" and the transfer fee of state-owned land usufruct rights is referred to as "land sale revenue" in the rest of this paper.

property investment and sales, remained in expansionary territory. All seemed to be going as planned until the housing downturn started to worsen in 2022.

Since early 2020 the highly transmissible Omicron variant contributed to the country's worst COVID outbreak since the initial Wuhan outbreak, and China tried to eliminate the disease at virtually all costs under its zero-COVID policy until the policy was eventually abandoned in December. The resulting widespread zero-COVID lockdowns dampened housing demand significantly and exacerbated the financial difficulties of real estate developers. With a collapse in funds from home presales and heavily restricted access to loans and bonds, an increasing number of developers found themselves in a bind and defaulted on record numbers of bonds in both onshore and offshore markets in 2022. As more developers struggled with their liquidity crises, construction of an increasing number of housing projects was forced to stall. This led to discontent among buyers who had already started to pay their mortgages, and many refused to make further payments.

The Chinese leadership, concerned that this prolonged housing slump could pose a serious threat to social and financial stability, eventually orchestrated a national rescue plan. Previous regulatory restrictions imposed on developers and financial institutions were suspended and local governments across the country were instructed to bring housing back on track to support economic recovery. The rescue plan was effective in easing the housing slump. Property sales and investment in the first quarter of 2023 remained in negative territory but by much smaller amounts.

However, if Chinese leaders continue to shy away from addressing the lingering structural issues behind the country's housing problems, they risk further encouraging moral hazard and reinforcing the boom-bust cycle in housing through the current rescue plan. Housing slumps like the one in 2022 will likely recur.

Two reforms are critical at this point:

- The first must address the supply-demand imbalances across Chinese cities. These imbalances contribute to the affordability crisis in China's top-tier cities while leading to overinvestment and overconstruction in small cities. Reforms are needed to allocate land supply for residential housing development based on population flows.
- The second must address local governments' reliance on land revenue. A property tax can be a complementary revenue source for local coffers. It can also replace ad hoc administrative measures as a long-term regulatory instrument to curb speculation. But its nationwide rollout is likely to face severe constraints from households' willingness and capacity to pay.

The rest of this paper is organized as follows. Section 2 discusses the debt-reliant business model of Chinese real estate developers and reviews how Beijing's new rules on real estate developer financing triggered the recent housing downturn. Section 3 investigates how supply-demand imbalances have contributed to the runaway housing prices in China's top-tier cities while leading to excess housing supply in lower-tier cities. Section 4 explains the role of local governments in the real estate sector, discusses how the housing slump has impacted their income, and analyzes the rationales and difficulties of a nationwide property tax. The last section concludes.

2. THE CURRENT HOUSING SLUMP: HOW DID WE GET HERE?

Since housing in China was commercialized in the late 1990s, real estate has often been used as a countercyclical policy lever by the government, triggering a repeated boom-bust cycle in housing (Wang 2023, 132–37). During periods when growth was needed, Beijing often encouraged the expansion of real estate markets through increasing land supply and policies that stimulate housing demand, such as lowering interest rates, and cutting taxes. When the housing market overheated, it tightened mortgage lending and slowed the pace of land sales to cool the market (Rithmire 2017). The current dynamics in China's property sector is a part of a repeated pattern. The housing downturn of 2022 may recur in the near future if Chinese leaders do not address the larger structural problems behind the country's housing problems.

2.1. A Debt-Reliant Business Model

The financial crisis at the China Evergrande Group has made global headlines repeatedly in the past two years and drawn wide attention to China's heavily indebted real estate development industry. On average, Chinese real estate developers now have a debt-to-asset ratio of roughly 80 percent, compared to 75 percent between 1997 and 2008.[6] In 2008, real estate was used to stimulate growth in response to the economic shocks from the global financial crisis, and after that the average debt ratio of Chinese developers rose nonstop for more than a decade, reaching a peak of 80.7 percent in 2020 before dropping slightly to 80.3 percent in 2021 (figure 1). Larger Chinese developers usually have higher debt ratios—as of end-2020, the average debt ratio of the five largest developers measured by revenue was 85.3 percent.[7] This is substantially higher than the debt ratios of major real estate developers in Hong Kong, the United States, and Japan (Zhou 2022).

The surge in debt is at least partly explained by the business model of Chinese real estate developers that relies on rapid project turnover, fast-moving sales, and high leverage (Hendy 2022). A typical cycle of operation begins with the developer obtaining funds from a home presale and borrowing from banks, shadow banks, and domestic and international credit markets (often with land plots or properties they own as collateral) to purchase a land plot from a local government.[8] The developer then starts housing development on the plot and, years before the construction is completed, sells the unfinished homes to buyers who begin paying mortgages before the homes they have bought are actually built.[9] People generally view real estate as a preferred asset class and thus are

6 Data are from the National Bureau of Statistics of China via Wind Financial Terminal.

7 The five largest developers measured by revenue and debt ratio at the end of 2020 were China Evergrande (84.77 percent), Country Garden (87.25 percent), Vanke (81.28 percent), Zhongnan (86.54 percent), and Sunac (83.96 percent), according to company disclosures since all are publicly traded on China's A-share market or the Hong Kong Stock Exchange.

8 Wright (2023) argues that it was an unintended consequence of the deleveraging campaign that the Chinese government launched in 2016 aimed at reducing systemic financial risks that real estate developers became increasingly reliant on presales of unbuilt homes, as their access to shadow financing channels was restricted.

9 Real estate developers in China are allowed to start home presale when at least 70 percent of the construction is completed (Q. Huang 2020b, 261).

willing to buy unbuilt homes. The developer then uses the escrow funds from home presales, along with borrowed funds, to purchase another land plot and start another cycle.

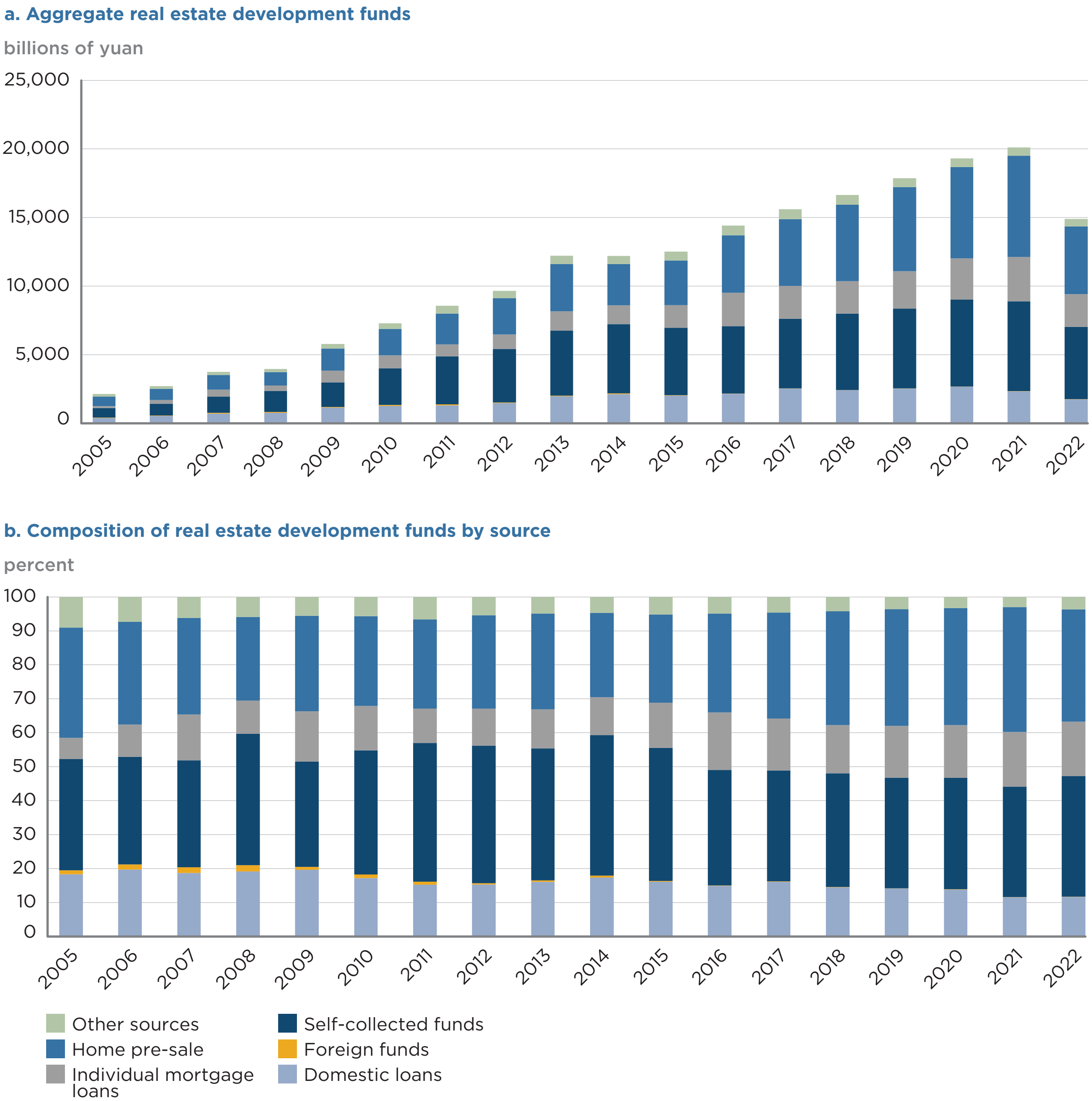
Figure 1
Average debt-to-asset ratio of Chinese real estate developers, 1997–2021

Source: National Bureau of Statistics of China via Wind.

About a third of all funds that developers spend on real estate development is from home presales in recent years, as shown in figure 2. Another third is collected by developers themselves, including retained earnings, proceeds from bond issuance in China's onshore credit market, and funds from shareholders. Individual mortgage loans and property developer loans from domestic banking institutions constitute another nearly 30 percent of all real estate development funds. Only 0.1 percent of the development funds is from foreign sources, including US dollar bonds issued by Chinese developers in offshore markets. But only a small fraction of dollar bond proceeds is used on property development. In 2020 foreign funds used by developers in real estate development were 19.2 billion yuan (approximately $2.77 billion),[10] just 4 percent of the amount of total dollar debt issuance by developers in the same year (roughly $65 billion). The large discrepancy is driven by two factors. First, part of the proceeds from developers' dollar bond issuance is used to repay debt and therefore not included in real estate development funds. Second, if the group company of a real estate developer issues dollar debt and gives the proceeds to the developer subsidiary, that is counted as self-collected funds rather than foreign funds in Chinese statistics (You 2020).

10 The exchange rate used to convert renminbi to US dollars in this paper is as of April 26, 2023.

Figure 2
Real estate development funds of Chinese developers by source, 2005–22



Source: National Bureau of Statistics of China via Wind.

An obvious vulnerability of this business model is that developers can face short-term funding stress if any of the steps in the cycle described above falls apart, a risk that materialized during the pandemic and led China Evergrande and subsequently many other developers to default on their debts since 2021. Tighter regulations on incurring new debt for developers made it more difficult for the indebted developers to obtain additional financing from the financial system and the credit markets. What made things worse for developers was that housing demand was weakening, exacerbated by the widespread zero-COVID lockdowns in 2022, leading to a sharp drop in housing presale funding for developers to sustain their cash streams. With limited access to loans, bonds, and presale funds, some developers soon found themselves in a bind.

But before the current housing slump, developers were running a highly profitable business model when housing prices were rising.[11] As housing prices went up, land prices went up as well and local governments were able to draw more revenue from selling plots to developers and collecting land- and property-related taxes. Developers could also use their land and real estate assets that were appreciating in value to obtain more funds from lenders. And investors were attracted to Chinese developer bonds as they offered higher yields and rarely turned sour.

The gross profit margin (a profitability measure that compares a company's gross profit to its revenue) in China's real estate development industry reached a peak of nearly 40 percent in 2011 following the housing boom in 2009, and was substantially higher than many other sectors of the economy, including manufacturing, financial services, and retail and wholesale (Sheng et al. 2021, 75). The high profitability in real estate development attracted many new entrants, which led to a gradual decline in gross profit margin to less than 35 percent by 2019. The number of real estate developers in China rose almost fivefold from 1998, when the nationwide housing market was created, to more than 105,000 in 2021.[12] The overwhelming majority of the newly established developers were private companies, and the number of state- and collective-owned developers dropped from 12,500 in 1998 to only about 1,400 in 2021. Some private real estate developers are now among the largest private companies in the country—for example, measured by total assets, Country Garden and Vanke are, respectively, the first and second largest private companies in China as of 2021 and they also paid the most in taxes among all private firms in China that year (All-China Federation of Industry and Commerce 2022).[13] Among the top 50 private companies measured by revenue as of 2021, there are six real estate developers and at least three private conglomerates with arms in real estate development.[14]

11 *The Economist* rightly called the Chinese property market a Ponzi scheme. See "China's Ponzi-like property market is eroding faith in the government," *The Economist*, September 12, 2022, https://www.economist.com/finance-and-economics/2022/09/12/chinas-ponzi-like-property-market-is-eroding-faith-in-the-government (accessed on March 16, 2023).

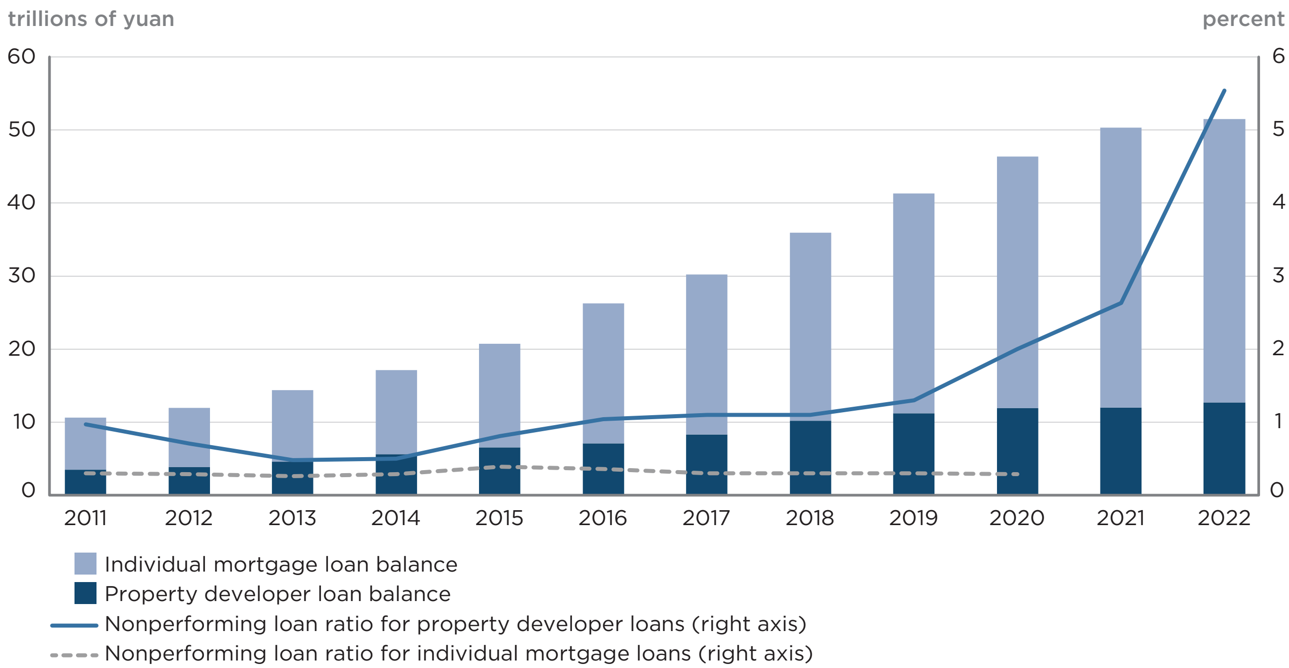
12 There were more than 6,000 foreign-funded developers and developers funded by Hong Kong, Macau, and Taiwan sources in China at its peak in 2008–09 when the government used housing as a lever to support growth. But the number has declined to around 4,000 in recent years. Data are from the National Bureau of Statistics of China via Wind Financial Terminal.

