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Stabilizing China's Housing Market

by Richard Koss and Xinrui Shi

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Abstract

The sharp rise of house prices in China's Tier-1 cities has fostered a great deal of commentary about the possibility of bubbles forming there. However, China's unique housing market characteristics make it difficult to assess the macroeconomic severity of bursting bubbles, even if they exist. These include the setting of land supply and prices by the government, among many others. The presence of overbuilt "ghost cities" greatly complicates the ability of traditional macroeconomic policies to address these concerns. This paper looks at proposals to shore up the mortgage underwriting and legal infrastructure to help China withstand the impact of falling prices, should this occur.

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Keywords: Housing, Mortgage, China

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I. Introduction

The recent sharp increases in property prices in some areas of China have served to resurface fears about a real estate bubble forming there. While it is generally difficult to identify a bubble before it bursts,[1] it is prudent to ask whether the financial and legal systems as they currently stand should be strengthened in order to ameliorate the impact of a bursting bubble should one occur. In general, a bursting property bubble is dangerous because

1) Leverage in the financial system (through banks or securitization) results in systemic economic damage and
2) Rigidities in the legal process lead to persistent non-performance of properties in foreclosure

This brief note examines these questions and suggests policy changes that can limit the fallout from property market volatility. These are based in part on the evidence obtained in the wake of the bursting global housing bubble of a decade ago, notably in the U.S. While international comparisons are informative, the analysis needs to keep in mind China's unique situation (e.g. booming tier-1 cities vs "ghost cities"). China's policymakers at many levels have been actively working to improve the functioning of housing markets across a wide variety of geographies and economic circumstances. The experience gained here is also very important in the formation of our suggestions. Attention is focused on actions that can be taken in a timely manner to shore up confidence in the housing and mortgage markets. As such, these are more along the lines of regulation and legal code adjustments than the stance of macroeconomic policies, like interest rates.

We acknowledge that there are many long-term challenges facing China related to housing as it looks to shift its economy to a more domestic focus,[2] but defer detailed comment pending ongoing research.

The note will be divided into five parts. Part II briefly reviews the history of the Chinese property market and its regulation, and highlights its unique characteristics vis a vis other markets that previously experienced a boom and bust cycle. Part III reviews the current financial institutions in China that are directly linked to risks in the housing market. Part IV summarizes the mortgage enforcement framework in China and analyzes how it contributes to the risks in the housing market. Part V proscribes near-term policies and measures. Part VI concludes with the long-term outlook and summarizes the challenges facing China's housing market.

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[1] See Min Zhu "Housing Markets, Financial Stability and the Economy" https://www.imf.org/en/News/Articles/2015/09/28/04/53/sp060514

[2] See IMF PRC 2016 Article 4 Consultation: https://www.imf.org/external/pubs/cat/longres.aspx?sk=44181.0

II. History of property market in China: how it compares with other "bubble" markets

A. History of property market in China

- ***1993-1998***

The housing reform that took place in 1992 spurred the development of the Chinese property market. The Housing Provident Fund, which was designed to help families save for a down payment, was created in 1994. The real estate market subsequently took off and developed very quickly, resulting in some considerable chaos. The first housing bubbles in China began to be observed in some cities at that time.

The bursting bubbles in some cities (most notably Beihai and Haikou), led to a surge in the volume of non-performing assets and unfinished buildings. Moreover, there was no legal structure in place (the Security Law was not enacted until 1995 and the Property Law was not enacted until 2007) governing foreclosures and the courts suffered from a lack of capacity in enforcing the rights of mortgage holders.

The burst housing bubbles in these cities left a deep scar that took decades to heal. Beihai and Haikou were left with bankrupted developers, rising piles of bad loans, and thousands of unfinished projects that subsequently became worthless. It took a long time for the local markets to recover and even longer for projects to be reused and redeveloped. The upside was that the bubble was contained because of its small size, being concentrated in the local markets, and the highly regulated and closed nature of the banking system.

- ***1998-2008***

The second period of housing development is often agreed to have occurred from 1998 through 2008, the date when public agencies and state-owned enterprises (SOEs) stopped providing new housing units. The major characteristics of this period were 1) the rapid development of commodity housing, 2) the tendency of local governments to gain revenues by supplying new land to developers, 3) the rise of the residential mortgage as the predominant vehicle of housing finance to consumers. These developments led to real estate steadily becoming the major component of the Chinese economy.

Notably, speculative activities appeared along with this boom, causing the housing market to become overheated in major cities. In response, the central government issued regulatory measures to rein in price growth. In 2005-2006 the central government (meaning the state council, ministries, and the China Banking Regulatory Commission) and the People's Bank of China issued more than 10 measures and notices on interest rates, lending standards, land supply, and the policies of affordable housing. In 2007, additional tightening monetary and macroprudential policies including higher interest rates, higher bank required reserve ratios, as well as restrictive administrative measures were implemented nationwide. These policies and measures generally had a positive impact of stabilization and cooled off market transactions in Tier 1 cities. However, the sweeping policies also led to the decline of home prices and even regional mortgage crises in Tier 3 cities such as Wenzhou.

Perhaps the more significant impact of the policies and measures enacted in this period is that they shaped the style of the Chinese government's housing regulations for the next decade. Realizing the immediate effectiveness of financial policies and direct administrative interventions, Chinese policy makers and regulators increasingly relied on short-term price-control tools (including the control of land supply and auction prices, property purchase restrictions, and tax breaks) rather than adopting a long-term, systematic approach to develop a strong and effective housing market. More illustrations of this behavior can be seen in ensuing periods.

- ***2008-2013***

The third period is from 2008 to 2013, during which China's housing market was seen as adjusting and maturing, with signs of uneven overheating in Tier 1 cities. The 2005-2008 regulatory measures had a considerable cooling off impact on China's housing market nationwide. In addition, following the sub-prime crisis, some Tier 3 and Tier 4 cities such as Wenzhou, Harbin, and Shenyang suffered rather severe local housing declines, with home prices falling by more than 30 percent, followed by a vast increase in foreclosures.

Concerns about spreading fallout from the Great Recession, the Chinese central government issued a package of economic stimulus programs (commonly referred to as the "4 Trillion"), and this action was followed by a marked relaxation in monetary policy, including lower interest rates and required reserve ratios from 2008 to 2009 on the part of the central bank. In addition, the central government issued a series of administrative measures and guidelines to encourage the development of the housing market, as well as launching the first pilot securitization programs in support of residential mortgage finance.

As a consequence of these actions, the housing market nationwide largely recovered by 2009 (with the exception of a few cities). In the next three years, the central government's policies shifted towards tightening in 2010[3] and 2011[4] (imposition of purchase and mortgage restrictions, higher interest rates), and then back to limited easing starting in 2012. This shift was due to significant housing price declines, and in some areas, depressed local markets, which caused the central government to fear that the measures might have gone too far. In order to "facilitate price to return to a reasonable level,"[5] in

[3] General Office of the State Council, "Notice on Resolutely Curbing the Soaring of Housing Prices in Some Cities", effective on April 17, 2010.

[4] General Office of the State Council, "Notice on Continuing to Improve Regulation of Real Estate Market", January 26, 2011.

[5] 2012 Government Working Report.

other words, to stabilize the cooling market and ensure home prices to rise more steadily, there was a short period of relaxation (including lower interest rates and required reserve ratios; lower interest rates on mortgages; increased availability of provident fund financing, and lower down payments in certain regions).

By 2013, house prices had bumped back in Tier 1 cities, with several Tier 2 cities such as Hangzhou and Nanjing following their lead. At the same time, some Tier 3 cities had seen a more modest recovery. Tier 1 and many Tier 2 cities' property markets at the time were frequently described as overheating and overpriced. Homes in these cities became unaffordable and out of reach for local middle-income families. Households without a hukou cannot register land and obtain a property title and are not eligible for lower LTV and preferential mortgage rates. Therefore home ownership prospects for ineligible, hukou-less households have almost vanished.

- ***2013-Present***

Beginning in 2013, a clear division between the Tier 1 and 2 cities and Tier 3 and 4 cities has become the norm. The central government responded by implementing different policies addressing different geographical areas, targeting different problems.

After the limited easing in 2012, in early 2013 the central government released yet another national policy known as the "National 5".[6] To characterize "National 5" as just another round of tightening policies would be a misnomer. Although it upheld the strictest purchasing restrictions in Tier 1-2 cities by requiring high down payments (first home 30 percent down and second home 70 percent down), it also boosted real estate financial innovations such as encouraging the development of REITs and broadening the use of securitization. In addition, the policy supported cross-border investment, expanded Housing Provident Fund financing, and granted more land for affordable housing or public housing. Starting from 2014, monetary policy has been generally stimulative as the authorities seek to support growth as the economy transitions from being export-led to a more domestic orientation.