13 Whether Vanke should be considered a private company is debatable. It started out as an entirely private firm, but Shenzhen Municipal Government, through Shenzhen Metro Group, which it controls, later invested in Vanke amid the battle for the controlling rights of Vanke between Vanke's management and its biggest shareholder at the time, Baoneng. Now Shenzhen Municipal Government owns around 28 percent of the equity stakes in Vanke and is the company's largest shareholder, but the company does not have an actual controller now, according to its disclosures. See more about the concept of "actual controller" in mainland Chinese law and statistics in Huang and Véron (2022). In All-China Federation of Industry and Commerce's yearly rankings of top private firms in China, Vanke is considered a private firm.

14 The real estate developers among the top 50 private firms by revenue in All-China Federation of Industry and Commerce's 2022 ranking are Country Garden (#7), Vanke (#9), Zhongnan (#21), Longfor (#25), Jinke (#38), and Seazen (#43). The conglomerates in the top 50 with arms in real estate development are Duofu Group (#28), Gree (#34), and Fosun (#46).

In the meantime, a growing amount of financial resources was poured into real estate. From 2011 to 2021 real estate–related loans, including property developer loans and household mortgages, as a share of all loan balances in the Chinese banking sector grew from less than 20 percent to more than 27 percent, while total mortgage balance as a share of real estate–related loan balance rose from roughly two-thirds to more than 70 percent. As banks lent more to developers, the quality of property developer loans deteriorated. The nonperforming loan (NPL) ratio for property developer loans across the banking sector increased nearly threefold from 2013 to 2019 (figure 3), despite the fact that such loans were usually collateralized with land and expected home sale revenue from ongoing housing projects. In 2019 banks started to slow the pace of extending credit to property developers, and new developer loans collapsed from the peak of 6.5 trillion yuan in 2018 to just 721 billion yuan in 2022.

Figure 3
Outstanding balance and nonperforming loan ratios of Chinese property developer loans and individual mortgages, 2011–22



Notes: Data on property developer loan and individual mortgage loan balances are from the People's Bank of China via Wind. Nonperforming loan (NPL) ratios for property developer loans and individual mortgage loans between 2011 and 2019 are from the China Banking and Insurance Regulatory Commission via Wind. The NPL ratio for individual mortgage loans in 2020 is from the People's Bank of China (https://news.stcn.com/news/202204/t20220414_4359925.html; accessed on March 30, 2023). Regulators for some reason have not released average NPL ratios for individual mortgage loans in 2021 and 2022 or for developer loans in 2020–22. The NPL ratio for property developer loans in 2020 is an estimate by S&P Global as of December 27, 2021 (https://www.sohu.com/a/512081813_100032554; accessed on March 30, 2023). The NPL ratio for property developer loans in 2021 and 2022 are estimates of S&P Global as of June 1, 2022 (https://www.spglobal.com/_assets/documents/ratings/zh/pdf/2022-06-01-china-s-covid-wave-could-add-rmb1.1-trillion-in-forborne-bank-loans.pdf; accessed on May 19, 2023).

Sources: People's Bank of China, China Banking and Insurance Regulatory Commission, Wind, and S&P Global.

Mortgage loans, on the other hand, have remained high-quality assets on banks' balance sheets. And the size of new mortgage loans on the balance sheets remained fairly stable until early 2022, when the tighter regulations on banks' loan exposure to mortgages took effect and housing demand began to weaken because of the resurgence of COVID in much of China. The NPL ratio for mortgage loans in the banking sector has long been among the lowest in all types of loans, which can be at least partly explained by the high down-payment requirements in China. Authorities usually require banks to collect a 30 percent down payment for first-time home buyers and more for other types of buyers, and this provided a significant buffer for banks against declines in property prices (Liu 2014). Moreover, individual mortgages in China, unlike those in the United States, are recourse loans, meaning that if the borrower defaults the bank can seize not only the property financed by the mortgage but also other assets of the borrower (Fang et al. 2016).

Many developers, especially private ones, also relied on shadow banking institutions like trust companies to finance their activity. The total loan balance from trust companies to property developers grew rapidly since 2017 and reached a peak of about 2.7 trillion yuan (approximately $390 billion) in 2019, before dropping again since 2020 as more defaults took place (China Trustee Association 2018, 2019, 2020, 2021). Trust companies usually collect funds from institutional investors (including banking institutions) and wealthy individuals and make loans and investments in various projects, including those in relatively riskier areas like private equity, real estate, and local government financing vehicles, to generate returns for their investors (Borst 2013).

Interest rates for trust loans are usually higher than those of bank loans, which makes these loans more costly for real estate developers. But the developers opted for the more costly loans for two reasons. First, higher yields of real estate trust products make those products more attractive to investors, allowing developers to raise funds faster. Second, private developers, like private firms in other sectors, faced greater challenges in accessing bank credit compared with state-controlled developers, as the banking sector tilted credit allocation in favor of the state sector (Lardy 2019, 105). One estimate by EH Consulting, a private real estate research institution in China, shows that in the first half of 2021, average funding cost of state-invested developers was 4.84 percent while that of private developers was 6.43 percent.[15]

Another concerning development in the banking industry's exposures to China's ballooning real estate sector is that some developers have acquired shares—sometimes controlling shares—in banks, most of which are small and regional. Aside from considerations of profitability, one motivation for real estate developers to acquire bank stakes may be to secure cheaper and easier access to bank credit, although how much a bank can lend to its shareholders is limited by

15 "Overall financing costs are dropping, but it is getting more and more difficult for these three real estate companies to borrow money," *The Paper*, September 22, 2021, https://www.thepaper.cn/newsDetail_forward_14609591 (accessed on March 15, 2023).

regulators, at least in theory.[16] For example, Vanke acquired 8 percent of Huishang Bank's IPO at H-Share in Hong Kong in October 2013 and became the bank's largest shareholder.[17] In the same month, Guangzhou-based Yuexiu Property Company, owned by the Guangzhou Municipal State-owned Assets Supervision and Administration Commission (SASAC), acquired a 75 percent stake of Chong Hing Bank in Hong Kong and Guangzhou's city government became the bank's controlling shareholder.[18] Two months later, China Evergrande announced that it had acquired a 4.5 percent stake of the Beijing-based Huaxia Bank and its stakes at the bank later increased to 5 percent.[19] Reportedly at least 30 property developers acquired stakes in banks in 2013 and 2014, mostly in medium and small-sized city commercial banks.[20] Some real estate developers that acquired stakes in banks have since sold part or all of their shares to deal with their liquidity shortages.

It is unclear whether developers exploited their ties with the banks in accessing bank credit. But the failure of Baoshang Bank in 2019 suggests that this is possible, given the weak enforcement of financial regulations locally. Reportedly the private investment company Tomorrow Group owned 89 percent of Baoshang Bank's equity shares and borrowed 156 billion yuan (approximately $23 billion) from the bank over the years through more than 200 shell companies. These loans later turned delinquent, causing the bank to fail.[21] After Baoshang Bank was taken over by the government, it was discovered that local banking regulators were long aware of illegal practices at the bank but had not taken any action, which reveals the weakness in financial regulation enforcement at

16 According to the "Measures for the Administration of Affiliated Transactions of Banking and Insurance Institutions" promulgated by the Chinese Banking Regulatory Commission in May 2004 and revised in January 2022, the credit balance of a banking institution to a single related party shall not exceed 10 percent of the net capital of the banking institution at the end of the previous quarter; the total credit balance of a banking institution to a group client of a single related legal person or unincorporated organization shall not exceed 15% of the net capital of the banking institution at the end of the previous quarter; and the credit balance of a banking institution to all related parties shall not exceed 50% of the net capital of the banking institution at the end of the previous quarter. See the 2004 version of the policy (http://gdjr.gd.gov.cn/gdjr/zwgk/jrzcfg/content/post_2901555.html, accessed on March 16, 2023) and 2022 revised version (http://www.gov.cn/zhengce/zhengceku/2022-01/15/content_5668356.htm, accessed on March 16, 2023).

17 "Vanke invests $442 million in bank IPO to move into finance," *Mingtiandi*, November 4, 2013, https://www.mingtiandi.com/real-estate/finance/vanke-invests-442-mil-into-bank-ipo-to-move-into-finance/ (accessed on March 16, 2023).

18 "China's Yue Xiu to buy Hong Kong's Chong Hing Bank for $1.5 billion," *Reuters*, October 25, 2013, https://www.reuters.com/article/us-hong-kong-chonghing/chinas-yue-xiu-to-buy-hong-kongs-chong-hing-bank-for-1-5-billion-idUSBRE99O0OK20131025 (accessed on March 16, 2023).

19 "Evergrande now owns 5 percent of Beijing's Huaxia Bank," *Mingtiandi*, March 5, 2014, https://www.mingtiandi.com/real-estate/finance/evergrande-now-owns-5-percent-of-beijings-huaxia-bank/ (accessed on March 15, 2023).

20 "As more developers acquire shares in city commercial banks, some are 'disappointed' at the banks," *Economic Daily*, May 19, 2014, http://finance.ce.cn/rolling/201405/19/t20140519_2837019.shtml (accessed on March 15, 2023).

21 See "Xiao Jianhua's Tomorrow Group duped Baoshang Bank out of US$22 billion in loans, triggering Chinese lender's collapse, PBOC says," *South China Morning Post*, August 4, 2020, https://www.scmp.com/business/markets/article/3095880/xiao-jianhuas-tomorrow-group-duped-baoshang-bank-us22-billion (accessed on April 24, 2023).

the local level.[22] Local financial regulators usually answer to local governments rather than to the financial supervisors in Beijing, creating a conflict in the missions of local governments charged with the dual responsibility of promoting economic growth and acting as watchdogs against local financial risks. One goal of the recent restructuring in financial regulatory system announced at the Two Sessions, China's annual parliamentary meetings, in March 2023 is to reduce this conflict (Qian 2023).

The greater share of financial resources being poured into real estate and the entry into banking by real estate developers set off alarms for regulators, as more risks were accumulating in the financial system. And the fact that other, more productive and efficient sectors were receiving a declining share of resources from the financial system was not a good sign for the productivity of the overall economy. In an article published in the party journal *Qiushi* in August 2020, China's top banking regulator Guo Shuqing (2020) warned that "the real estate bubble is the greatest 'grey rhino' that could threaten financial security" and "[China] needs to avoid greater risks due to the excessive concentration of funds [in real estate]."[23] Two weeks after publication, the three red lines policy was introduced. Real estate was about to be turned upside down.

2.2. The "Three Red Lines"

The economic shock in China from the initial waves of the COVID-19 pandemic was short-lived, and the economy, including the housing market, started to recover sharply after the second quarter of 2020. In late August 2020, the People's Bank of China and the Ministry of Housing and Urban-Rural Development reportedly summoned representatives from 12 major property developers across the country and asked them to reduce their leverage. Half of the developers summoned were private: Country Garden, China Evergrande, Zhongliang, Sunac, Seazen, and Yango. The others were either majority or minority owned by the state: Vanke, Poly, Zhonghai (also known as China Overseas), Overseas Chinese Town, Greenland, and China Resources.[24] What the regulators told the developers at this meeting later became the three red lines policy.

The three red lines refer to three financial criteria that developers need to meet before they can incur additional debt, otherwise their new borrowing will be limited by the regulators. The three criteria are (1) a liability-to-asset ratio less than 70 percent, (2) net debt not exceeding equity, and (3) enough cash on hand to cover short-term borrowing (UBS 2021). Developers who meet all three criteria are allowed to increase their overall debt by at most 15 percent annually. If a developer breaches one red line, it is allowed to grow its debt by 10 percent

22 See "Central Commission for Discipline Inspection revealed regulatory corruption behind Baoshang Bank," *Shanghai Observer*, January 20, 2021, https://export.shobserver.com/toutiao/html/333591.html (accessed on April 24, 2023).

23 Guo wears multiple hats in the Chinese government. At the time of writing this paper (March and April 2023), he is party secretary of both the People's Bank of China (PBOC) and China Banking and Insurance Regulatory Commission (CBIRC), chair of CBIRC, and vice governor of PBOC.

24 "Focus: China's real estate enterprises 'three red lines' new financing rules will fully roll out soon, some companies next year may resort to shadow banks," *Reuters*, August 28, 2020, https://www.reuters.com/article/chinese-property-developers-funding-rule-idCNKBS25P01Y (accessed on March 20, 2023).

annually. If a developer does not meet two of the criteria, only 5 percent annual growth in debt is allowed. If all three red lines are breached, the developer is not allowed to incur any new debt. According to the public disclosures of the companies that attended the meeting with the regulators, only three of them—Poly, Zhonghai, and China Resources—met all three criteria and thus were allowed to grow their debt by 15 percent a year. The other developers were in violation of at least one of the criteria. China Evergrande, Sunac, and Greenland breached all three red lines and therefore were not allowed to borrow any additional funds.[25]

In December 2020 regulators introduced another major new rule imposing caps on banks' loan book exposures to property developer loans and individual mortgages.[26] Under this rule, China's largest state-controlled banks must cut their loan exposure to property developers to 40 percent or less in their total loan balance and their mortgage lending to 32.5 percent or less. Smaller banks faced stricter requirements and lower caps on the allowed exposures to developer loans and mortgages. All lenders that exceeded the caps were allowed a grace period of up to four years to meet these requirements. Similar requirements for banks existed before mostly through window guidance, but this was the first time the caps on banks' real estate exposures were communicated to the banks through a written document. As a result, banks slowed the pace of approving and disbursing developer loans and mortgage loans since early 2021, reportedly taking up to half a year from underwriting to closing in large cities such as Beijing, Shanghai, and Guangzhou.[27]

The goal of these new rules was to force an excessively indebted sector to deleverage and to limit banks' exposure to the property sector to avoid potential systemic risks. And it seems the regulators, by rolling out the strict regulations in the real estate sector, were willing to endure some short-term pain for long-term gains. But what the regulators likely did not foresee was that their heavy-handed regulations, coupled with zero-COVID lockdowns that sharply curtailed housing demand, would choke off liquidity for many highly indebted developers and drag the entire sector into a slump, forcing the regulators to reverse course to avoid a hard landing of the housing market. The system turned out to be even more fragile than expected.