Although "National 5" was designed to restrict speculation and rein in price increases in overheated markets while encouraging the sale and reduction of housing inventories in distressed markets, the impact of the program eventually depended upon implementation at the municipal level, and more specifically, largely depended upon the volume and structure of local land supply. Total residential land supply shrunk considerably in 2012, 2014, and 2015, decreasing by 11.5, 28.1, and 20.9 percent, respectively. [7] Tier 1 and heated Tier 2 cities imposed the most stringent residential land supply and price continued to skyrocket at even faster pace.[8] On the other hand, "ghost-towns" have become

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[6] General Office of the State Council, "Notice on Further Improving Regulations of the Real Estate Market," effective on February 26, 2013.

[7] See MLR Annual Land Digest of 2012, 2013, 2014, and 2015. In 2013, total land supply saw a 20 percent increase compared to the previous year, due to the mixed National 5 policy that called for increased residential land supply, and especially for governmental affordable housing projects.

[8] In China, all buildable land is supplied by the government. Because there are limited vacant land in urban areas, municipal governments acquire and through expropriating rural land or through land redevelopment. The increased

more common due to downward price pressure and excessive overbuilding that they are no longer a few isolated cases.

With regards to overheated cities, the central and respective municipal governments have taken a wide range of fiscal, economic, and regulatory measures. On the fiscal side, transaction taxes have been raised and tax exemptions for various closing fees have been eliminated. In addition, local governments have imposed tightened restrictions on real estate development, finance and property transactions. These include raising lending standards for real estate-related loans, imposing restrictions on property transactions, limiting ownership of multiple properties, restricting ownership by non-residents, and requiring minimum holding periods (designed to deter "flipping"). For so-called "ghost cities" limitations on the supply of land made available for new construction have become a significant tool to stem price declines.

During this period, the government also began to move towards the creation of a longer-term policy framework, and leading cities such as Beijing and Shenzhen focused their attention on providing alternatives to the current commodity residential housing system. Notably, the Beijing municipal government started to support a formal, comprehensive rental property market; they did this by restricting the 70-year residential land supply and requiring developers holding property to develop rental communities consisting of long-term leases for lower- and middle-income families.

The outcome of these economic policies and regulatory measures has been mixed, with home prices increasing at an accelerating pace in the Tier 1 and 2 cities, with corresponding accumulation of risks in the housing and mortgage markets. The opposite situation is in place in Tier 3 and 4 cities where individuals continue to be reluctant to purchase homes even though properties are becoming more affordable and the quality is improving.

Beginning in late 2016, municipal governments of 21 major cities imposed a new round of restrictions on purchases of investment properties as a response to the Central Government's September 30 policies in the same year. In 2017, the down payment requirement and mortgage rates were raised for first-time buyers in major cities to contain price growth. Although land supplies were increased in the hottest Tier-1 and 2 markets in 2016 and 2017, most of this was either subject to new land auction conditions (which set caps on bidding prices and restricted property use for developer-owned rental projects only) or were zoned for public rental housing or common-ownership properties only, which is not equivalent to commodity residential housing and therefore does not increase supply for the latter.

This new round of regulatory measures was effective in terms of curbing rapid price rises, and housing prices stabilized over the period 2016-2017 in key cities. However, it should also be noted that the price-cooling result was largely due to a significant "freeze" in transactions in the form of rapid drops in sales volumes. Consequently, it cannot be said that these measures have changed the

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land price in overheated cities led to the increased cost of land taking compensation and relocation for municipal governments as well as social and political issues. Therefore Tier 1 and Tier 2 municipal governments have the incentives to supply fewer land at higher price than supplying more land to cool off local market.

fundamentals of the residential housing market, particularly with regards to damping the speculative fervor.

B. Chinese housing at a crossroads

China is unique among the world's most significant countries with a highly centralized government taking active roles in the housing and financial markets. This regulatory power had a largely beneficial impact in China's early stage of development, particularly when the country faced shortages of capital and finance. The vigorous policy support served to capitalize the state-owned land supply and provided credit both for developers and consumers, leading to a tremendous expansion in the supply of housing and generating a real estate boom that persisted for over more than two decades. However, as China's real estate market has matured, with its enormous size and abundant credit, inventories, and market activity, this style of short-term, heavy-handed intervention can disrupt effective market signals and result in distortions in credit and resource allocations that weigh on the prospects for long-term growth.

The crux of the problem here is the unintended impact of government actions on the expectations of buyers and sellers in the market. As long as the supply of land stays inelastic and housing demand remains robust temporary measures that attempt to restrict transactions may simply underscore the desirability of housing as an investment while providing market misinformation which, while remaining uncorrected, serves as fuel for the continued expansion of bubbles.

Zheng, Sun & Kahn have conducted research demonstrating that Chinese real estate market booms can be predicted based on homebuyers' confidence, which is hinged on beliefs about the state of the macro economy and the resolution of policy uncertainty rather than rational risk-return analysis based on information such as housing supply, price, and affordability (Zheng, Sun & Kahn, 2014).[9] As financial development in China is not mature, particularly in the credit and equity markets, it may prove difficult to weaken the role of housing as a store of value in the next several years, short of taking action to close market functioning down altogether.

The best illustration of this type of temporary measures is restrictions on property purchases.[10] The purpose of a municipality adopting purchase restrictions in the local housing market is to suppress speculation and keep housing affordable for local residents. The first price control measure was implemented in Beijing in April 2010, to demonstrate that the government was "resolutely curbing soaring home price increases." Similar policies in forty-six cities ensued. The purchase restrictions saw short-term declines in transaction volumes and immediate price drops, but did not correct the fundamental mismatch in the market between supply and demand or cool the enthusiasm of property speculators in the over-heated cities. The tendency of property prices to rebound every time the

[9] See Zheng, Siqi, Weizeng Sun and Matthew E. Kahn, 2016, "Investor Confidence as a Determinant of China's Urban Housing Market Dynamics," Real Estate Economics, V44 4: pp. 814–845.

[10] The purchase restrictions include sales restrictions (cannot sell to a nonlocal individual) and minimum holding period (must hold for a period of time or hold as rental property).

government seeks to control them is referred to as the “vengeful bump back” by the Chinese media—the tighter the regulation, the higher the price increase. Despite the government’s continued efforts to impose restrictions on transactions and close all the possible loopholes, prices remain stubbornly high. This is because property owners are not obligated to sell when the price is low, so fewer homes are put on the market, which in turn raises prices. As the market started to realize that it is immune to the government’s control of the price, the release of new restrictions is taken as an indicator that housing is in a bull market, fueling more investment and speculation. Only the recent regulatory policies implemented since late 2016 have managed to stop prices from increasing further; however, its effectiveness is still too early to determine.

There is in fact a rather pessimistic view that the only way to impact speculative fever is to let homeowners experience severe losses that will influence behavior in the future, but China’s history of booms and busts in property, equity and commodity markets provides little comfort for this idea. It is very unclear whether the new regime of tight restrictions is temporary and only shock- therapy or will become a more permanent part of China’s economic landscape. China is at the crossroads not only in terms of near-term risk management of the housing market, but more importantly in facing long-term housing and financial challenges that are shared by advanced economies, including cyclical challenges, financial soundness, housing affordability, and social equality. In the end, structural reforms across a broad swath of the Chinese housing finance system may be needed to provide a stable foundation for efficient market functioning and durable growth.

The state of the housing market in China reflects the tension between macro forces on one hand and local conditions on the other. Figure 1 points out how in aggregate price changes reflect liquidity conditions with a lag of between 9 and 12 months. Figure 2 shows how the smooth national pattern observed in Figure 1 obscures a diverse pattern of price behavior across different classes of cities. Up until 2016, Tier-1 cities experienced the most robust price gains, but these have plateaued since then due to purchase restrictions placed at the local level. Growth in Tier-2 cities lagged that in the larger cities, but their modest pace of growth has continued in part due to investment flows that face restrictions in Tier-1 properties. Tier-3 cities represent a very diverse group of locations, but these include distressed cities such as Dalian and Haikou. This dispersion in price behavior is a distinct challenge for policymakers and points out the strong need for innovative and flexible approaches that encourage bottom-up initiatives within a central macro framework.

Figure 1: Liquidity Driven Housing Market

%ch year/year

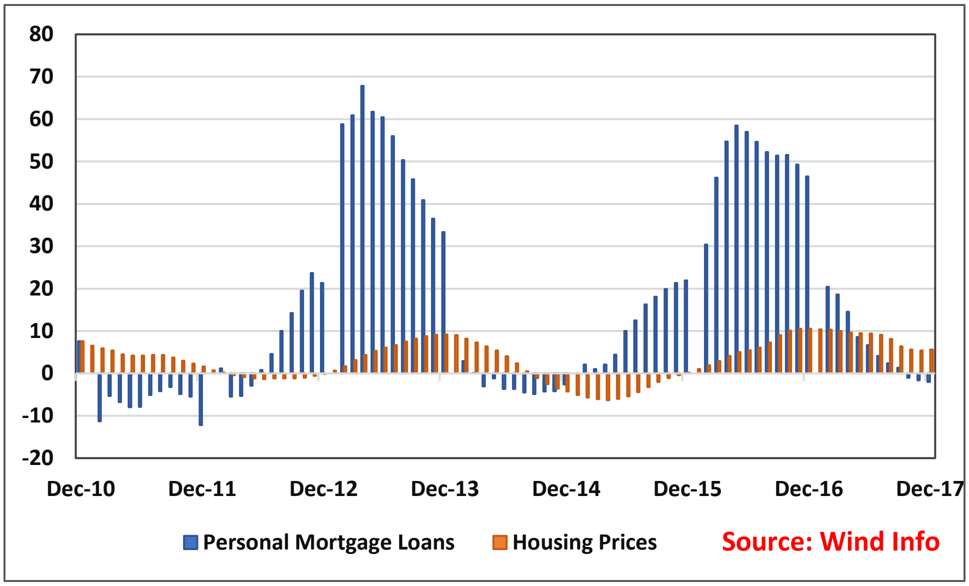
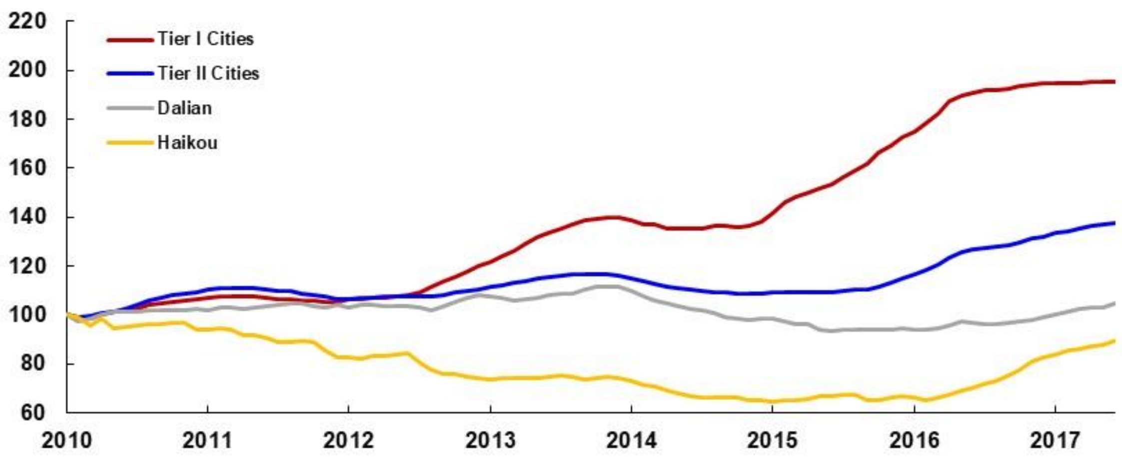


Figure 2: China House Price Index

June 2010 = 100



Sources: China Real Estate Index System (CREIS) and author's calculations

Tier I Cities: Beijing, Shanghai, Guangzhou, Shenzhen

Tier II Cities: Tianjin, Hangzhou, Wuhan, Dalian, Suzhou, Xiamen, Chengdu, Nanjing, Sanya, Guizhou, Wenzhou, Harbin, Haikou, Changchun, Hefei, Qingdao, Fuzhou, Xi'an, Nanning, Zhengzhou, Shengyang, Wuxi, Changsha, Nanchang

C. Symptoms and consequences of a bubble

Housing Price/Affordability; prices deviate significantly from fundamentally-justified values, with differentiation between cities

As noted at the start of this note, detecting a bubble remains more of an art than a science. Residential housing is increasingly regarded as an investment as well as a consumption good. As such, prices cannot simply be viewed through the lens of traditional affordability metrics such as price-to-income and price-to-rent ratios but factors such as safe haven and store of value need to be brought into the analysis as well. In markets with supply constraints due to either geographic or regulatory considerations modest increases in demand can lead to rapid advances in prices. In the end, one can only be sure a price increase was in fact a bubble when it bursts. This said, there are distinct signs of overheated behavior in some Chinese markets. House prices on average have been growing nearly twice as fast as national income over the past decade. (Chen & Yi, 2016).[11] Average home prices in 100 major cities increased by 16.6% in September 2016 on a year-on-year basis. Shenzhen's home prices rose to 36.9 times the average annual net income in the city in the first 3 quarters of 2016, and were up 49.4% compared with the same period last year. (Renaud, 2016). Beijing, Shanghai and Shenzhen's house prices are now comparable to the prices in the wealthiest Western cities such as New York and San Francisco, a remarkable similarity given the enormous disparity in incomes. Housing prices in Tier 2 and Tier 3 cities are considerably lower but the respective incomes are also a fraction of those in Tier 1 cities. (Glaeser et al, 2016).

In addition, land prices have grown at an average rate of 26% annually, and have risen from 37% to nearly 60% of house prices since 2010. The combination of low interest rates, lax underwriting standards, and inadequate regulatory supervision has fueled speculative fervor. The fast pace of growth of housing prices in some cities has been mainly driven by speculative demand from investors and firms, especially after 2013-2014. Firm-level data show that a substantial number of non-real estate firms are engaging in real estate investment unrelated to their core businesses. About 45% of such firms have investment properties that comprise about 15 percent of the firm's total physical assets, and this ratio appears to be stable over time. (Chen and Yi, 2016).

On September 30, 2016, the central government issued a new round of restrictive policies aimed at curbing property prices and reducing systemic financial risks. The new set of policies provided guidance to local governments, which caused the local governments to issue and implement even stricter regulations curbing almost every segment of the commodity residential housing market as well as on every step of the financing and transaction process for both real estate developers and buyers. The regulatory measures had a steadying impact on price increases, as most cities reported ensuing price changes within a 1 to 3 percent range year on year. However, the price change is largely due to significant reduction in supply and transaction volumes, as major Tier-1 and Tier-2 residential housing markets saw significant (20 to 30 percent) slides in supply, largely due to the sales restrictions imposed by the local governments, as well as from shrinking demands from restrictions on second-

[11] Kaiji Chen and Yi Wen, "The Great Housing Boom of China, "Federal Reserve Bank of St. Louis Working Paper

home purchases. Although local governments have released new land or allow rural collective land to be developed as public rental housing, most of the increased land supplies are for common-ownership housing or public rental homes, which are unlikely to ease the supply shortages in commodity residential communities, and thus will not be likely to change the fundamentals behind the housing market's growth momentum. The use of short-term administrative measures to curb transactions by the municipal governments has proved effective in reducing the volumes of transactions, but has little impact on correcting speculative fervor or eliminating the risk of housing bubbles.

Volume of mortgage liabilities

Besides the direct fallout on wealth and sentiment from falling house prices, bursting bubbles can be dangerous because of the potential for systematic damage to the financial sector due to defaulted mortgages. China's mortgage liabilities have risen at exponential rate in the past decade. Total mortgages securitized by land accumulated at an average rate of 30.1 percent from 2009 through 2015, and reached 11.33 trillion yuan in 2015, which is 4.4 times the size of total mortgage liabilities in 2009. The recent rapid rise of mortgage liabilities is especially alarming as less land was granted in the market during this period, implying that these obligations are subject to heightened downward risk if price growth cannot continue.[12]

Household debt is on the rise. The volume of residential mortgages in the Big Four cities increased by 22 percent in 2016 and now stands at nearly 25 percent of GDP. China's ratio of residential mortgage debt outstanding to GDP in China is at the lower end compared to the housing finance sector in developed economies, (e.g. those in the EU, the US, and Hong Kong SAR). This means that there remains some potential to expand. However, the rapid speed of mortgage debt accumulation raises the concern of risk concentration and sustainability, due to the fast accumulation of household indebtedness within a short period of time and the insufficient diversification of risks in household investment portfolios as well as the housing finance system in general.

[12] See MLR Annual Land Digest. Noted that the "total mortgage liabilities" calculated by the MLR included both residential and non-residential land.

Figure 3: China: Financial Institutions: Housing Mortgage Loans (EOP, NSA, Bil.Yuan) Q3-2004-Q1-2017 PBC People's Bank of China