With the introduction of the new rules, some developers lost access to most financing channels and soon found themselves in a difficult situation. One month after the three red lines became widely known, a letter from China Evergrande, dated August 24 and addressed to the provincial government of Guangdong, started to spread on the internet. In the letter, the developer pleaded for government support to avoid its cash crunch, asking the local government to approve the restructuring plan of China Evergrande's real estate arm Hengda

25 "How do real estate developers look at 'three red lines'?" *Ifeng*, September 1, 2020, https://tech.ifeng.com/c/7zPxJlcq63d (accessed on March 20, 2023).

26 See the "Notice by the People's Bank of China and the China Banking and Insurance Regulatory Commission of Establishing Rules for the Management of Concentration of Real Estate Loans of Banking Financial Institutions" promulgated by the People's Bank of China and the China Banking and Insurance Regulatory Commission on December 28, 2020, www.pbc.gov.cn/goutongjiaoliu/113456/113469/4156106/index.html (accessed on March 20, 2023).

27 See "Banks fully tighten mortgage loans and buyers with rigid demand are hurt," *Sina Finance*, December 23, 2021, https://finance.sina.com.cn/money/lczx/2021-12-24/doc-ikyakumx5989197.shtml (accessed on March 28, 2023).

Real Estate (China Evergrande also has an electric vehicle business) that had languished for four years.[28] The restructuring, if approved, would allow Hengda Real Estate to gain a listing on China's A-share market through a reverse takeover: Hengda Real Estate would inject its assets and purchase control of a publicly traded company majority owned by Shenzhen Municipal SASAC. China Evergrande warned that if the restructuring did not happen soon, its cash crunch could lead to systemic risks and threaten social stability. The company soon issued a statement calling the letter "fabricated and purely defamatory," but it was indeed heavily indebted and facing a serious liquidity crisis, though technically it was not declared to be in default until more than a year later.

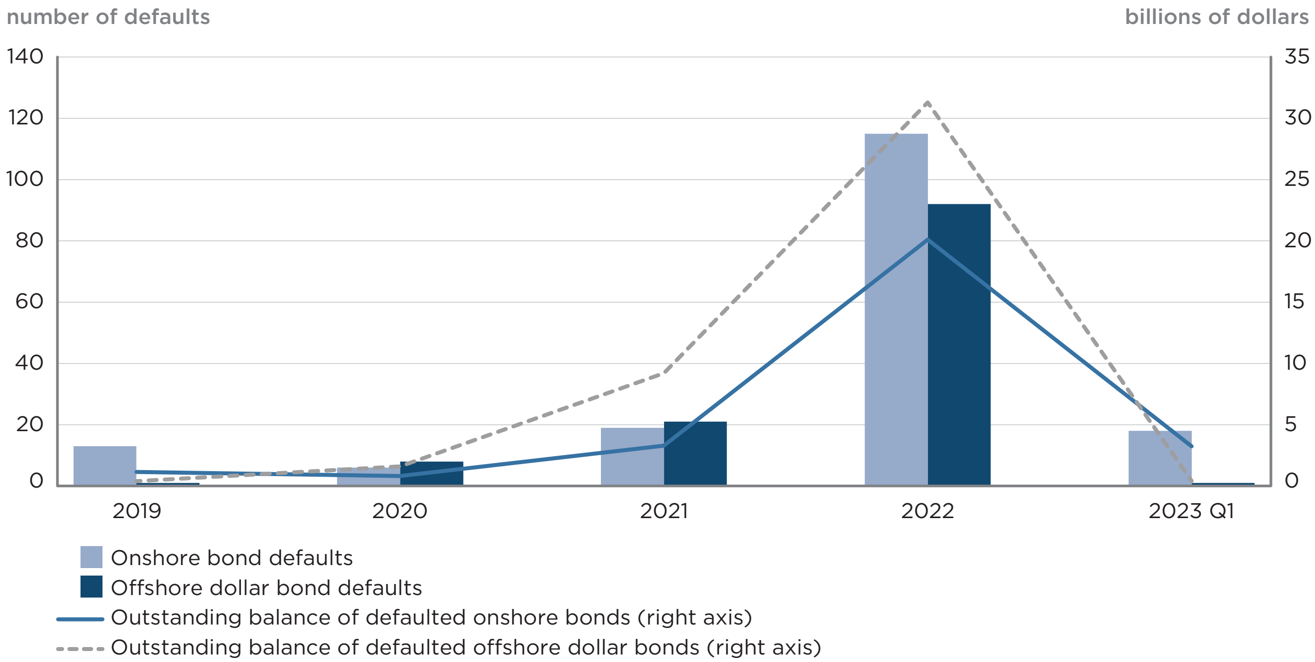
The regulators' efforts saw some success in 2021 with the gradual deleveraging of developers. The average debt-to-asset ratio of Chinese real estate developers dropped for the first time since 2012, though only less than half a percentage point in 2021. The housing market was cooling off, but this seemed largely manageable. Most indicators, including property investment and sales, slowed but remained in expansionary territory. Real estate investment grew 4 percent in 2021, slower than the pace of 7 percent in the previous year. Property sale revenue increased by 4.8 percent in 2021, compared with the 8.7 percent increase in 2020 (National Bureau of Statistics of China 2022a). Housing completions were up by 5 percent in 2021, but housing starts declined by 11 percent. It looked like the sector was heading in a direction desired by the regulators—until the housing cooldown started to seriously worsen and became a slump in 2022.

On December 9, 2021, China Evergrande, more than a month late on coupon payments, was declared to be in default by the credit rating firm Fitch Ratings.[29] But China Evergrande was far from the only developer that found itself in a bind. In 2020 Chinese real estate developers defaulted on six onshore yuan-denominated bonds with an outstanding balance of 5.6 billion yuan (approximately $808 million) and eight offshore dollar-denominated bonds with an outstanding balance of $1.6 billion (figure 4). In 2021 the numbers of defaulted onshore and offshore developer bonds rose to 19 and 21, and the respective outstanding balance of defaulted onshore and offshore bonds increased to 21.3 billion yuan (approximately $3 billion) and $9.2 billion. In 2022 bond defaults by Chinese real estate developers skyrocketed to 115 onshore and 92 offshore bonds. The outstanding balance was 135.3 billion yuan (approximately $20 billion) for defaulted onshore bonds and $31 billion for defaulted offshore dollar bonds—6 times and 3.4 times, respectively, the previous year's defaults.

28 "China's No.2 developer Evergrande pleads for government support to avoid cash crunch," *Reuters*, September 24, 2020, https://www.reuters.com/article/china-evergrande/chinas-no-2-developer-evergrande-pleads-for-government-support-to-avoid-cash-crunch-idINL3N2GL2H9 (accessed on March 16, 2023).

29 See "Fitch Downgrades Evergrande and Subsidiaries, Hengda and Tianji, to Restricted Default," Fitch Ratings, December 9, 2021, https://www.fitchratings.com/research/corporate-finance/fitch-downgrades-evergrande-subsidiaries-hengda-tianji-to-restricted-default-09-12-2021 (accessed on March 16, 2023).

Figure 4
Number of bond defaults by Chinese real estate developers, 2019–23Q1



Source: Wind.

The overwhelming majority of Chinese companies that defaulted on their dollar debts in 2022 were real estate developers. Aside from bond defaults, a growing number of developer loans also went sour in 2022. The Chinese banking regulators for some reason discontinued the series on the average NPL ratios for developer loans in the banking sector since 2020, but according to S&P Global's estimates, the ratio soared from 2 percent in 2020 to 5.5 percent in 2020, a credible estimate given the record volume of developer bond defaults in 2022 (see figure 3).

Chinese developers still face enormous financial pressure, including total debt repayment of 958 billion yuan (roughly $141 billion) of onshore and offshore bonds coming due by the end of 2023.[30] In the first quarter alone, developers defaulted on 18 onshore bonds with an outstanding balance of roughly 22 billion yuan (approximately $3.2 billion), on par with the full-year levels in 2021. One developer (Ronshine China) also defaulted in the first quarter on an offshore dollar bond with an outstanding balance of roughly $410 million.

One reason why defaults by developers exploded in 2022 was that, as noted, housing demand was hurt significantly by the widespread zero-COVID lockdowns. Prospective homebuyers could not go out and see properties. Agents were unable to show. And household balance sheets and expectations on jobs and income were significantly weakened: According to the People's Bank of China's survey of urban households in the fourth quarter of 2022, income confidence

30 "Chinese Developers Face $141 Billion Wall of Maturing Bonds in 2023," *Caixin Global*, January 10, 2023, https://www.caixinglobal.com/2023-01-10/chinese-developers-face-141-billion-wall-of-maturing-bonds-in-2023-101987665.html (accessed on March 16, 2023).

and employment expectation both dropped to the lowest levels in three years, even lower than the first quarter of 2020 when the COVID-19 pandemic first emerged (People's Bank of China Department of Survey and Statistics 2022). Overall consumer confidence declined in the second half of 2022, and when asked whether they had plans to increase spending on housing in the next three months, the share of households that gave a positive answer declined from 17.9 percent at the end of 2021 to 16 percent at the end of 2022. Home sale revenue across the country, as a result, fell by 27 percent in 2022, and the floor space of newly built but unsold homes increased by more than 10 percent (National Bureau of Statistics of China 2023a).

As many developers struggled with their liquidity crises and were unable to pay their contractors and suppliers, construction of many ongoing housing projects stalled. Home completions fell by 15 percent in 2022 compared with the prior year (National Bureau of Statistics of China 2023a), fueling discontent among homebuyers who were already paying mortgage on the unfinished homes. Many homebuyers refused to pay their mortgage and some even assembled and protested in front of local banking regulators.[31] Given that these mortgages now make up nearly 20 percent of the total loan balance in the Chinese banking sector, these events were particularly worrying to the leadership in Beijing.

But it was not easy for analysts to gauge the scale of the mortgage boycotts and assess potential implications for the financial sector, since, in an attempt to stop contagion, Chinese censors were clamping down on news coverage of the boycotts and social media posts about the demonstrations were removed.[32] Data crowdsourced on Github suggest that as of early August 2022, the mortgage strike had affected almost 100 cities across the country and more than 320 home construction projects, of which more than 60 were in the central province of Henan.[33] The amount of mortgage loans at risk of becoming nonperforming was worth roughly 2.4 trillion yuan, according to S&P Global.[34] This was roughly 1 percent of the total loan balance in the Chinese banking sector. While the mortgage balance affected by the boycotts was probably too small to pose a threat to overall financial stability, it could lead to serious deterioration in the asset quality of some banks that had seen rapid growth in household mortgages in recent years. The market value of many Chinese banks saw a sharp drop in July 2022 as investors became concerned about their asset quality.[35]

31 "China Faces Growing Pressure to Address Mortgage Protests," *Wall Street Journal*, July 20, 2023, https://www.wsj.com/articles/china-faces-growing-pressure-to-address-mortgage-protests-11658320604 (accessed on March 8, 2023).

32 "China censors strive to filter or erase details of mortgage protests," *Reuters*, July 20, 2022, https://www.reuters.com/world/china/china-censors-strive-filter-or-erase-details-mortgage-protests-2022-07-20/ (accessed on March 8, 2023).

33 "Sweeping Mortgage Boycott Changes the Face of Dissent in China," *Bloomberg*, August 2, 2022, https://www.bloomberg.com/news/features/2022-08-03/china-real-estate-market-crisis-protests-may-spur-multi-billion-dollar-rescue?sref=ATN0rNv3 (accessed on March 8, 2023).

34 "China's mortgage boycotts are a symptom of a broader crisis," *The Economist*, August 9, 2022, https://www.economist.com/finance-and-economics/2022/08/09/chinas-mortgage-boycotts-are-a-symptom-of-a-broader-crisis (accessed on March 10, 2023).

35 "China's Mortgage Boycott Poses Limited Risk to Banks," *Morningstar*, July 21, 2022, https://www.morningstar.co.uk/uk/news/225281/chinas-mortgage-boycott-poses-limited-risk-to-banks.aspx (accessed on March 29, 2023).

Fortunately, the investor community's concerns about banks' asset quality did not materialize in the second half of 2022. The NPL ratio of the Chinese banking sector slipped to 1.64 percent at the end of 2022 from 1.67 percent at the end of the second quarter of 2022 (China Banking and Insurance Regulatory Commission 2022, 2023). Ping An Bank was one of the banks that drew wide public scrutiny at the time because it had aggressively expanded the exposure of its loan book to household mortgages in the past several years: From the end of 2018 to the end of 2022, household mortgage loan balance as a share of the bank's total loan balance increased significantly from 9.1 percent to more than 23.5 percent. But the bank saw only a modest increase in the NPL ratios among its individual mortgage loans, from 0.34 percent at the end of 2021 to 0.37 percent at the end of 2022, one of the lowest among all types of loans on the bank's balance sheet.[36] In hindsight, home buyers refused to pay their mortgages mostly to show their anger with the unfinished and undelivered homes they had purchased; weakness in household balance sheets was not a major driver.

The Chinese leadership was obviously concerned that the mortgage boycotts could trigger greater social unrest and cause political instability if they spread across the country, something that the party clearly did not want to happen just a few months before the 20th Party Congress. The Politburo at a July 2022 meeting ordered that the responsibility of local governments must be "tightened" to "ensure the delivery of homes and stabilize people's livelihood"—the first time the top decision-making body had ever weighed in on the country's looming real estate crisis.[37] Soon afterward, a national campaign to rescue troubled developers and ensure the completion of home construction kicked off.

2.3. The Rescue Plan

The Chinese housing downturn in 2022 was the worst in recent decades. By the end of November, investment on real estate development dropped by nearly 10 percent compared with the same period of the prior year, while developers' on-hand funding shrank by 26 percent (National Bureau of Statistics of China 2022b). In year-over-year terms, housing starts through November fell by almost 40 percent, property sales declined by 23 percent, and local governments saw their land revenue shrink by 24 percent (Ministry of Finance, Department of State Treasury 2022), while new loans to property developers from financial institutions dropped to the lowest level in almost a decade.

In response to the slump, regulators and local authorities rolled back restrictions on both developers' new borrowing and banks' loan book exposures to property developer loans and individual mortgages, while pushing for resumption of stalled housing projects. In November 2022 regulators announced

36 See Ping An Bank's annual reports, https://ebank.pingan.com.cn/ir#/pc/index.html/home/relation/relationPage/provisional?userId=2 (accessed on March 10, 2022).

37 "The Political Bureau of the Central Committee of the Communist Party of China held a meeting to analyze and study the current economic situation and economic work, and to review 'Comprehensive Report on the Ninth Round of Inspections of the Nineteenth Central Committee'. Xi Jinping, General Secretary of the Central Committee of the Communist Party of China, presided over the meeting," *Xinhuanet*, July 28, 2022, http://politics.people.com.cn/n1/2022/0728/c1024-32488414.html (accessed on March 30, 2023).

16 measures to support stabilization of the housing market (People's Bank of China and China Banking and Insurance Regulatory Commission 2022). The 16-point rescue package has three main components:

- Restore access to all financing channels for real estate developers and extend the grace period for banks to meet the requirements on loan book exposures to real estate. Banks should stabilize lending to developers, construction firms, and households, and stop discriminating against private firms in credit allocation. Financial institutions also should negotiate with real estate developers about rolling over existing loans to ensure the timely delivery of presold homes. High-quality developers are expected to issue more bonds, bond insurance companies to facilitate developer bond issuance, and trust companies to resume lending to developers and provide financial support for project mergers and acquisitions by property developers, commercial retirement homes, and construction of rental properties.
- Support resumption and completion of stalled housing projects. Policy banks should provide special loans, and commercial banks should extend credit to enable resumed construction of stalled housing projects for timely delivery of presold homes to buyers. Banks should also negotiate with mortgage loan borrowers about loan rollovers.
- To encourage project mergers and acquisitions by stronger developers, banks should provide loans for them. Asset management companies should take over nonperforming assets, and developers should take over ongoing housing projects of troubled developers and turn them into rental housing projects.

Two days after the rescue package was announced, the People's Bank of China announced a 0.25 percentage point cut in the reserve requirement ratio for all eligible banks, freeing up about 500 billion yuan (approximately $72 billion) in long-term liquidity that could be used to prop up the faltering economy and the ailing property sector (People's Bank of China 2022a, 2022b).

Aside from financial support for developers and liquidity injection, central and local authorities have introduced measures to restore household housing demand. In early January 2023 the central bank and the banking regulator issued a policy allowing localities where housing prices had dropped in both year-over-year and month-to-month terms for three consecutive months to lower or outright scrap the floors on mortgage rates for first-time buyers (People's Bank of China and China Banking and Insurance Regulatory Commission 2023). Reportedly, by mid-February 2023 more than 30 cities across the country had lowered mortgage rates for first-time home buyers and rates are now at their lowest levels in more than a decade. Local governments have also introduced direct subsidies on home purchases, subsidies on deed tax, and relaxed purchase limits.[38]

These measures are proving effective in easing the property slump. In the first quarter of 2023, property investment and sales were still in negative territory but by much smaller amounts than last year (National Bureau of Statistics of China

38 "Lowering interest rates, relaxing purchase restrictions, subsidizing taxes and fees…localities are now optimizing regulatory policies to boost housing consumption," *Xinhuanet*, February 13, 2023, www.news.cn/2023-02/13/c_1129360992.htm (accessed on March 30, 2023).

2023b). Real estate development investment dropped by 5.8 percent year over year in the first quarter of 2023, compared with the 10 percent drop in 2022. Real estate sales (measured in floor space sold) dipped just 1.8 percent in the first quarter of 2023, compared with the 24 percent drop in 2022. In year-over-year terms, housing prices in first-tier cities continued to increase in March 2023; those in second- and third-tier cities continued to decline but by less than in previous months (National Bureau of Statistics of China 2023c).

Thus the government's rescue plan is starting to work. China's reopening from the zero-COVID policy also provides a more favorable environment for housing demand to recover. Property will likely be less of a drag on growth in 2023 than in 2022.

But the rescue package is essentially repeating an old playbook that China has repeatedly adopted in the past two decades. During the Global Financial Crisis, for example, Beijing instructed local governments throughout the country to use housing to promote growth. In response, local officials lowered down-payment requirements, cut mortgage rates, and reduced taxes and fees to revive housing demand. The stimulus worked and the housing market in 2009 ran extraordinarily hot: Average housing prices surged more than 23 percent, and average prices in top-tier cities like Shanghai jumped more than 40 percent compared with the levels in 2007. In 2010 housing policy shifted to curb speculative demand and cool the markets, out of concern about housing bubble risks. But frequent government interventions in the housing market did not prevent housing prices across China from skyrocketing and developers from continuing to build up leverage.

The government's use of housing as a macroeconomic stabilization tool also creates a widespread expectation that housing is too important to fail and leads to major unresolved moral hazard problems in the property market. Many of the measures implemented in 2008–09 are being repeated across Chinese cities today. But the current dynamics in the country's housing market are part of a repeated pattern. Unless the underlying entrenched structural problems are addressed, the housing downturn of 2022 is likely to recur at some point in the future.

3. SUPPLY-DEMAND IMBALANCES IN CHINA'S REAL ESTATE SECTOR

When people talk about China's housing bubble, most of the time they are referring to the runaway housing prices in megacities like Beijing and Shanghai. Smaller cities are often overlooked; their housing prices are more reasonable and the housing problem they usually face is excess housing stock and insufficient demand. The contrasting supply-demand imbalances between large and small cities are a persistent concern in the Chinese real estate sector.

3.1. "One Country, Two Bubbles"

China's megacities are among the most expensive to live in around the globe, and this has created an affordability crisis in these cities. Since 1998 average real estate prices in China have seen a fourfold increase, while the prices in the four first-tier cities—Beijing, Shanghai, Guangzhou, and Shenzhen—have risen more than tenfold,[39] and this increase did not abate during the COVID pandemic. Prices of new homes in these cities at the end of 2022 were on average 9.2 percent higher than the levels at the end of 2020, and prices of preowned homes were on average 10.3 percent higher (National Bureau of Statistics of China 2023b). Measured in price-to-income ratios (a commonly used metric for housing affordability), these four cities are now less affordable than New York, San Francisco, and Los Angeles, which are among the most expensive US cities.[40]

The runaway housing prices in China's megacities have created many problems. They are seen as a factor contributing to the country's declining birth rates (Zhang 2021). Many young people in cities are deterred from starting a family by the difficulty of purchasing a home, partly because of the social expectation that men should own an apartment before marriage. For those who have already bought a home, the high cost of mortgage debt means they have less income available to raise a family. Moreover, high housing costs drive away talent and hurt businesses. Housing prices that rise from a low base tend to attract young professionals, but when prices continue to rise and exceed a certain point, they start to crowd out young purchasers—and their professional talents (Ding and Chin 2022). Similarly, high housing prices in top-tier cities are forcing some of the most innovative Chinese tech companies to move to less expensive cities.[41] Thus over the long term excessive housing costs make cities less competitive.

China's leaders have been concerned about the affordability of large cities. At his address to the 19th Party Congress in October 2017, General Secretary Xi Jinping famously said that "housing is for living in, not for speculation."[42] This reflects the long-held view among Chinese leaders that it was speculation that led to runaway housing prices in the large cities. But notwithstanding their justifiable concerns about speculation, this view is only partially true and overlooks the

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39 Analysts often use a tier system to classify Chinese cities in studying common issues in cities with similar features (e.g., economic size, population, and political administration) as well as differences across city tiers. Different organizations assign different weights to different factors in defining city tiers, while most organizations adopt a three-tier or four-tier classification system. The National Bureau of Statistics of China, in its statistics on real estate activities, covers 70 large and medium-sized major cities across China and divides them into three tiers. First-tier cities are Beijing, Shanghai, Guangzhou, and Shenzhen. Second-tier cities are Tianjin, Shijiazhuang, Taiyuan, Hohhot, Shenyang, Dalian, Changchun, Harbin, Nanjing, Hangzhou, Ningbo, Hefei, Fuzhou, Xiamen, Nanchang, Jinan, Qingdao, Zhengzhou, Wuhan, Changsha, Nanning, Haikou, Chongqing, Chengdu, Guiyang, Kunming, Xi'an, Lanzhou, Xining, Yinchuan, and Urumqi. Third-tier cities are Tangshan, Qinhuangdao, Baotou, Dandong, Jinzhou, Jilin, Mudanjiang, Wuxi, Xuzhou, Yangzhou, Wenzhou, Jinhua, Bengbu, Anqing, Quanzhou, Jiujiang, Ganzhou, Yantai, Jining, Luoyang, Pingdingshan, Yichang, Xiangyang, Yueyang, Changde, Shaoguan, Zhanjiang, Huizhou, Guilin, Beihai, Sanya, Luzhou, Nanchong, Zunyi, and Dali.

40 According to Numbeo, a website providing global cost-of-living statistics, the price-to-income ratios in Shanghai, Beijing, Shenzhen, and Guangzhou as of 2023 are respectively 46.6, 45.8, 40.1, and 37.3, making them the #1, #2, #6, and #8 least affordable cities in the world. https://www.numbeo.com/property-investment/rankings.jsp (accessed on March 8, 2023).

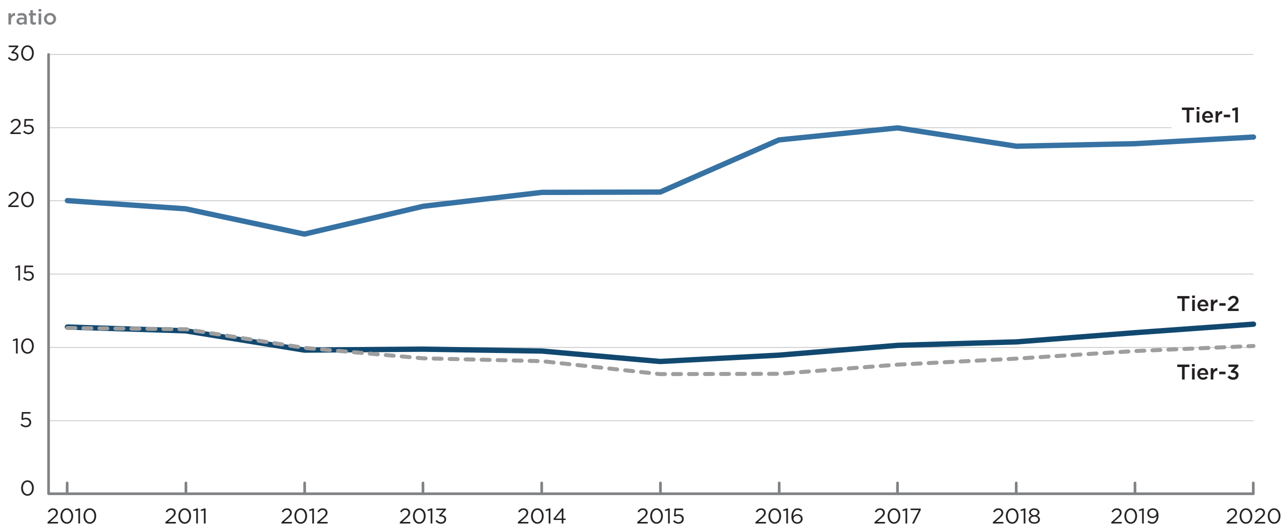
41 "Housing crisis in China's 'Silicon Valley': Huawei, other hi-tech giants head for cheaper cities as rising costs deter talent," *South China Morning Post*, March 25, 2016, https://www.scmp.com/news/china/policies-politics/article/1952617/housing-crisis-chinas-silicon-valley-huawei-other-hi (accessed on March 21, 2023).

42 In the same speech, Xi also put forward the idea of "Three Critical Battles" for China: against major risks in the country's economy (especially financial risks), poverty, and environmental pollution. The issue of local debt, especially the hidden debt of local governments and shadow banking, was probably what Xi was most worried about at the time. Financial stability risks created by the high leverage in the property sector were likely a lower priority on their list, until the problems in that property sector later started to overshadow the local debt issue. See the full text of Xi's political report to the 19th CPC National Congress, www.xinhuanet.com/english/special/2017-11/03/c_136725942.htm (accessed on March 8, 2023).

substantial increase in legitimate housing demand in the large cities, mostly driven by urbanization and population inflows in more developed urban areas. One outcome of this view is that land supply for residential housing development in China's top-tier cities has repeatedly failed to catch up with the increase in demand (Wu, Gyourko, and Deng 2016).

In contrast to the affordability crisis in China's megacities, housing in some second-tier and all third- and fourth-tier cities is relatively more affordable. The average price-to-income ratios in the second- and third-tier cities, according to the Chinese data aggregator Wind, were 11.6 and 10.1 in 2020, compared with 24.4 in the first-tier cities (figure 5).[43] The problem for the smaller Chinese cities tends to be excess housing stock and lack of housing demand. New housing production is reported to have outpaced growth in demand by at least 30 percent in 13 cities and by at least 10 percent in another 11 cities, most of them in the interior of the country (Wu, Gyourko, and Deng 2016). Between early 2021 and mid-2022, tier-3 cities saw a nearly 20 percent drop in real estate prices, whereas prices rose in tier-1 and -2 cities (Rogoff and Yang 2022).

Figure 5
Price-to-income ratios in the 50 largest Chinese cities by city tier, 2010–20

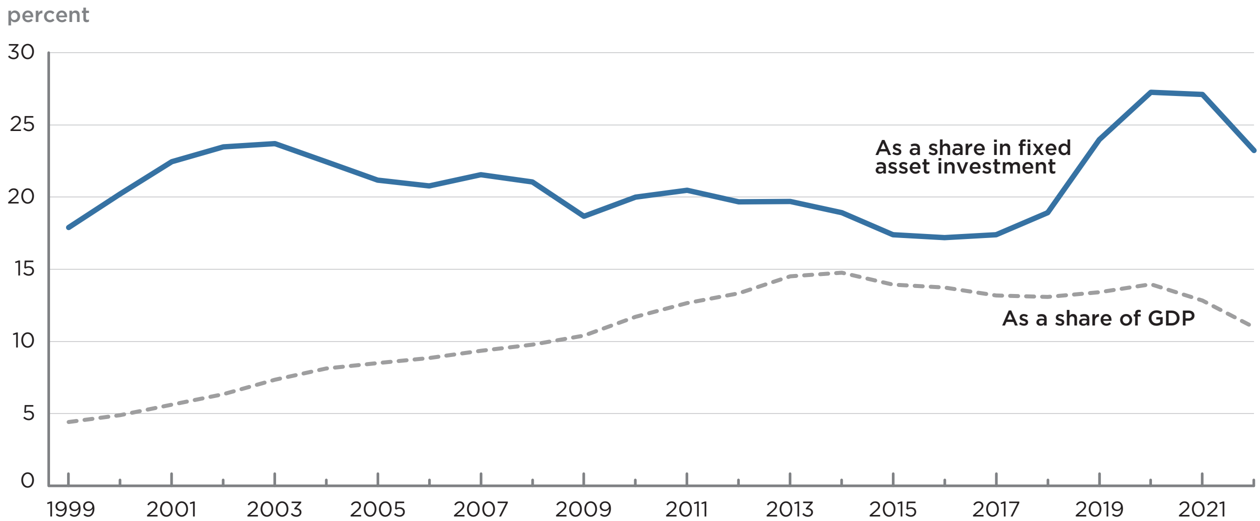


Source: Wind.