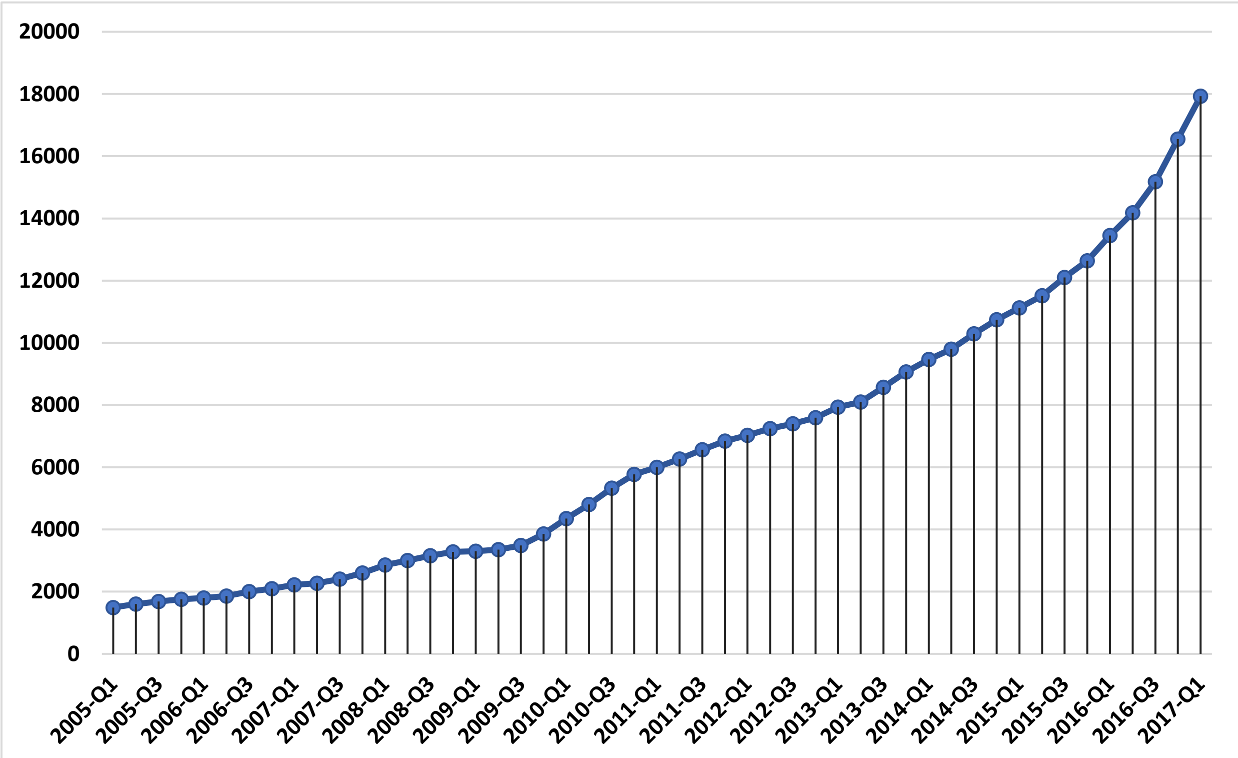


Figure 4: Home Mortgage Loan to GDP Ratio 2004-2006

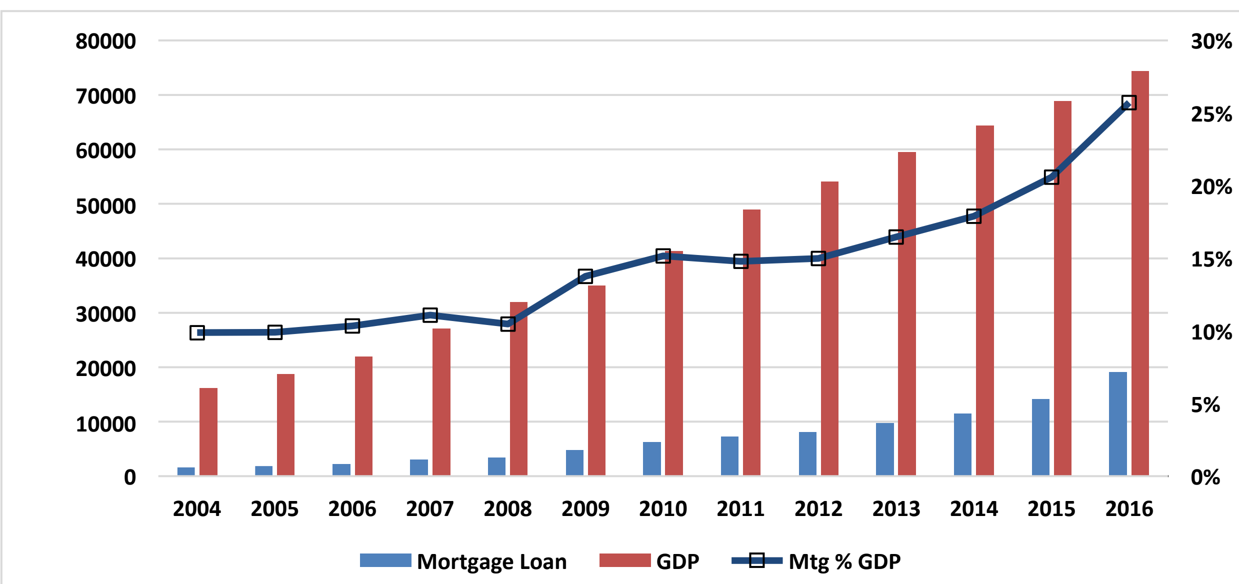
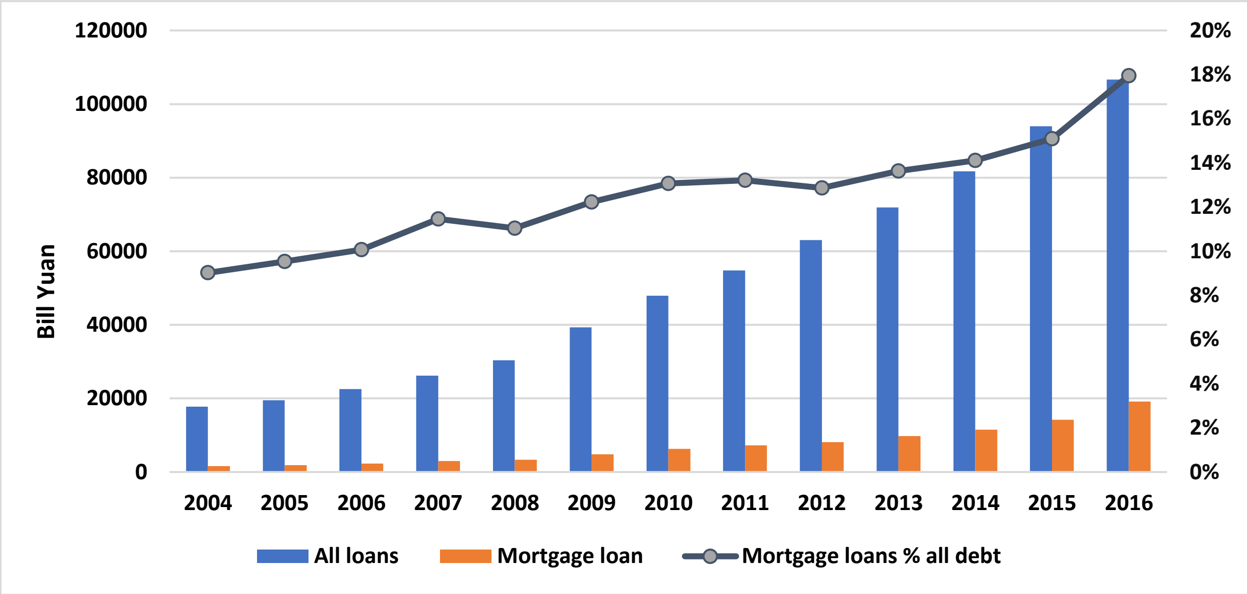


Figure 5: Home Mortgage Loan to Total Loan 2004-2016



Housing supply, inventory, and vacancy rate

A second source of long-term distress due to bursting bubbles is persistent inventories of unsold inventory. Inventory in Tier 1 and 2 cities is in a state of persistent shortage, but vacancy rates hover around 20 percent.[13] Tier 3 and 4 cities still face large inventories that take five years or longer to consume.[14] This vacancy rate is calculated as the proportion of the homeowner inventory that is vacant and for sale, and does not include housing units that are newly built but not yet sold, or empty housing held by owners (investment properties), or unfinished projects. The lack of direct, consistent and credible data on vacancy at the national or local level makes it difficult to monitor real housing supply and demand or to make accurate business or policy decisions. Nonperforming assets can prove to be a drag on the ability of financial institutions to properly allocate credit.

The role of guarantees

The severity of a bursting bubble can be thought of as direct in terms of the impact on property owners and indirect in terms of the effect on the financial system. The key indicator to look at in the second category is the mortgage delinquency rate. Nationwide, the residential mortgage delinquency rate has been low over the past decade for two main reasons. First, across China, the real estate market has yet to experience a significant price drop, and second, Chinese household income has been rising and affordability has increased over the past decade[15.] However, the risk of mortgage delinquency

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[13] See *Id* Chen and Yi.

[14] IMF, Understanding Residential Real Estate in China.

[15] See Deng, Yusong. 2016. Phases of Housing Market Development, its Fluctuation and Risks (住房市场发展阶段、波动与风险), China Science Publishing (科学出版社).

varies due to the individual characteristics of local markets. As household debt has been on the rise at double-digit rates since 2013[16], the magnitude of household debt will be of an unprecedented scale in upcoming years. Therefore, it is important to make distinctions between markets facing different economic fundamentals; and in particular how delinquency rates differ between overheated and oversupplied cities.

Besides the economic drivers of factors, it is also important to look at the structure of the financial system through which mortgage finance is provided. In China many residential mortgage loans are guaranteed either by individuals or guarantee companies (more details on the structure of these is provided in section V below). It is also important to note that mortgages are recourse so Chinese banks frequently have many options when a borrower falls behind on payments. As a consequence, in such a case a lender can elect to demand payment from a guarantor or from the borrower through enforcement of the mortgage. In cities that do not have a strong mortgage enforcement, a.k.a. foreclosure system, banks often choose repayment from the guarantor over directly foreclosing the mortgage. Logically, the mortgage redemption rate (percentage of loans that are paid off by guarantee companies) can be a useful indicator of mortgage delinquency; it also partly explains why residential delinquency has been low despite the high risk of risk in the market.

For example, during 2008-2009, a few Tier 3 and 4 cities such as Wenzhou, Harbin, and Shenyang experienced higher delinquency rates and a quick accumulation of mortgage defaults and foreclosures (Shi, 2016). In cities that have widely employed guarantee companies, the mortgage redemption rate ranged between 8-10 percent in 2015, double the rate experienced in 2014; in 2013 the redemption rate was only around 2 percent. In Wenzhou's cases, it was very common for loans to be guaranteed by corporations and individuals. The interconnectedness of these guaranteed loans and guarantors has imposed additional risks that are hard to quantify in terms of their impact to the overall financial system. It was widely suspected that the 2008-2009 housing crisis in Wenzhou was triggered by the collapse of highly-leveraged personal and corporate guarantees as the guarantors faced gigantic redemption liabilities that they were unable to repay, especially when interest rate began to hike and banks started to reduce lending. The interconnectedness of the loan liabilities also increased complexity and difficulties in mortgage enforcement. As a result, some cities have experienced long backlogs of judicial foreclosures (e.g. in 2016 Wenzhou is still handling cases from 2010).

If economic growth slows, a combination of factors such as stagnating property prices, (or even declines), shrinking incomes, and growing insolvencies of firms and investors will lead to an increased likelihood of higher delinquency rates in the foreseeable future, along with the possibility of severe strains in the financial system.

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[16] See Evelyn Cheng, "China central bank chief raises new worry in China: Mortgage-driven household debt", CNBC, October 23, 2017, https://www.cnbc.com/2017/10/23/china-central-bank-chief-new-worry-household-debt.html.

D. Comparison with other bubbles

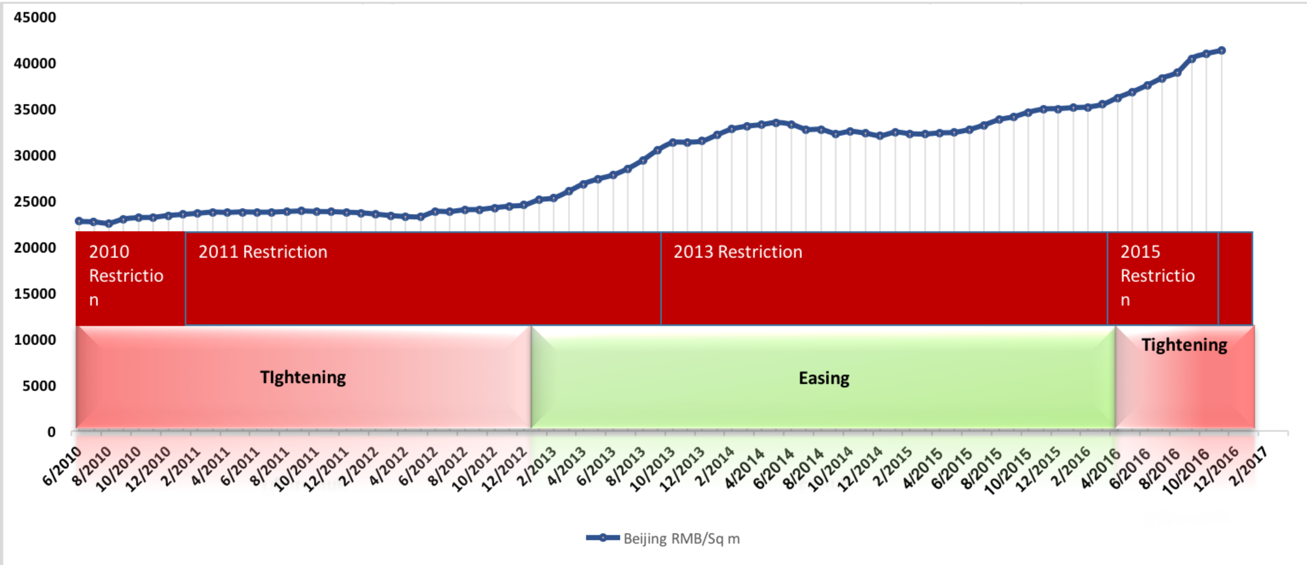
Chinese bubbles have many unique characteristics that make international comparisons a challenging exercise:

Supply factors

- The supply of land is controlled by the government and is inelastic. A distinct characteristic of the Chinese housing market is that land supply and land prices are determined by the government. Local governments make the decisions as to when, where, and at what price to grant land, which in turn determines property prices. China's land tenure system is essentially a public land leasing system. The total land supply for construction is subject to the National Land Use Plan 2006-2020. The annual land supply at a given location is determined by the local government, and must be within the limit of the provincial land quota and must also be approved by the provincial government and eventually the State Council. China's developers can only supply new apartments if they are able to acquire a land parcel from the government and if they choose to develop an apartment complex.
- There is an innate conflict between the fiscal requirements of local government and their role in maintaining the safety and soundness of the housing and mortgage markets. Government has used land supply as a macro-economic policy measure. Since 2011, Tier 1 cities have slowed their additions to the supply of new residential land for private development. The gap between land supply and demand has greatly contributed to high land and property costs. Conversely, smaller cities may be releasing land for development to stimulate activity in the short run, but this may lead to increased vacancy rates over time.
- Intensive and volatile government interventions create uncertainty. The intensity of regulatory measures issued by both central and local governments in China is probably unparalleled among other markets that have experienced bubbles in the past. The lack of constitutional restraints such as due process and independent rule-making authority have endowed the government at all levels with great leverage to make policy and change rules very quickly. On one hand, government can quickly respond with interventions in response to market developments; on the other hand, frequent interventions are often reactionary, near-sighted, risk-enhancing, and disruptive of market predictability.

In recent years, the real estate market has become less responsive to the policies and the effectiveness of regulatory measures such as purchasing restrictions has waned. For example, despite Beijing's strict constraints on purchasing and selling homes, Beijing's property prices have not been affected but continue to rise. National policies including monetary policies have had limited effect and have not altered the trend of sharp growth in prices.

Figure 6: Beijing's Home Price, National Macroeconomic and Municipal Policy

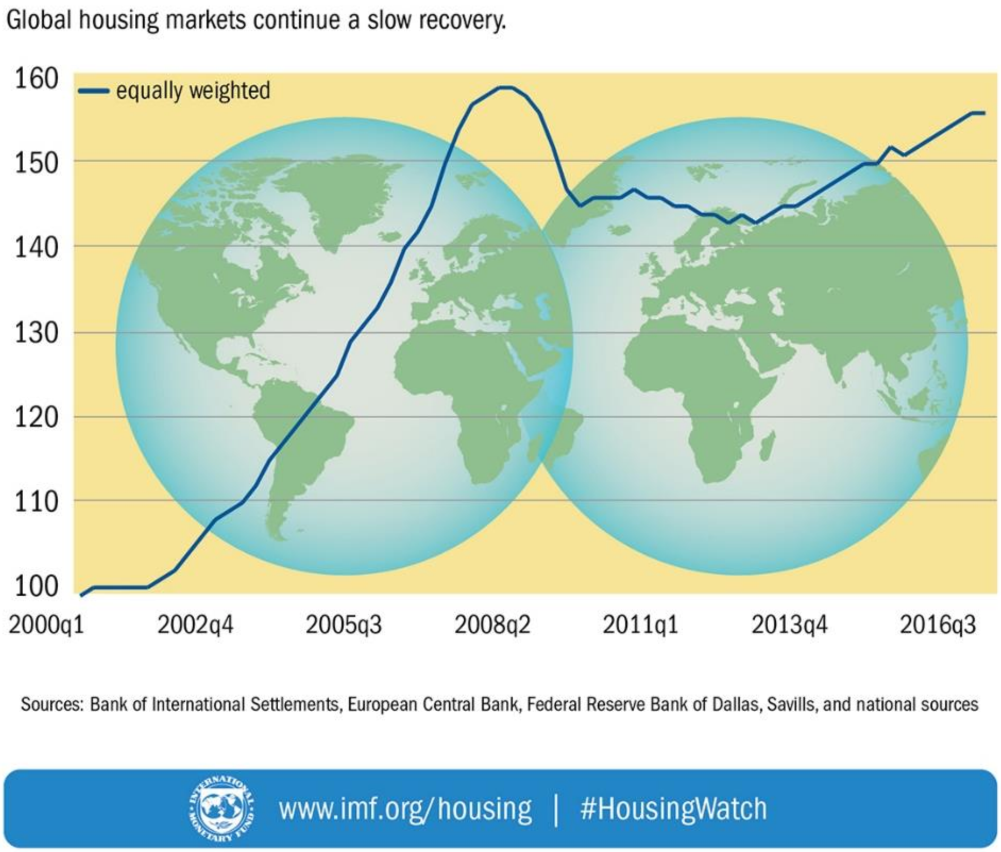


Demand Factors

- China's urbanization rate is around 50%, and Tier 1 and Tier 2 cities are attractive destinations for both the rural population and residents of smaller cities.
- The undeveloped state of financial markets in China makes it very difficult for households to diversify their investments. High housing demand can often be traced to the lack of credible investment alternatives, especially after the stock market crash in 2015. Markets are opaque, subject to fraud, and strongly influenced by heavy government interventions. These conditions lead to periods of severe volatility that in turn serves to erode confidence in financial instruments as a store of value.
- China's capital accounts are relatively closed compared to advanced market economies. Foreign exchange is strictly controlled by the government; thus, foreign exchange risk is unlikely to affect home prices, and in turn, a bursting house price bubble in China might not have a direct global impact such as occurred during the financial crisis. Nonetheless, a sharp drop in housing wealth in China could severely impact its trading partners, notably commodity-exporting emerging economies.
- The housing market has seen a clear division in demand and price behavior between Tier 1 and 2 cities versus Tier 3 and 4 Cities. There are overheated markets and distressed markets in China at the same time. This dichotomy makes traditional national-scale fiscal and monetary policy extremely difficult to implement. So far, there have been smaller regional housing crises in some cities, but these have not been of a sufficient magnitude to attract national attention. It cannot automatically be assumed that this will be the state of affairs going forward.