43 The price-to-income ratios for tier-1 cities from Wind are much lower than the ratios provided by Numbeo. Wind only has data for 50 largest cities in China, whereas Numbeo does not include the ratios for Chinese cities other than the four tier-1 cities plus two tier-2 cities, Hangzhou and Chengdu. The difference in Wind's and Numbeo's price-to-income ratios for China's tier-1 cities is likely due to different methods used in computing the ratios. Numbeo calculates the ratio of median apartment prices to median net familial disposable income, and the median apartment size is assumed to be 90 square meters (see "About Property Value and Investment Indices at This Website," Numbeo, https://www.numbeo.com/property-investment/indicators_explained.jsp; accessed on April 26, 2023). Wind does not disclose its formula for calculating the ratios.

The excess real estate stock in lower-tier cities is due to China's long overinvestment in real estate development over the past two decades (Lardy 2012, 86; Lardy 2019, 15). Its share in all fixed asset investment in 1999 was 18 percent and rose to 27 percent in 2021 (figure 6). As a share of GDP, investment in real estate development climbed from about 4 percent in 1999 to a peak of 14.8 percent in 2014 before dropping to 12.8 percent in 2021 and further to 11 percent in 2022.

Figure 6
Chinese real estate development investment as a share of total fixed asset investment and as a share of GDP, 1999–2022



Source: National Bureau of Statistics of China via Wind.

This overinvestment led to overbuilding and eventually excess real estate stock in lower-tier cities. Kenneth Rogoff and Yuanchen Yang (2022) estimate that total housing stock in China (the aggregate in tier-1, -2, and -3 cities) increased from 39 billion m^2 in 2010 to 56 billion in 2021. Tier-3 cities consistently contributed to more than 78 percent of the total housing stock in China during the same period, while hosting only 66 percent of China's urban population. But housing demand is lacking in these small cities, resulting in a "housing stock bubble." The many reasons for the weak and even shrinking housing demand in lower-tier cities include population outflows, fewer economic opportunities, and substandard quality of public services. Real estate developers have been slow to adapt to this reality. Tiancheng Chen (2017) finds that real estate development investment in the lower-tier cities as a share of the national total dropped only slightly from around 46 percent in 2013 to around 44 percent in 2017, and tier-3 and -4 cities saw a similarly modest decline, from 67 percent in 2012 to 66 percent in 2017.[44] Rogoff and Yang (2022) estimate that between now and 2035, the

44 Real estate development investment in tier-3 and -4 cities as a share of the national total is lower than their housing stock share in the national total because the cost of real estate development is higher in top-tier cities than in lower-tier cities.

need for real estate construction in China's third-tier cities will need to shrink by roughly 30 percent.

3.2. Supply-Demand Imbalances

Because Xi and other Chinese leaders long attributed the affordability problem in the large cities to housing speculation, their housing policy was typically tilted toward clamping down on demand rather than increasing land and housing supply. When there were signs of the housing market overheating, the central and local authorities usually resorted to demand-managing measures like raising the down-payment requirement, raising mortgage rates and taxes especially for home resales, limiting the number of properties that buyers were allowed to purchase, and excluding buyers without local *hukou*,[45] while at the same time limiting the supply of land for residential real estate development by slowing down land sales, tightening regulations over developers, and raising land prices (Rithmire 2017; Ren, Xia, and Xiong 2017, 277–309).

In Shanghai, for example, the amount of land that the municipal government put on the market for urban construction—for residential and commercial real estate development, factory and storage, and public facilities like schools and hospitals—soared from 12 million m^2 in 1995, when local governments were for the first time allowed to sell usufruct rights to land in their jurisdictions, to 77 million m^2 in 2006, before plummeting to 27 million m^2 in 2007 and 9 million m^2 in 2016. Land supply then rebounded, to 23 million m^2 in 2020 and 19 million m^2 in 2021. The share of land supply used for residential real estate development in Shanghai averaged 44 percent between 2009 and 2021 (figure 7).[46]

Besides the government's focus on curbing demand, there are at least two other reasons for the limited land supply for housing development in China's large cities. First is the need to preserve arable land and ensure food security. The central government decides how much new land each province and municipality is allowed to put on the market for real estate development each year. Provincial and municipal governments then allocate the quotas they receive from Beijing to lower-level governments. The idea behind this centralized arrangement is to make sure that the allocation of new land for real estate and other types of construction does not reduce the country's total arable land, which the central government has set at no fewer than 1.8 billion mu[47] (or 120 million hectares). Since this red

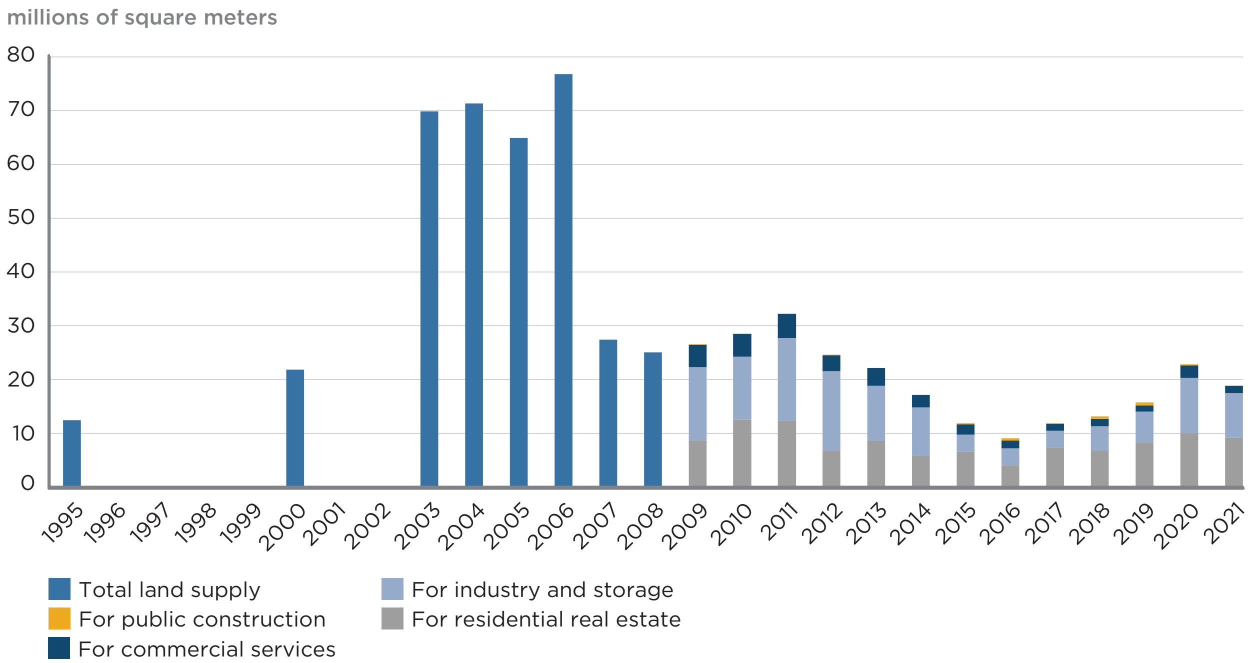
45 *Hukou* is household registration. The demand-curbing housing policy has resulted in some illegal practices for property purchases in top-tier cities, such as buying purchase quotas on a black market.

46 In the past two decades, most new housing in Chinese cities, especially the top-tier cities, has been in high-rise buildings replacing old low-rise buildings, which may have led some to believe that the amount of land needed per unit of new housing has declined and therefore the land supply in these cities has declined. But this view overlooks the fact that developers cannot build buildings as high as they want. How much housing floor space a developer is permitted to build on a land plot, measured by floor area ratio, is restricted by local governments. In Shanghai, for example, the floor area ratio for residential buildings cannot be more than 2.5 (Shanghai Municipal Government 2011). In other words, for a land parcel of 100 m^2 in Shanghai, the maximum housing floor space a developer can put up is 250 m^2. The actual floor area ratio in Shanghai between 2009 and 2021 (data before 2009 are not available), estimated by the author, remained fairly stable with an average of 2.1, well below the cap set by the municipal government (see the estimates in the data replication package for this paper posted on PIIE's website, piie.com). Also, annual residential housing starts during the same period remained almost flat with an average of 16.9 million m^2 every year without showing an upward trend.

47 1 mu is about 666.67 m^2.

line was decided in 2009, total land supply has been on the decline every year. According to Huang Qifan, former mayor of Chongqing and now professor at Fudan University, one-third of total new land supply across the country every year is used for infrastructure construction in rural areas and two-thirds for urban construction, of which more than half is for infrastructure, a third is for industry, and only 15 percent is for real estate development. This means only 10 percent of total new land supply every year is available for real estate development in cities, and the majority of the new land supply for real estate development is in the lower-tier rather than the top-tier cities (Q. Huang 2020a, 156–57).

Figure 7
Land supply in Shanghai municipality, 1995, 2000, 2003–21



Note: Land supply disaggregated by purpose prior to 2009 is not available. Data for total land supply in 1996–99, 2001, and 2022 are not available.
Source: Shanghai Municipal Statistical Bureau via Wind.

Second, China's urbanization strategy has encouraged the expansion of smaller cities and towns while capping the size of population in the first-tier cities (Ren, Xia, and Xiong 2017, 122). The Great Western Development Strategy also tilted more land supply to central and western provinces from eastern provinces and municipalities.[48] Han Liming and Lu Ming (2018) find that most cities that saw their shares in national land supply decline since 2003 are major cities on the

48 The Great Western Development Strategy is a development plan launched in 1999 by then President Jiang Zeming aimed at promoting growth in China's less developed western provinces.

coast where population has been growing due to continuous population inflows, and cities whose land shares increased are mostly in inland provinces with net population outflows.

In top-tier cities, the supply-demand mismatch has been a primary driver of runaway land prices that translate into soaring housing prices. Beijing in 2017 set a cap for its total population at 23 million by 2020 and for the population of downtown Beijing at 10.85 million by 2035 (Beijing Municipal Commission of Planning and Natural Resources 2018). Shanghai in 2016 set the cap at 25 million by 2040 (Leading Group Office of Shanghai Master Plan 2016). To make sure that their populations did not exceed the caps, the authorities limited land supply in the two cities and imposed stricter rules on granting migrants a local *hukou*, which is now a prerequisite to purchase a local property. The planning of public services (e.g., water and energy supply, public transportation, education and healthcare resources) in these cities was also made in accordance with the population caps, with some limited flexibility to accommodate needs from temporary residents like tourists, short-time workers, and other visitors.

But the government's efforts to divert migration from large cities to small cities and towns were not successful. Population inflows continued to concentrate in the megacity clusters, despite barriers including that of the *hukou* system. Results from China's latest population census (conducted in late 2020) show that population inflows in 2010–20 were concentrated in the country's megacity clusters: the Beijing-Tianjin-Hebei region, the Yangtze River Delta including Shanghai, and the Pearl River Delta Greater Bay Area (covering Guangzhou and Shenzhen), as well as some provincial capitals, whereas most other cities, especially in northeastern and midwestern China, saw net population outflows (Lu 2021). The combined population share in the four tier-1 cities grew from 4.9 percent in 2010 to 5.9 percent in 2020. As of 2020 Beijing was home to 21.89 million residents and Shanghai was home to 24.88 million residents, both about to reach their population targets of 23 million and 25 million respectively (National Bureau of Statistics of China 2021). Of course, the growing population in these cities means housing demand was also rising.

There were at least two factors contributing to the population inflows and corresponding rise in housing demand in the large cities.

First, large cities provide better public services. Housing is usually associated with one's *hukou*, which determines access to public services, especially in education and health care. The top-tier cities have the best schools and hospitals in the country, but these public services, especially in education, are often accessible only to permanent local property-owning residents. Incoming young professionals, if sponsored by their employers, may have a local *hukou* without owning a local property in the large cities, but their children usually cannot enjoy the same access to education resources as those who have a local *hukou* and also own a local property. In other words, those who own properties enjoy greater access to public services than those who rent, a phenomenon often referred to as "租售不同权" (*zushou butong quan*, buying and renting do not enjoy the same rights) in China.

This disparity is particularly pronounced in the allocation of educational resources in top-tier cities. School district policy varies across different districts in a city, but in most districts in the tier-1 cities access to public services in education depends on not only one's *hukou* but also property ownership. Families whose *hukou* and property are in the same address in a school district (referred to by the government as “人户一致,” *renhu yizhi*, actual residence and *hukou* aligned) usually have priority in sending their kids to local public schools.[49] Some popular school districts even impose requirements on the number of years a family has resided in their current address (usually between 2 and 5 years) for them to qualify to send their children to local schools. Families whose *hukou* are in a school district but who do not own property in the district (what the government calls “人户分离,” *renhu fenli*, actual residence and *hukou* separated) usually have to wait until those who own properties are accommodated before their kids can attend local public schools. Families who own a local property but do not have a local *hukou* may send their children to local public schools only if there is room available after the needs of the other two groups of families are met. In popular school districts, families that are not *renhu yizhi* can find it extremely difficult to enroll their children in local schools given the limited education resources available in top-tier cities.

In recent years, Beijing's municipal government has been attempting to reform its school district policy by allocating education resources in some areas in the capital through a random process. The reform introduced in 2021 led to some immediate sharp drops in property prices in the most popular school districts in Xicheng and Haidian, both in downtown Beijing.[50] An earlier similar reform introduced in 2018 in Beijing’s Dongcheng district was met with protests by parents who were concerned about depreciation of their properties and increased uncertainty about what schools their kids could get into.[51]

Thus school districts are a major distortion in the real estate markets in top-tier cities, and reforms are clearly needed to break the linkages between property ownership and access to public schools.[52] But local officials so far have been treating this contentious issue with caution and pushing for changes only incrementally.