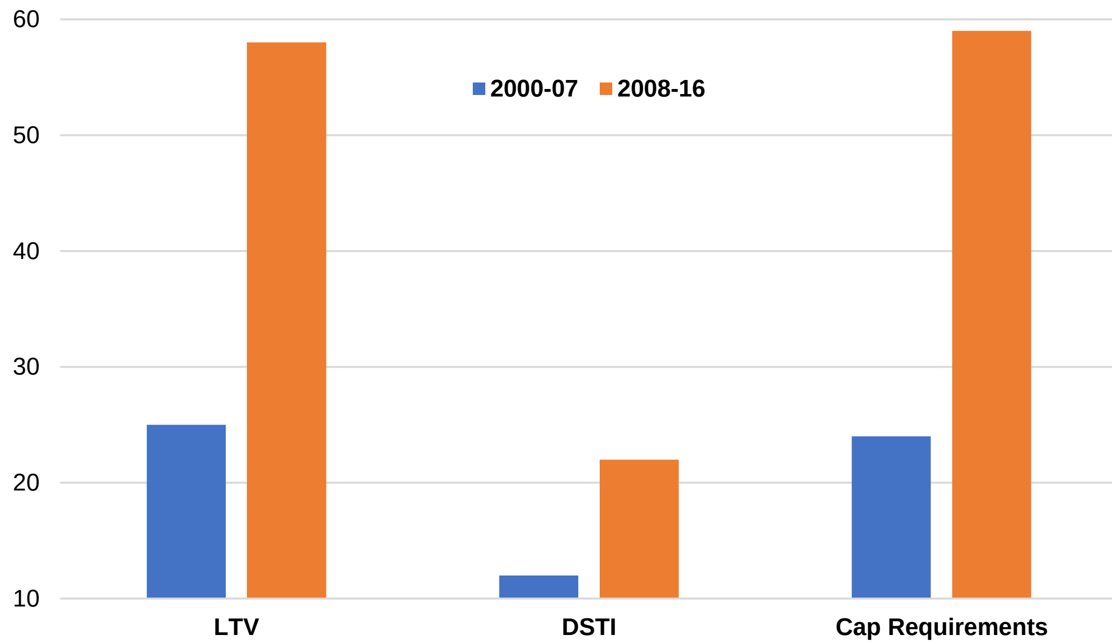
While China's characteristics are unique, there is a distinct pattern of policy activism that can be seen globally that has been of limited effectiveness in curbing house price appreciation. The housing market crash that occurred a decade ago was global in nature, as can be seen in the IMF Global House Price Index, which is an equal-weighted inflation-adjusted index of 64 countries (see Figure 7).

Figure 7: Global Real House Price Index



What is notable is the recovery of the index back near to its prior peak despite concerted policy activism in the post-crisis period (see Figure 8).

Figure 8: Macroprudential Policy: Count of Tightening Measures (In numbers)



Source: International Monetary Fund

Economies included: Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Colombia, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong SAR, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, Japan, Kazakhstan, Korea, Latvia, Lithuania, Macedonia, Malaysia, Malta, Mexico, Morocco, Netherlands, New Zealand, Norway, Peru, Philippines, Poland, Portugal, Russia, Serbia, Singapore, Slovak Republic, Slovenia, South Africa, Spain, Sweden, Switzerland, Taiwan Province of China, Thailand, Ukraine, United Kingdom, and United States.

In this sense, China is not alone as policymakers around the globe have been struggling to restrain prices and keep housing affordable with quite limited success.

III. The financial system in China

There is a substantial ongoing debate among financial analysts about the underlying state of health of the Chinese banking system. Some analysts see rising volumes of bad loans to be a precursor of distress ahead[17] while others are more sanguine.[18] In fact, recent data show somewhat improved

[17] See http://www.economist.com/news/leaders/21698240-it-question-when-not-if-real-trouble-will-hit-china-coming-debt-bust

[18] See https://www.ft.com/content/5bfb049a-2287-11e6-9d4d-c11776a5124d

performance in the banking sector.[19] A detailed analysis of the issues here is beyond the scope of this paper, but mortgage performance is a key driver of the overall financial condition of the banks.

Concerns have also been rising concerning the growth in lending from non-banks. Shadow banking in China has grown rapidly but is not well understood or regulated, especially in the areas of crowdfunding and digital finance. It was not until recently that the crowdfunding business was legally recognized by Chinese courts. Shadow banking sectors include private lending/borrowing and a bank's own off-balance sheet lending, which may include debt disguised as equity investment.

The CBRC recently issued a notice demanding disclosure of off-balance sheet lending on the part of banks as well by the shadow banks. But it is widely acknowledged that the central banking regulatory agencies lack the resources and capacity to address existing shadow banking practices and the rapid pace of financial innovations.[20]

Comparisons with other markets experiencing bubbles:

- China is a high-savings country, which acts as a buffer against domestic and foreign shocks. Bank liabilities are generally in the form of deposits, which tend to be more stable than wholesale or other short-term funding sources. But this could change as the debt of the household sector is accumulating very quickly.
- Non-banks, however, are more fragile institutions than the banks, and spillover effects from distress there into the official system are possible.
- The central government is well capitalized and public-sector debt is low. But local government debt is high.
- The most significant banks are state-owned, which is useful from the point of view of the decisive implementation of policy, but the implicit guarantee in this arrangement can create incentives for the misallocation of capital.

IV. The Chinese legal system for mortgage enforcement

How efficient is the system in terms of moving properties through the foreclosure process?[21]

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[19] See https://www.bloomberg.com/news/articles/2017-03-30/biggest-chinese-banks-bad-loan-challenge-may-finally-be-easing

[20] Raphael W. Lam addresses the under-staff of Chinese banking monitoring and regulatory agencies and the importance of improving agency capacity as a part of the soft infrastructure building. See Lam 2017, Modernizing China, Investing in Soft Infrastructure, IMF.

[21] For more details, see Xinrui Shi, "Mortgage Enforcement and Public Regulatory Actions in China in Selected Chinese Cities" Lincoln Institute of Land Policy, http://www.lincolninst.edu/publications/working-papers/mortgage-enforcement-public-regulatory-actions-china-selected-chinese

A. Residential mortgage enforcement and the foreclosure system

The effectiveness of the procedures underlying mortgage enforcement is key to the development of an efficient mortgage market. Overall, the Chinese mortgage enforcement law is rather simple and specified in one chapter of the 2007 Property Law and in the earlier 1996 Guarantee Law, with more detailed rules of judicial enforcement specified in a judicial interpretation by the Supreme People's Court. Mortgage enforcement is comparable to the general practices and principles of foreclosure in the US. But due to the differences of local land law and land registration rules, regional practices and their efficiency vary greatly. The two main methods of foreclosure are negotiated sales and judicial auction. In residential mortgages, judicial auction is now the predominant method.

Some notable distinctions in Chinese mortgage laws are:

- Mortgage loans are recourse and lenders can go after other assets besides the house when enforcing the mortgage.
- A mortgage is terminated upon transfer of the ownership right; a buyer who needs financing must take a new mortgage and pay off the previous one.
- If the delinquent property is the borrower's primary residence, the lender is obligated by law to provide adequate housing to the household.
- In terms of judicial auction, an auction can be attempted a maximum of three times. There is a rough legal formula on the auction price; if the first auction fails, the auction price is automatically discounted at the second auction. The lender takes the property if all three auctions fail to sell the property.
- Judicial auctions do not guarantee the availability of a free and marketable title for successful property registration, the property is sold as is.

B. Common problems during residential mortgage enforcement

- The system as it stands suffers from structural problems that contribute to macro risks in the Chinese economy. These include:

- Time and delay. On average the process takes at least one year, in some cities it may take longer—up to 18 months to 2 years. Poor property registration in some regions adds time and burdens the property foreclosure process.
- Costs are high and not transparent. Malpractice among auction/audit/appraisal professionals is rampant and there is no adequate recourse.
- Cross-jurisdiction enforcement is very difficult due to the inadequacy of information sharing and variances in local rules and procedures. This prohibits lenders from processing enforcement in a timely manner and results in further depreciation of value in the collateral.

- Mortgages are recourse loans and banks can sue for the balance, but there is no consumer/personal bankruptcy law in place to ensure a standardized practice.
- Consumer protection is lacking from the perspective of both borrowers and judicial auction buyers. Mortgage borrowers do not have refinancing rights. Many banks utilize insurance/guarantee services of guarantee companies that insure or buy mortgages in bulk and delegate servicing and collection to these after a default or foreclosure. The laws and regulations have no clear rules or standards on notice and publication. Many banks rely on financial guarantee companies to buy loans in a bulk. However, most financial guarantee companies are not regulated by the financial or housing agencies. There is a lack of professional realtor and loan counseling services.
- There is a lack of access to adequate and accurate information regarding property characteristics; e.g. title information; back taxes and charges; zoning and building/housing code violations; and other problems that may cause the property to be ineligible for registration. It is very hard to conduct a title search. There is a lack of title insurance products or similar services. Auction buyers cannot obtain financing towards the purchase of foreclosed properties. These problems prevent the efficient sale of delinquent properties.
- Enforcement courts and local governments do not communicate with each other, and at times local government's debt claims can also impede the enforcement process. Many delinquent properties may owe fees and be indebted to the local government, causing difficulties for new buyers and asset management firms in the acquisition and registration of free and marketable titles.

C. Differences between residential and commercial mortgage enforcement

Generally, commercial foreclosure, or enforcement of a commercial real estate mortgage is subject to the same laws and regulations as a residential mortgage. The Guarantee Law and Property Law do not distinguish commercial real estate from residential real estate. However, in practice, commercial mortgages are enforced under a very different set of procedures from those for residential mortgage enforcement and resemble a corporate restructuring more than a property sale. The policy preferences of protecting the interests of households and tenants may not be as important a priority in enforcing commercial mortgages, but they nevertheless significantly affect the enforcement process. The negative consequence is that lenders of a commercial mortgage face greater uncertainty, cost, and the potential for delay. In particular, the delay often persists to the point where a lack of maintenance leads to deterioration of the property, losses in rental income, and the accumulation of government fees, interest, and penalties that may eventually exceed the property value.

Some key problems related to commercial mortgage enforcement are summarized below:

- Complexity in land ownership structure. First, commercial properties are income-generating and often subject to multiple leases of different terms. The leases can be commercial or residential, and there may be assignments and/or subleases of the existing lease. Because leases are not recorded on the title of the property, it is very costly to ascertain all the leases, subleases, and all the parties of interest. This by itself creates uncertainty and elevates the risks facing the lender. Second, many commercial properties are mixed use with a fragmented title and a multitude of owners. Third, ownership may be further complicated by the presence of possessory liens on the fixtures that are not neatly classified as either real or personal properties. Chinese property law does not draw so fine a line designating these fixtures and naturally there are many disputes regarding this issue.

- Complexity in financing and, subsequently, debt structure. Commercial properties may have a more complex financing structure that involves multiple lenders at multiple stages of property development. Multiple lenders and possibly multiple conflicting liens and interests result in a complex debt structure when one or more mortgages are in default.
- Priority. Preferable treatment of leasehold's rights and construction liens can greatly hinder a mortgage lender. Under current laws, leases created prior to the original mortgage survive the enforcement and foreclosure of the property. The leases are defined broadly without distinguishing commercial from residential, or short-term from long-term leases. In addition, construction liens are entitled to super-priority treatment under the law. Construction liens may be defined broadly in a manner that further limits the rights and value of the claim that a mortgage lender can recover.
- Lack of standardized enforcement practice, procedures, or framework. This include the absence of laws on the required notices and service requirements as well as the framework for restructuring or refinancing the loans.
- Taxes and fees. Commercial properties are subject to higher taxes than residential properties during the holding period and at closing. The high taxes incurred at a foreclosure sale is another factor that will reduce the value of the mortgages.
- Weak restructuring and bankruptcy law. Although the commercial mortgage enforcement process often looks at corporate restructuring and bankruptcy law for guidance, the lack of specific legal and regulatory guidance aimed at commercial foreclosure implies that participants in the commercial market in China are not offered good protection of both ownership rights and the rights of the lenders.

V. Near-term policy prescriptions[22]

Taking all this as background, we look to develop a set of suggestions that should be taken in a timely manner to stabilize the housing market and limit the potential fallout from bursting bubbles. These are based in part on international practice and experience, while giving due consideration to the unique circumstances in China. These include:

[22] A series of discussions about the impacts of fiscal, monetary and macroprudential policies on housing markets from a global perspective can be seen at https://www.imf.org/external/research/housing

A. Banks: mortgage underwriting procedures

The question of economic risks associated with credit growth in China is a broad topic largely outside the scope of this paper. In a recent Working Paper, IMF Staff make several suggestions regarding structural reforms designed to grapple with this issue.[23] More recently, the IMF released its Financial System Stability Assessment for China (FSSA)[24]. For our purposes, we focus on safety and soundness issues associated with mortgage underwriting. There are many factors that determine whether a financial institution should provide a mortgage to a household, but in broad terms these are payments history and debt service burdens. In the first case, consistent metrics that can be applied consistently across households should be developed and rigorously applied. In the U.S., these are largely done through FICO Scores.[25] Given the underdeveloped state of China's credit markets, alternative measures need to be developed. FICO themselves are developing new metrics designed to reflect local conditions through their Financial Inclusions Initiative.[26] These and other similar approaches should be studied and applied in practice as soon as possible.

The second factor is debt burdens. Chinese banks at present apply a 50% debt service to income ratio cap to mortgage borrowers. As part of the Dodd-Frank bill, the Qualified Mortgage (QM) rule outlines characteristics that are deemed appropriate for mortgages in the US, and a key component is that debt service should not exceed 43% of income.[27] However, the bill says that the GSE's may temporarily change the requirement and in July 2016 Fannie Mae raised it to 50. Some further analysis should be done to determine if the 50% ratio is too high from a macroprudential perspective. A key challenge to this approach is accurate tracking of household debt. In many countries, private credit bureaus have been established to track changes in the borrowing status of households.[28] These also face challenges, including easy access to credit from digital financial institutions. Clear reporting requirements need to be developed and rigorously enforced to underscore the soundness of the system of provision for mortgage credit. An important additional factor is the clear establishment of the seniority of first lien mortgages in any situation of borrower distress.

The third factor is standards for appraisal of property values. Clear standards for appraisals need to be established and carefully enforced. A broad data base of property transactions should be constructed and automated systems utilized to audit firms which produce such valuations.

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[23] IMF Working Paper WP/16/203 "Resolving China's Corporate Debt Problem" https://www.imf.org/external/pubs/ft/wp/2016/wp16203.pdf

[24] http://www.imf.org/en/Publications/CR/Issues/2017/12/07/people-republic-of-china-financial-system-stability-assessment-45445

[25] For a broad overview, see http://www.myfico.com/credit-education/whats-in-your-credit-score/

[26] See http://www.fico.com/financialinclusion/

[27] For a summary see http://files.consumerfinance.gov/f/201301_cfpb_ability-to-repay-summary.pdf

[28] See, for example http://www.worldbank.org/en/publication/gfdr/background/credit-bureau

Finally, studies should be conducted to determine the resiliency of the book of mortgages under various adverse conditions. These can be done through stress-tests, keeping in mind that scenarios should be developed that fall outside the historical experience given the unprecedented nature of the surging pace of home prices over the past several years in many locations. Specific models will need to be developed regionally, and close attention paid to the diversification (or lack thereof) obtained from loans given by a single bank in different geographies under adverse conditions. The Dodd-Frank bill in the US defines such tests for the Government Sponsored Enterprises and can serve as a useful first step in developing similar procedures in China.[29] A key feature of such tests in the US is that the results are made public. Independent assessments of the results are a means of enhancing confidence in the integrity of the financial system while a closed process leaves investors wondering what there is to hide.

B. Mortgage requirements

As noted in the previous section, there are many structural impediments that inhibit the development of an efficient mortgage market in China. A number of legal and financial infrastructure changes should be implemented in a timely fashion:

- Develop clear and sufficiently substantive procedural laws and rules regarding mortgage creation and enforcement.
- Enhance existing guidelines governing the implementation of uniform and streamlined documentation requirements nationwide.
- Eliminate barriers to cross-jurisdictional enforcement.
- Implement efficient procedures regarding title registration and search; similarly, enhancements need to be made to the credit information collection process.
- Facilitate communication and collaboration between judicial enforcement departments and local governments (especially in more vulnerable cities with backlog of delinquencies).
- The sources for provincial tax revenues should be shifted away from sales of property to developers and towards property and value-added taxes.
- Land use rights should be renewed automatically and at no cost for any household with current annual payment of property taxes.