Second, Chinese have long viewed property as a desirable investment, because of high historical returns, favorable financial terms for individual mortgages, limited investment channels outside of real estate, and minimal carrying costs since there is no property tax (Lardy 2012, 89–92). One outcome of this is widespread housing speculation—the practice of buying a property to resell it at a higher price in the near future without actually living in the property—which, as Xi remarked in his 2017 speech, is an important factor driving soaring property prices, especially in the top-tier cities.

49 For China’s 9-year compulsory education, access to primary schools (grades 1 through 5 or 6, depending on provinces) and junior secondary schools (grades 6 or 7 through 9) is directly tied to a family’s *hukou* and property ownership. Access to high schools depends mostly on a student’s test results. For examples of the school policy in a downtown district in a tier-1 city, see the latest rules on compulsory education in Jing’an District of Shanghai (Shanghai Jing’an District Education Bureau 2023) and Haidian District of Beijing (Beijing Haidian District Education Commission 2023).

50 See, for example, “China education reform triggers abrupt fall in condo prices,” *Nikkei Asia*, October 28, 2021, https://asia.nikkei.com/Economy/China-education-reform-triggers-abrupt-fall-in-condo-prices (accessed on April 21, 2023).

51 “School district reform prompts parent protests in Beijing,” *Caixin Global*, July 9, 2018, https://www.caixinglobal.com/2018-07-09/school-district-reform-prompts-parent-protests-in-beijing-101297434.html (accessed on April 21, 2023).

52 For a detailed analysis of China’s school system and how it impacts the housing market, see Hou (2019, 33–62).

Housing vacancy ratio is often used to gauge speculative demand in a housing market. A recent survey shows that housing vacancy ratio in 28 major cities in China was on average 12 percent, with higher rates in lower-tier than higher-tier cities (Beike Research Institute 2022). In the first- and second-tier cities, speculation is probably causing the high vacancy rates, because rental yields in these cities are low, which may disincentivize owners to rent out their properties. The average rental yield in the city center in the four first-tier Chinese cities, according to the latest data from Numbeo, is as low as 1.33 percent, compared with 5.6 percent in New York City, 3.5 percent in London, and 3.1 percent in Tokyo.[53] In lower-tier cities in China, higher housing vacancy rates are likely due to too many unsold homes or high housing stock, though rental yields are higher than in top-tier cities.

3.3. Signs of Change

Land supply in China's top-tier cities needs to increase to accommodate the rise in legitimate housing demand.[54] To increase land supply in cities with net population inflows while preserving scarce arable land, land supply in cities with population outflows should be reduced. The government needs to recognize that people prefer to move to top-tier rather than lower-tier cities, and that most home buyers are not speculators. There is real, firm, and huge demand for housing in top-tier cities, and to accommodate it China's urbanization strategy needs to adjust and the governments in these cities need to make more land available, build more homes, and expand access to public services for new arrivals. Despite the large populations of Beijing and Shanghai, their population density is still lower than that of similarly large cities in East Asia, like Seoul and Tokyo, and there is room to accommodate more people.

Some innovative thinking is needed to increase land supply for residential real estate development. For example, a national land quota market where local governments can trade their land quotas might help: Localities with net population inflows on the coast and inland districts with net population outflows could swap their assigned land quotas, while making sure that arable land throughout the country stays above the red line. In Chongqing, the central government allows the local government to increase land quotas for urban development if arable land supply in its jurisdiction can be increased by demolishing low-density farmhouses and resettling residents to high-density apartment buildings (Q. Huang 2020a, 169–71). But the program has so far only been piloted in Chongqing and neighboring Chengdu and has yet to be implemented elsewhere.[55]

53 "Property Prices Index by City 2023," Numbeo, https://www.numbeo.com/property-investment/rankings.jsp (accessed on April 26, 2023).

54 The focus here is on land rather than housing supply because the Chinese government has ordered developers to focus on low-rise residential buildings instead of high-rises out of concerns about livability and carbon emissions (National Development and Reform Commission of China 2022). "China Is Falling Out of Love with Skyscrapers," *Bloomberg*, July 17, 2022, https://www.bloomberg.com/opinion/articles/2022-07-17/china-is-falling-out-of-love-with-skyscrapers?sref=ATN0rNv3 (accessed on April 25, 2023).

55 There is a debate about how much the rural residents whose houses have been demolished and who have been resettled in high-density apartment buildings elsewhere have benefited from the program (Xiao 2015).

There are some promising signs that the central government is considering a change in its land policy. A March 20020 document on improving market-based allocation of factors of production calls for greater flexibility and more reasonable quota setting in the government's provision of land resources to accommodate different needs in different regions (CPC Central Committee and State Council of China 2020). The document also requires that "land plots currently in low-efficiency use," including those owned by state-owned enterprises, be fully utilized. This is a sensible approach and gives localities with net population inflows greater leeway in increasing local land supply for residential housing development.

But local officials are still hesitant (Lu 2021). One concern is that increasing land supply in their jurisdictions may lead to lower land and property prices, which may trigger homeowner protests and reduce government revenues, deepening the financial woes associated with the economic downturns during the COVID pandemic. This reveals a political economic issue driving the high leverage in the housing sector in China and it stems from a mismatch in central and local government financing, discussed in the next section.

4. THE ROLE OF LOCAL GOVERNMENTS IN CHINA'S REAL ESTATE SECTOR

China's local governments are critical players in the real estate market. They create revenue by selling the usufruct rights of the land in their jurisdictions, collecting taxes from land and property development, and borrowing from banks and credit markets through financing vehicles against the land or future revenues from land sales, a phenomenon referred to by economists as "land finance" (*tudi caizheng*, 土地财政). Most of these revenues are used on infrastructure development and land-related expenditures like resettlement compensation. The Chinese housing boom greatly benefited local governments and helped to sustain their public spending for the past two decades. But this political economy also contributed to the affordability crisis in the large cities, the excess housing stock in small cities, and the rapid build-up of debt among property developers and households. The current housing slump has seriously hurt local government revenues with declining property sales and frozen land auctions.

The vulnerability of local government finances exposed during the current housing downturn calls for a change in China's fiscal system. More sustainable revenue sources other than land sales are needed to sustain local government spending over the long term. A national property tax makes economic sense: It can generate more revenue for local governments and replace ad hoc administrative measures as a long-term instrument to regulate the housing market, and it can help promote social equity and common prosperity. But its rollout faces both short-term growth constraints and longer-term political and social challenges and is unlikely any time soon.

4.1. "Land Finance"

Despite China's stunning growth rates in the initial phases of its economic liberalizations, tax administration was weak and government revenue growth lagged far behind GDP growth. From 1978 to 1994, total government revenue dropped from 31 percent of GDP to only 11 percent, and from 1984 to 1993 the central government's share in total government revenue fell by almost half from its peak of 41 percent to only 22 percent.[56] This was largely because of China's decentralized tax administration. Local tax offices were entrusted by the central government to collect virtually all taxes and then remit just a small share of tax revenue to Beijing through negotiations rather than fixed rules. With such a bottom-up revenue sharing mechanism, subnational governments tended to collect greater tax revenue from tax bases over which they had greater control and collect less from tax bases for which they had to remit a larger part to Beijing (Lam, Rodlauer, and Schipke 2017). The decentralized fiscal system weakened the fiscal capacity of the central government, causing political concerns for the leaders in Beijing.

A major reform to the fiscal structure took place in 1994. A rule-based top-down tax-sharing fiscal system was established, allowing the central government to centralize revenue collection. The reform divided all taxes into three categories: those of the central government, such as tariffs and customs; those owed to the local governments, such as business taxes and property-related taxes; and those shared between the central and local governments based on preestablished formulas, such as value-added tax. While subnational governments are allowed to retain a variety of taxes, these are relatively small in their bases. Meanwhile, the divide between central and subnational fiscal expenditure responsibility is left largely unchanged (He 2008). Local governments are still responsible for expenditures on most areas directly related to their citizens' daily life, such as education and health. The central government is responsible for spending in areas of national interest, such as national defense and diplomacy.

As a result of the fiscal reform, the central government's revenue spiked in 1994. But its expenditures as a share of total (i.e., central and subnational) government expenditures saw only a slight increase that year and even declined in the following years, which means subnational governments were shouldering more expenditure responsibilities but with a smaller share of revenue retained for themselves from local tax bases. In fact, since the 1994 reform, local tax revenue and the part of shared taxes that belonged to local governments financed less than half of total local government spending.

Local governments have to rely on other revenue sources to finance their consumption and investment. Intergovernmental transfers from Beijing are one of these sources. These transfers are meant to reduce the sharp disparities in fiscal capacity between rich and poor provinces, as the new tax-sharing system exacerbated significant horizontal disparities among subnational governments (Ministry of Finance Cadres Education Center 2019, 43–44).[57] The transfers on average accounted for 40 percent of the total General Public Budget income of all subnational governments from 2008 to 2021.[58]

56 Data are from the National Bureau of Statistics of China via Wind Financial Terminal.

57 Huge horizontal disparities in fiscal capacity among subnational governments existed as long ago as the 1950s, when the system of transfers from the center to provinces with weak fiscal capacity started (Lardy 1978).

58 Subnational governments with strong fiscal capacity do not receive such transfers, while those with weak capacity usually get the lion's share.

Another source was proceeds from land sales. Technically, all land in China belongs to the state. In 1994, to compensate local governments whose fiscal capacity was weakened substantially by the new tax-sharing system, the State Council designated local governments de jure owners of land and permitted them to sell usufruct rights for up to 70 years of the land in their jurisdiction and collect land-lease fees (Rithmire 2015, 55–57; Liu and Xiong 2020, 197–98). The leaders in Beijing at the time probably did not anticipate that the housing boom in the following decades would cause land prices in cities to skyrocket—average residential and commercial land prices in 330 prefecture-level cities in China rose more than tenfold from 2000 to 2015, while the prices of industrial land saw a more modest appreciation of nearly fourfold (Chen et al. 2017).

There were at least two factors driving up land prices in Chinese cities, other than the booming demand for housing discussed in section 3.2. First, the auction scheme adopted in many cities to sell land plots tends to drive up prices (Q. Huang 2020a, 157). Drawing experience from Hong Kong, many Chinese cities sell land to property developers through auctions (partly to avoid corruption and rent-seeking), in which developers bid for land plots supplied by local governments.[59] Second, buyers' expectations of the future value of land drive up current land prices. If the local government uses land sale proceeds to improve infrastructure and business environments—both of which can raise property prices—developers will be willing to pay a premium on top of what can be justified by current conditions (Liu and Xiong 2020, 1999–2000). Often developers buy more land than they need at the time, speculating on future price increases (Pettis 2022). Rising land prices eventually drive up housing prices.

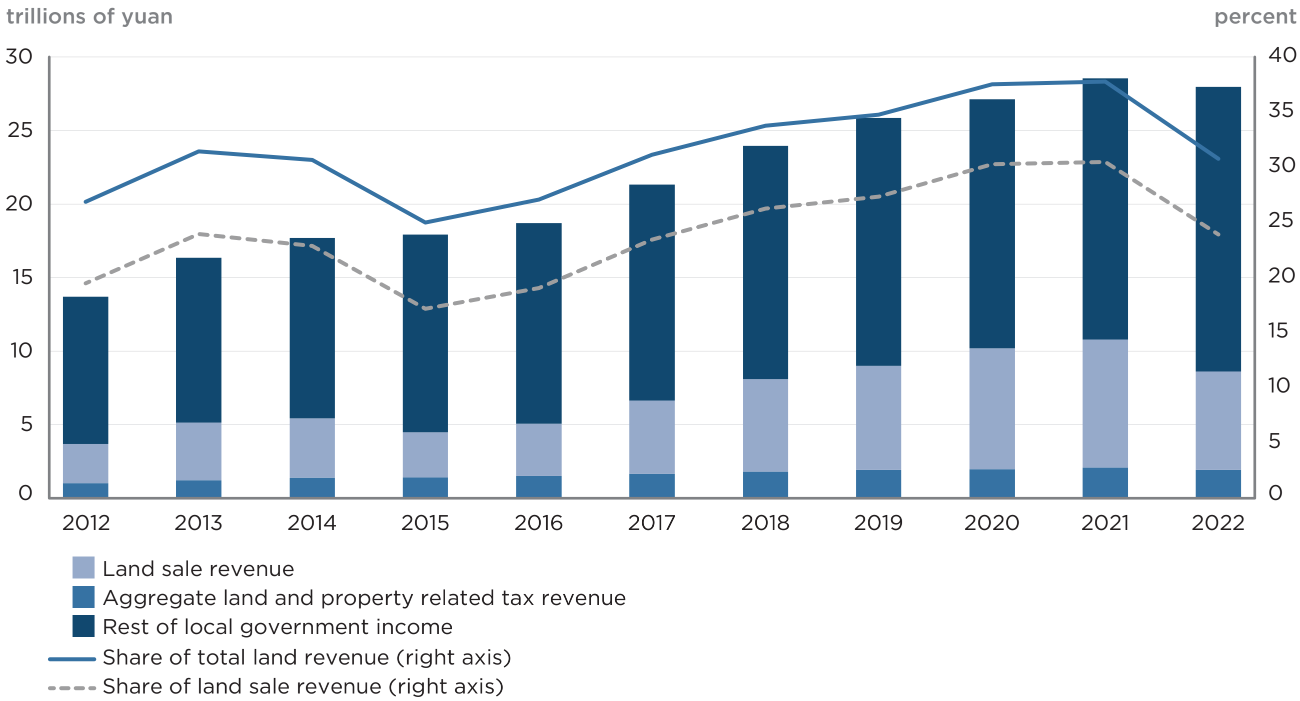
Local governments have become increasingly reliant on land sale revenue. The total they collected more than tripled between 2010 and 2021, to 8.7 trillion yuan in 2021. And the share of land sale revenue in total local government revenue—the sum of (1) General Public Budget income, most of which is tax revenue, (2) intergovernmental transfers, and (3) Government Funds Budget income, most of which is land revenue—increased from 20 percent in 2012 to 30 percent in 2021.[60] Considering that most property- and land-related taxes are collected by and belong to local governments, the reliance of these governments on property and land revenues is even greater. The aggregate revenue collected by local governments from property tax, urban land use tax, land value-added tax, farmland occupation tax, and deed transfer tax totaled nearly 2.1 trillion yuan in 2021—19 percent of the year's total subnational General Public Budget income

59 Some Chinese cities where land prices were rising fast have introduced a cap on bidding prices in recent years, and if there are multiple offers at the cap, the winner is picked from a random draw. For example, Shenzhen, Tianjin, and Nanjing set the cap at 15 percent higher than asking prices, Hangzhou at 20 percent for most land plots and 10 percent for the most popular ones, and Shanghai at 10 percent. See "Many cities amended land auction rules to strictly control the premium rate and control high housing prices from the source," *Jiemian*, September 8, 2021, https://m.jiemian.com/article/6574087.html (accessed on March 22, 2023); and "Shanghai land auction new rules: A 10 percent premium limit for the first time," *Meijing* (Daily Economic News), May 6, 2021, https://www.nbd.com.cn/articles/2021-05-06/1735090.html (accessed on March 22, 2023).

60 Aggregate revenue of all local governments in China in 2021 was 28.7 trillion yuan: General Public Budget income (11.1 trillion yuan), intergovernmental transfers from the central government (8.2 trillion yuan), and Government Funds Budget income (9.4 trillion yuan) (Ministry of Finance 2022). Local governments also run State Capital Management and Social Security Fund Budgets that are largely separated from the General public and Government Fund Budgets and therefore not considered in this calculation.

and 7 percent of aggregate subnational fiscal revenue. As a result, combined land revenue, including land sale proceeds and property- and land-related taxes, accounted for 37 percent of total fiscal revenue for all local governments in China in 2021 (figure 8). Some local governments in coastal provinces where land and property prices are higher even obtain more than half of their total fiscal revenue from land revenue; governments in inland provinces draw less revenue from land and property and rely more on intergovernmental transfers from Beijing and other sources of funding.

Figure 8
Land revenue in aggregate local government income, 2012–22



Note: Aggregate local government revenue considered comprises General Public Budget income, intergovernmental transfers, and Government Funds Budget income. There are five land- and property-related taxes—property tax, urban land use tax, land value-added tax, farmland occupation tax, and deed transfer tax—all of which are counted under General Public Budget income. Land sale revenue is the most important component of Government Funds Budget income.

Sources: Ministry of Finance of China via Wind and author's calculations.

Other than directly drawing revenue from land, through either sales or taxes, local governments often borrow through their financing vehicles from banks and bond markets with land plots or income from future land sales as collateral. Under the Budget Law enacted in 1995, provincial governments were not allowed to access domestic and international credit markets,[61] and the "General Rules for Loans" promulgated by the People's Bank of China in 1996 did not allow

61 The Budget Law was not revised until 2014 when local governments were for the first time allowed to issue bonds themselves (Rutkowski 2014).

subnational governments to borrow from banking institutions.[62] As a workaround, local governments that needed more funds to finance their development agenda sought to borrow from off-budget channels through special-purpose vehicles often referred to as "local government financing vehicles" (Zhang and Xiong 2020). These financing vehicles emerged in the 1990s, especially after the fiscal reform that exacerbated difficulties for many localities in financing much-needed public spending, mostly for infrastructure. The 1997 Asian financial crisis presented even greater challenges for growth and many provinces set up such vehicles to get needed resources to combat the downward pressure. These special-purpose companies did not start to flourish until the 2008–10 global financial crisis, during which they were critical players in raising a large portion (more than two-thirds) of China's globally praised giant stimulus package worth roughly 4 trillion yuan, announced by the government in November 2008.

The resulting build-up of local debt is a lingering problem for the Chinese economy. Local governments usually inject land reserves or future land sale revenues as capital into financing vehicles, which in turn borrow from banks and issue bonds to raise extrabudgetary funds for local governments. When land prices increase, land revenues for local governments also increase and local government financial vehicles can obtain more funding by using land as collateral. It is therefore not surprising that local governments in China are not strongly motivated to bring down land and property prices in their jurisdictions.

4.2. Impact of the Current Housing Slump

China's current real estate slump has hurt local government income. With the increasing difficulty for local governments to sell land, total land sale revenue in 2022 was only 6.7 trillion yuan, a 23 percent decline from the prior year (Ministry of Finance, Department of State Treasury 2023a), as shown in figure 8. Local land sale revenue as a share of aggregate local governments' revenue declined from 30 percent in 2021 to 24 percent in 2022. Meanwhile, taxes collected in 2022 by local governments from land and property development saw an 8 percent drop from the prior year.[63] Combined land revenue, including land sale revenue and land- and property-related taxes, decreased from 37 percent in 2021 as a share of aggregate local governments' revenue to 31 percent in 2022. The overall local General Public Budget declined only 0.5 percent, largely because of a sharp increase in intergovernmental transfers from the central government. The transfers from Beijing rose by 18 percent in 2022 and partly compensated for local governments' loss in tax revenue (Ministry of Finance 2023). The impact of the housing slump on local governments' income has continued into 2023: Land sale revenue in the first quarter fell 27 percent from the same period in 2022, while land- and property-related tax revenue slipped 2 percent (Ministry of Finance, Department of State Treasury 2023b).

Even with a sizable decline, the reported 2022 land sale revenue may still be inflated. Reportedly, more than half of the land plots sold in many major Chinese

62 See the full text of the 1996 General Rules for Loans at https://www.ghbank.com.cn/flfg/fzzdd/201603/P020160322653239582144.pdf (accessed on March 22, 2023).

63 The 2022 taxes include property tax (359 billion yuan), urban land use tax (222.6 billion yuan), land value-added tax (634.9 billion yuan), farmland occupation tax (125.7 billion yuan), and deed transfer tax (579.4 billion yuan) (Ministry of Finance, Department of State Treasury 2023a).

cities in 2022 were purchased by local state firms, including some that were set up shortly before auctions took place.[64] Essentially, local governments were selling land to themselves via their financing vehicles using borrowed funds (and incurring additional costs in interest payments) in an attempt to inflate their land sale income and shore up land prices that would otherwise see sharp drops.

To be fair, local governments' reliance on land sale revenue to fund their expenditures is sometimes exaggerated by observers who look only at the large percentage of land sale revenue in local government income but neglect to consider how land revenue is actually spent.[65] Land sale revenue is indeed a major component in local governments' annual budgetary income, as discussed above, but only a tiny portion of land sale proceeds goes into the local General Public Budget, which is the main budget for social programs.[66] In 2021 the amount of local Government Funds Budget income (of which 93 percent was land sale revenue) transferred to the local government General Public Budget was only 108 billion yuan—just half a percent of the total local General Public Budget income that year.[67] The reduction in land- and property-related tax income of roughly 158 billion yuan in 2022 compared with 2021 was actually a greater contributing factor to the decrease in local General Public Budget income than the decrease in land sale revenue,[68] and the increase in intergovernmental transfers from Beijing of 1.5 trillion yuan in 2022 more than offset the impact from the reductions in land revenue.

Moreover, a smaller amount in land sale revenue means that there are fewer items to spend on, because the majority of land sale revenue is used on items somewhat related to land and urban development, such as land confiscation and resettlement compensation paid to households, infrastructure development, and public housing (Ministry of Finance 2020, 112–15).[69] Between 2011 and 2021, on average 77.4 percent of local governments' expenditures under Government Funds Budget were for these land-related items. Government Funds Budget is not allowed to run a deficit and its expenditures should be determined by revenue

64 See "To Boost Land Sales, Local Chinese Governments Set Up New Companies to Buy Plots," *Wall Street Journal*, November 17, 2022, https://www.wsj.com/articles/to-boost-land-sales-local-chinese-governments-set-up-new-companies-to-buy-plots-11668681002 (accessed on March 23, 2023); and "China's local governments boost revenue by selling land to their own entities," *Financial Times*, March 9, 2023, https://www.ft.com/content/f68a301a-cdd5-4d9b-aca2-492c6561ebbf (accessed on March 23, 2023).

65 See, for example, "China's Plunging Land Sales Threaten Local Government Coffers," *Caixin Global*, July 5, 2022, https://www.caixinglobal.com/2022-07-05/chinas-plunging-land-sales-threaten-local-government-coffers-101908587.html (accessed on March 24, 2023).

66 The four budgets run by all levels of government in China—General Public, Government Funds, State Capital Management, and Social Security Funds—operate largely independently, but there are mechanisms allowing transfers among them. See T. Huang (2020) for an example of the transfer of funds from State Capital Management Budget to General Public Budget on the central government level.

67 In 2021 the total amount transferred to local General Public Budget from other local budgetary resources was roughly 1.2 trillion yuan, of which 77 percent was from local budget stabilization and adjustment funds, 16 percent from local Government Funds Budget, and 14 percent from local State Capital Management Budget (Ministry of Finance 2022).

68 These tax incomes, unlike land sale revenue, are entirely counted in the local General Public Budget revenue.

69 These items are mostly under "Expenditures Arranged with Income from Transfer of State-owned Land Use Rights (*yong guoyou tudi shiyongquan churang shouru anpai de zhichu*, 用国有土地使用权出让收入安排的支出)" in the government's budget books.

(*yishoudingzhi*, 以收定支), as is made clear in the 2014 Budget Law.[70] Aside from land sale revenue and other government funds income (e.g., from the Welfare Lottery), the rest of expenditures under Government Funds Budget are financed by proceeds from the issuance of local government special bonds.[71]

In other words, local governments' expenditure on land-related items is constrained by their land sale revenue. And a decrease in land sale revenue alone does not necessarily suggest that local governments have to cut expenditures on social programs. This explains why Finance Minister Liu Kun, when asked at a State Council press conference in early March, said the impact of reduced land sale revenue on local government finances was "not that big."[72] What may be more worrying than the decline in land sale revenue itself is its implications for local government debt secured by land as collateral. When land prices fall, the value of the land collateral used to secure local governments' borrowing is also reduced, which could have unfavorable ramifications for lenders' asset quality.

4.3. China's Property Tax Conundrum

China's leaders have been considering a property tax for more than a decade, but a nationwide rollout has been repeatedly postponed. Former premier Wen Jiabao once commented that "[we need to] gradually establish a real estate tax system covering housing transactions, ownership and other links, and promote the sustainable and healthy development of the real estate market."[73] In January 2011, on Wen's watch, Shanghai and Chongqing were picked as the two cities to pilot a property tax. The goal was to draw lessons from their pilot experience and then introduce the tax to more cities, but that hasn't happened.

The pilot programs in Shanghai and Chongqing are considered by many as unsuccessful in collecting enough revenue and stabilizing housing prices.[74] First,

70 According to Article 9 of the 2014 Budget Law, the Government Funds Budget should be prepared according to income and actual expenditure needs, so that budget outlays are determined according to income. See the full text of the 2014 Budget Law at www.npc.gov.cn/zgrdw/npc/xinwen/2019-01/07/content_2070252.htm (accessed on March 23, 2023).

71 In 2022 proceeds from the issuance of local government special bonds financed 35 percent of total budgeted expenditures (Ministry of Finance 2023). Proceeds from bond issuance are considered by the Ministry of Finance as current revenue and are not counted in the Ministry's calculation of fiscal deficits.

72 See "The Minister of Finance cleared doubts for the first time: How big was the impact of the 2-trillion-yuan reduction in local land sales last year?" *Shanghai Observer*, March 1, 2023, https://export.shobserver.com/toutiao/html/587759.html (accessed on March 23, 2023).

73 See "Xinhua Viewpoint: How far is the real estate tax reform from 'pilot' to 'expansion'?" Xinhua News Agency, February 18, 2013, www.gov.cn/jrzg/2013-02/18/content_2333949.htm (accessed on March 27, 2023).

74 For example, former deputy commissioner of the state administration of taxation Xu Shanda commented at a March 2014 event that the property tax pilots in Shanghai and Chongqing had "failed and been abandoned by the Ministry of Finance and Ministry of Housing and Urban-Rural Development." See "Former SAT Deputy Commissioner: Property Tax Pilots in Chongqing and Shanghai Failed," *Beijing News* via Sina, March 18, 2014, http://finance.sina.com.cn/china/20140318/033018533501.shtml (accessed on March 27, 2023). And Chen Huai, former director of the Policy Research Center of the Ministry of Housing and Urban-Rural Development, and the now incarcerated real estate tycoon Ren Zhiqiang both made similar judgments around the same time; see "Chen Huai: The property tax pilots in Chongqing and Shanghai can be judged as unsuccessful," *Yangcheng Evening News* via Ifeng, December 6, 2013, https://finance.ifeng.com/a/20131206/11230329_0.shtml (accessed on March 27, 2023), and "Ren Zhiqiang: Both property tax pilots in Shanghai and Chongqing have failed," *Real Estate China Network*, January 20, 2014, http://house.china.com.cn/712891.htm (accessed on March 27, 2023). Also see Ren, Xia, and Xiong (2017, 393–95).

the amount of the tax collected remains modest because of low tax rates and a small subset of homeowners and homes covered by the program. In Shanghai, only residents (those with a local *hukou*) who purchase a second home and nonresidents who purchase a home are subject to the tax, and only 70 percent of the market value of a property is taxed at an annual rate between 0.4 and 0.6 percent (Shanghai Municipal Tax Service, State Taxation Administration 2022). The amount of property tax collected by the authority in Shanghai between 2011 and 2022 was on average 2.7 percent of the local General Public Budget income.[75] In Chongqing, only high-end real estate, like family houses and luxury apartments owned by residents, and homes purchased by nonresidents are subject to the tax, which is higher for higher property values (Chongqing Municipal Government 2017). The amount of property tax collected in Chongqing has steadily risen from 1.4 percent of the local General Public Budget income in 2011 to 4.5 percent in 2022.[76] The coverage and tax rates in the pilots have stayed largely unchanged since the programs were launched in 2011, and the increases in the tax collected in the two cities were mostly due to appreciation of real estate values.

Second, property prices continued to soar in the two cities since the pilot programs began in 2011: The average housing price in Chongqing rose 84 percent from 2011 to 2021, and in Shanghai it increased more than threefold. However, a study that compared the actual price increases in the two cities and hypothetical price increases in the absence of a property tax found that the pilots lowered the average home price in Shanghai by 11–15 percent but raised it in Chongqing by 10–12 percent, probably because the property tax on high-end real estate in Chongqing incentivized home buyers to shift from more expensive to cheaper real estate to avoid property tax payments (Bai, Li, and Ouyang 2014). This shows that a property tax may be effective in stabilizing housing prices when it is designed not to discriminate against certain home types.

President Xi and his administration also see property tax as a priority. The CPC Central Committee's Decision on Several Major Issues Concerning Comprehensively Deepening Reform in November 2013, which was the first major party document adopted after Xi was sworn in as president and general secretary, asked for "accelerating the legislation of real estate tax and promoting reform in due course" (CPC Central Committee 2013). More recently, the Government Work Reports delivered by former premier Li Keqiang to the National People's Congress in March 2018 and March 2019 both mentioned that the government would "prudently advance legislation on property tax" (Li 2018, 2019). The 14th Five-Year Plan also mentioned property tax legislation (State Council of China 2021). The most recent attempt was in October 2021 when the Standing Committee of the National People's Congress authorized the State Council to carry out pilot programs of property tax reform in some regions.[77] But in March 2022 the Ministry of Finance announced that there would be no pilot programs

75 Data are from Shanghai Municipal Bureau of Finance via Wind Financial Terminal. The introduction of the pilot property tax programs in Shanghai and Chongqing did not lead to adjustments in other land- and real estate–related taxes in the two cities, so the revenue from property tax was purely an addition for the local governments in the two cities.

76 Data are from Chongqing Municipal Bureau of Finance via Wind Financial Terminal.

77 See the announcement at www.gov.cn/xinwen/2021-10/23/content_5644480.htm (accessed on March 23, 2023).

in 2022 due to "lack of appropriate conditions."[78] Since then there has been no more mention of piloting a property tax in official documents, including the 2023 Government Work Report.

But the rationale behind a nationwide property tax in China is at least threefold. The primary rationale is to generate more revenue for local governments. As in most jurisdictions around the world, a property tax in China would be administered and collected by local governments. Unlike land sale revenue, it would be a more sustainable source of income. It also tends to be countercyclical in nature and can act as a buffer for declines in other tax sources during economic downturns (Norregaard 2013). How much additional revenue property tax might generate for local governments depends on how the tax is designed. Estimates vary widely, but most suggest that the revenue would likely be a small share of land sale revenue.[79] Also, presumably, if a property tax is introduced, the land- and real estate–related taxes that are currently in place may either see their rates adjusted downward or be outright canceled to avoid an onerous increase in overall taxation. On balance, local governments may not see their total land- and real estate–related tax income meaningfully increase with the collection of property tax.

Much of the property tax debate among analysts focuses on whether the revenue generated can reach levels similar to that of land sales and thus replace land sales as an alternative source of fiscal revenue for local governments.[80] But this focus is largely misplaced. It is premised on a belief that, with land sales projected to shrink over the long term (because less urban land will be available for sale), there would appear a growing funding gap in local budgets, and property tax would be charged with filling that gap, justifying the necessity of a property tax. But this view overlooks the expenditure side of local Government Funds Budget.

As discussed in the previous section, a large part of budgeted expenditures under Government Funds Budget (e.g., resettlement compensations) is associated with land sales. If land sales drop, these budgeted expenditures would also have to drop. Some budgeted expenditure would remain even without any land transactions, such as for infrastructure development; property tax revenue only needs to cover these costs rather than reach the same level of land sale revenue.[81] A property tax is thus not meant to replace land sale revenue, but to play a complementary role in sustaining local government revenue. For many years to come, local governments in China will continue to sell land parcels and generate income from that. It is unlikely that with the introduction of a property tax, local governments would abolish the practice of selling land through a competitive

78 "Ministry of Finance answers questions from reporters on the pilot program of real estate tax," *Xinhuanet*, March 16, 2023, www.news.cn/fortune/2022-03/16/c_1128476605.htm (accessed on March 23, 2023).

79 A 2019 report by the Evergrande Research Institute uses 2017 data and estimates that property tax revenue nationwide would be at most 1.96 trillion yuan, 38 percent of total land sale revenue in 2017 (Xia 2019). A more recent study by a team at CIB Research (the research arm of China Industrial Bank) shows that property tax revenue in the tier-1 cities would be between 80 and 291 billion yuan or 9–34 percent of total land sale revenue in 2021 (Hu, Guo, and Lu 2021).

80 For example, see Xia (2019), Wu, Wang, and Xu (2020), and Jiang and Zhang (2022).

81 More empirical research is needed to estimate the expenditure needs in spending categories in Government Funds Budget that are not driven by land transactions.

process and replace it with administrative allocations. Instead property tax would most likely coexist with land sales and continue to contribute to local income. It would also likely incentivize local governments to place price caps in land auctions and reduce off-budget borrowing through their financing vehicles.

Second, a property tax can replace ad hoc measures as a long-term housing market regulatory instrument. Housing policy has often been used as a countercyclical instrument to stimulate growth or to rein in an overheating economy, leading to repeated boom-bust cycles in housing. Housing policy often saw U-turns and lacked predictability and consistency. Moreover, frequent government interventions have contributed to the expectation that housing prices would continue to go up and encouraged moral hazard and housing speculation.

Since at least 2016 the Chinese leadership has been stressing the need to establish a "long-term mechanism (*changxiao jizhi*, 长效机制) for the smooth and healthy development of the real estate market." Property tax is seen as an integral part of such a mechanism. Moreover, a property tax would discourage housing speculation. Since there is currently no property tax in most Chinese cities, the carrying costs of holding real estate assets are modest, which contributes to not only more speculation but also high housing vacancy ratios. An increase in carrying costs would also discourage owners from holding empty homes, expanding the rental market as more empty homes would be made available for rent.

Third, a property tax can help promote social equity and common prosperity through redistribution and is therefore seen as an important instrument in President Xi's drive to achieve common prosperity. In an article titled "Solidly Promote Common Prosperity" published in *Qiushi* in October 2021—a week before the Standing Committee of the National People's Congress authorized the State Council to carry out property tax pilot programs—Xi (2021) wrote that, to strengthen regulation and adjustment on high incomes, "it is necessary to actively and steadily promote the legislation and reform of real estate tax, and do a good job in pilot work." This seems to suggest that a property tax that features rates that increase with property values is what Xi has in mind.

In a more recent development the Ministry of Natural Resources announced in April 2023 that a unified national real estate registration system with records of real estate holdings across China has "basically taken shape," which is seen by some observers as a signal that a national property tax may be on the horizon.[82] However, such a national database is a necessary but not sufficient condition for a nationwide property tax, which still needs to overcome many challenges before it can become reality, despite the completion of an essential infrastructure. One practical issue that remains to be addressed, for example, is assessment. Accurate and regularly updated assessment of the market value of properties is essential to revenue collection and property tax equity (Yinger 2020, 22–29). An assessment mechanism, including a review forum for property owners to appeal their assessment, needs to be established before a property tax can be introduced in more Chinese cities.

82 "China completes landmark national real estate registration system," *Reuters*, April 25, 2023, https://www.reuters.com/markets/asia/china-completes-landmark-national-real-estate-registration-system-2023-04-25/ (accessed on April 27, 2023).

Beyond these practical concerns about the infrastructure needed for a property tax, the Chinese government faces short-term growth constraints as a property tax would inevitably dampen demand and hurt consumption, at least in the short term after it is introduced. Because China's chances to resuscitate its bleak economic growth now depend more than ever on increased consumer spending (Huang and Lardy 2023), it is unlikely that Beijing would consider rolling out a property tax in more regions, much less nationwide, any time soon until growth comes back on track. Moreover, a property tax would discourage home buying and exacerbate the woes of developers, possibly leading to further drops in land and property prices and in turn worsening problems in local government finances. It is thus understandable why property tax reform is not included in this year's agenda.

Furthermore, several longer-term factors make a property tax unlikely in the foreseeable future. First is the political challenge. There has been strong resistance from vested interest groups, such as wealthy households, local officials, and real estate developers, to the idea of a property tax (Hou 2019, 69–71). Part of their worry is that the tax could force them to disclose their real estate assets and explain sources of the funds paid to acquire these assets. They may also have to pay more tax as the property they own is usually of higher value.

Second, the willingness of average Chinese households to pay the tax also remains unclear. Citizens around the world resent property taxes, and Chinese taxpayers may have extra reasons to do so: Local governments already draw a significant amount of income from land sales and land-related taxes, and a large portion of these costs translates into higher housing prices paid by home buyers. Collecting a new tax directly from homeowners would require convincing households that a property tax is fair. Otherwise, collection may turn out to be a political nightmare, especially since Chinese households own most of their assets in real estate and are thus highly sensitive to any developments that may harm their interest, as shown by the mortgage boycotts in the summer of 2022.

Third, the high housing price-to-income ratios in China's big cities may challenge homeowners' ability to pay the tax. For most urban Chinese households, asset accumulation did not begin until housing was privatized in the 1990s. Many urban residents at the time bought the homes previously allocated by their employers at heavily discounted prices. By the time the nationwide housing market was created in 1998, urban housing stock was almost entirely privatized (Lardy 2012, 88). That was also when the homeownership rate in China saw the sharpest increase, from less than 10 percent in 1983 to 80 percent in 1998; since then homeownership has risen only incrementally. Housing prices in the following decades skyrocketed, but higher prices do not translate into cash unless homes are sold. Real estate remains the most important asset owned by urban Chinese households: more than 70 percent of total household wealth in China is in real estate and only 11 percent is in financial assets (Xie and Jin 2015).[83] Given that the

83 The remaining 19 percent of household wealth includes land assets (for rural households), fixed assets for production, and durable goods. See Xie and Jin (2015, Table 4).

rise of housing prices has substantially outpaced growth in household income over the past two decades, many Chinese households are relatively asset-rich but cash-poor, and a property tax could impose a huge financial burden.[84]

A conundrum faced by Chinese leaders is therefore that the balance sheets of both local governments and households are binding constraints in considering and designing a property tax. Local governments need more sustainable revenue sources to complement land sale revenue and sustain income streams over the long term. A property tax makes good economic sense, but its nationwide rollout is likely to face constraints from households' willingness and capacity to pay, as the pilots in Shanghai and Chongqing demonstrated, resulting in lower-than-expected revenue. Shanghai and Chongqing have collected only a modest amount of property tax because of the low tax rates and limited coverages in their pilot programs, but these are features rather than bugs. Officials in the two cities made compromises based on the reality in their jurisdictions. It's also worth noting that, based on these accommodations, there have been no visible protests or boycotts against these pilot property tax programs and tax administration has been smooth, largely thanks to the fact that the program affects only a small set of home buyers and its design is roughly progressive.

If a property tax can generate only a modest revenue but incurs a disproportionate financial, political, and/or social cost, it is probably sensible to put it on hold. As a Russian proverb puts it, nothing is more permanent than a temporary solution: If a property tax is introduced in more Chinese cities with a compromised design—low tax rates, limited coverage, and many exemptions, as in the pilot programs in Shanghai and Chongqing—Chinese leaders may find it difficult to raise the tax rates in the future.[85] Since the Chinese leadership now has the luxury of planning, they should look at the question of property taxes cautiously and holistically.

A property tax is not a panacea for the problems in local government finances. It alone would not fix the large vertical imbalance between revenue allocation and spending responsibilities in the fiscal system. As noted above, the central government has in recent years stepped up with intergovernmental transfers to fill shortfalls in local government coffers, and during the economic downturns in 2022 it increased these transfers by 18 percent compared with the level in 2021. Also, in 2020, a large portion of intergovernmental transfers has been sent directly to counties and prefectures without going through levels of governments in the middle. These are encouraging developments but can only be short-term fixes.

The key to strengthening local government finances is to reduce administrative burdens on local governments and let them focus on local public service provision (Lou 2023). Local governments have long taken on

84 An oversimplified back-of-the-envelope calculation suggests that a property tax could impose a great tax burden on the average Chinese household. In Shanghai, for example, average residential space according to the 2020 census is 32.28 m^2, and the average price of a new home sold in December 2020 was 52,000 yuan per m^2 (according to Shanghai E-House Real Estate Research Institute). Assuming no mortgage debt, the average gross housing wealth of a Shanghai homeowner at the end of 2020 was about 1.7 million yuan. An annual property tax of 1 percent (roughly the average US property tax rate) would be 17,000 yuan—about 15 percent of the average annual pretax wage income of a Shanghai resident in 2020. This means that in the design of a property tax in China, especially in its large cities, enough exemptions, credits, and allowances need to be built in to avoid unmanageable tax burdens for households.

85 This is what happened in Indonesia. See Rosengard (2012, 13).

some expenditure responsibilities that should be taken care of by the central government. The central government has in return provided some ad hoc financial support through project-based intergovernmental transfers. This is the case with food and drug administration, for example, which is supposed to be a job of the central government, but in fact the National Medical Products Administration delegates local authorities to carry out most supervisory activities (Lou 2023). Such top-down task delegation creates administrative burdens on local governments whose most important job should be to provide local public services. To do so they need greater autonomy in drawing and keeping local revenue. A property tax can be an important source of local governments' discretionary revenue, but other local revenue sources also need to be explored. One source that would not impose an additional tax burden on households is the local state-controlled enterprise sector. Local governments can either draw greater dividends from these firms or privatize some underperforming ones. The current housing downturn and the vulnerability in local government finances that it has exposed may turn out to be a good opportunity for China to start a new privatization campaign.[86] This would not only help to fill local coffers but also help raise efficiency in resource allocation and the overall productivity of the economy.

5. CONCLUSION

A broad and comprehensive reform package is needed if China's leaders want the country's housing sector to develop in a smooth and stable manner over the long term. By reversing restrictions on developers, Chinese leaders have decided to focus on the short-term stabilization of the housing market and put longer-term concerns on hold for now. This is a sensible approach at this point, given the importance of real estate to the Chinese economy. But they cannot afford to delay necessary reforms too long, as a repeat of the 2022 housing slump could occur, with potentially devastating consequences.

This paper reviews the background against which Beijing issued the new rules on real estate developers' financing and shows how the rules triggered the ongoing housing downturn. Once the housing market stabilizes and growth gets back on track, it will be necessary to change the debt-reliant business model of Chinese real estate developers, to avoid threats to financial stability from the growingly deep and complex connections between real estate and the country's financial system at both the national and subnational levels. The mortgage strikes in 2022 show that social stability can also be at stake if the real estate development model does not see a change.

But this alone is not enough. China's real estate sector is a systemic problem. This paper also shows how intertwined the problems in the housing sector—including high leverage among developers and the runaway housing prices in

86 Though this makes sound economic sense, any partial or even complete privatization of state assets has long been controversial politically. Losses of state assets (*guoyou zichan liushi*, 国有资产流失) can result in criminal charges, but there is a great deal of ambiguity in terms of what actually constitutes a loss of state asset, especially given mixed ownership reform is one critical pillar in China's SOE reform agenda since President Jiang Zemin. Such controversies have happened during the mix-ownership reform processes of China Unicom and Yunnan Baiyao, for example.

the big cities—are with the country's approach to urbanization, land policy, and local government finances. Without addressing these deep-rooted issues, China's housing problems like high leverage will likely remain.

One area that needs reform urgently is land allocation across Chinese cities. Land supply for real estate development needs to be allocated based on actual population flows, not some man-made population targets. Development of rental markets should be encouraged and those who rent should be able to enjoy the same rights and access to public services as those who own. A deeper financial sector would also provide more investment opportunities, so Chinese households do not have to allocate all their assets in property. The land finance model of local governments also needs a change. Local governments are in urgent need of more sustainable sources of revenue than land sales. A property tax can be an important complement to land revenue, and it can also replace local governments' ad hoc administrative measures as part of the long-term mechanism to regulate the housing sector. But its nationwide rollout is likely to face serious constraints. Other sources of revenue also need to be explored, including the local state-owned enterprise sector.

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