C. Consumer protection

- It is urgent to implement consumer protection measures, including the requirement that clear disclosures be made regarding mortgage terms and costs.
- On the back end, mechanisms should be developed for fair and timely actions related to foreclosure, eviction, and consumer insolvency.

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[29] See https://www.fhfa.gov/SupervisionRegulation/DoddFrankActStressTests

D. Mortgage guarantee companies and shadow banking

China does not have a national mortgage insurance system. Mortgage lenders utilize mortgage guarantees to cover default risks should a mortgage borrower default. However, in the case of residential mortgages that are funded by the Housing Provident Funds, China has a formal government mortgage guarantee sector that is named “Homestead Guarantee” (住房置业担保) to insure against default. Homestead guarantee companies are normally established under the Housing Provident Fund Center (HPFC) in each municipality, and operated under the HPFC’s supervision, subject to the control and regulatory oversight of the Ministry of Housing and Urban-Rural Development (MOHURD) and the Bureaus of Housing Administration at the local municipality level[30]. Each city normally only has one Homestead Guarantee entity. Some are established as a sub department of a jurisdiction’s HPFC and others are set up as corporations[31].

The government mortgage guarantee system originated from the need for risk management tools on the part of lenders to support the provision of financing to homeowners during the period when residential mortgages were nascent and inaccessible to many households in the late 1990s.The Shanghai Municipality started the first government mortgage guarantee company in 1997; then in May, 2000 the MOHURD and the PBOC jointly issued formal policy guidance entitled “Interim Guidance on the Administration of Homestead Mortgage Guarantees,” formally introducing the government mortgage guarantee system. The nature of a Homestead Guarantee Company is defined as a guarantee company. It enters into a guarantee contract with the borrower, charges a premium, and promises to indemnify and repay all unpaid indebtedness and liability should the borrower default. It is characterized as a real estate brokerage/agent as characterized under the laws; it is not a financial intermediary and thus is not subject to financial regulations. It has limited sources of funding as it cannot pool funds and cannot have access to the capital markets.

Homestead Guarantees cannot address the needs of general residential mortgage lenders since many households are not eligible or are not utilizing Housing Provident Fund mortgages[32]. Generally, Homestead Guarantees only cover a small portion of the mortgage insurance market and mostly guarantee mortgages of government-funded projects, especially public housing.

The problems of Homestead Guarantees are numerous, mostly due to the mismatch of its responsibility/liability exposure and its source of funding, as well as its cost of capital. The legal status of the Homestead Guarantees as brokerages prohibit them to pool or raise funds as financial institutions, which

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[30] See MOHURD, PBOC, Interim Measures for Managing Homestead Guarantee, effective on May, 2000.

[31] See Lin, Quanling. 2008. “Homestead Guarantee System and Low-to-Middle Income Housing Finance.”（住房置业担保制度与中低收入者住房融资） *Political Science and Law*（政治与法律）. Vol. 2, pp 14-18.

[32] See Chen, Jie and Deng, Lan. 2014. “Financing Affordable Housing Through Compulsory Saving: The Two-Decade Experience of Housing Provident Fund in China.” *Housing Studies*. Vol. 29, pp 937-958.

in turn greatly constrains their capacity to provide coverage for additional mortgages[33]. Their organization and management structures are highly bureaucratic, which hinders their flexibility, incurs higher information costs, and concentrates their risks. Furthermore, its regulators, the MOHURD and Housing Provident Funds, do not have the same degree of financial regulation acumen and experience as the banking agencies[34], and cannot give proper policy guidance and supervision over these government-backed guarantors[35].

On the other hand, the requirements of mortgage lenders have led to the development of private guarantee companies as early as the late 1990s and growth in this sector continues to this day. It may not be an exaggeration to say that many private guarantee companies are essentially playing the role of private mortgage insurers (PMI's) as functionally, they repay mortgage lenders a percentage of losses incurred when the mortgagor defaults. In addition, guarantee companies insure and divert a portion of lenders' risks and often provide assistance in foreclosure collections. Guarantee companies often act across a wide range of guarantee businesses, and are not limited to mortgage default insurance.

There are two categories of guarantee companies—financial guarantee companies and non-financial guarantee companies. Financial guarantee companies are created under government approval. They are subject to financial constraints, including limits on the type of businesses in which they may or may not engage, reserve requirements, corporate governance standards, and risk exposure limits. The requirements are set out by the regulation promulgated by the PBOC and ministry-level agencies and committees. Financial guarantee companies are subject to banking regulations but not insurance regulations. In recent years, financial guarantee companies mostly engaged in the provision of guarantee and financing services for small and micro firms and the farming and agricultural industry. Housing-related guarantee services comprise only a small fraction of their operations.[36]

Nonfinancial guarantee companies are those that either provide non-financial guarantee services or those without government license. Most of the nonfinancial guarantee companies largely operate in the legal gray

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[33] See Jiang, Shuming. 2014. "Risk Management and Monitoring System of the Homestead Guarantee Industry" (住房置业担保行业风险初探）, *China Real Estate*（中国房地产）, Vol. 9, pp. 30-33.

[34] See World Bank. 2013. "China: the Role of Housing Provident Funds in the Construction of Affordable Housing." East Asia and Pacific Region, World Bank, Washington DC, pp. 17-18. The World Bank report did not address homestead guarantee in particular, but has discussed in details the conflicting roles assigned to the Housing Provident Funds system and the challenges of its supervisory and regulatory structure under MOHURD, MOF, National Audit Administration (NAA) and CBRC.

[35] See Liu, Chunyu. 2017. "Exploring the Development Path of Homestead Guarantee Industry"（关于住房置业担保的发展探索）. *Real Estate Biweekly*（房地产导刊）. See also Chen, Jie. 2010. "Affordable Housing Needs Effective Guarantee Mechanism.（保障性住房融资需要有担保机制）Real Estate Information of China（房地产信息）Vol. 9: 55-60.

[36] See Na, Song. 2017. "Reform and Transformation of the Financial Guarantee Industry." （融资担保业的改革转型）, *The Chinese Banker (*银行家）, Vol. 1: pp. 69-72.

zone and are part of the shadow banking system subject to no effective regulatory oversight or control. Although they may be subject to some financial requirements imposed by the client banks, essentially there is no effective regulation or enforcement[37]. There are no transparent underwriting standards and they enjoy limited funding sources. Their revenue streams are often highly volatile, and they may become insolvent during a housing downturn or recession[38].

The large and growing sector of China's private (and largely informal) mortgage guarantors is the market's response to the growing demand for credit insurance. This has occurred in an environment of rapid growth and increasing complexity in the broader financial sector. The lack of proper institutional and legal frameworks surrounding the guarantee business poses distinct systemic risks. As a matter of urgent public policy, private guarantee companies need to be recognized as formal financial intermediaries and brought into compliance with proper regulatory standards. Further research should be conducted to quantify the size and exposure of the private guarantee industry, in order to assess their impact on the stability of the financial system as a whole. More importantly, although mortgage guarantee firms, public or private, formal or informal, carry similar functions as mortgage insurers, they are not insurance companies or entities, and are not specialized residential mortgage insurance providers. It may be time to ask the following questions: with China's fast-growing residential mortgage market, does China's current mortgage guarantee structure still constitute a good vehicle through which lenders cover and diversify their risks, and provide credit to households to support homeownership in a safe and sound manner? Moreover, do they provide support to the strengthening and sustainable development of China's housing finance system? Should China's mortgage guarantee system transition into a mortgage insurance (MI) system?

E. Secondary market liquidity

In advanced economies, securitization serves as a useful diversifier as a funding source for borrowers should the banking system come under some broad distress. Markets also are subject to shocks and so consideration should be given to setting up a body to monitor the functioning of this market with some mandate to ensure the availability of liquidity under all market conditions.

F. Support for underserved markets

The provision of credit when left solely to private lenders tends to flow naturally to the high-end of the housing market as these engender the greatest rates of return. A government program designed to require banks to lend to underserved markets, such as ghost cities, or small cities or low-income

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[37] See Mi, Wentong. 2011. "On the Regulatory System of Domestic Guarantee Institutions in the Context of Financial Deepening"（金融深化北京下我国担保机构的监管体系研究）, *Shanghai Finance*（上海金融）, Vol. 11: pp 64-68.

[38] The most vivid example is the large-scale insolvency and bankruptcy of nonfinancial guarantees after the Great Recession and the 2008-2009 housing crisis in Wenzhou. See Zhi, Fengyin. 2015. "Reform and Breakthrough of the Guarantee Industry."（担保业转型与破局）, *China Finance*. Vol.10: pp. 96-99.

neighborhoods can be appropriate as long as the expected return is still positive from these activities. This is the idea behind the Housing Goals[39] and Duty to Serve Rules[40] in the US.

VI. Conclusion

What are the long-run challenges that need to be addressed?

A. Preparing a foundation for sustainable growth

Our proposals listed above are based on the principal that regulatory policies should be associated with clearly identified priorities and goals. These goals should be explicit and transparent.

First, governments in Tier1 cities should stop focusing on reaching/keeping a targeted home price- level, but should focus instead on restoring the market's stability and predictability. While often painful, markets should be allowed to adjust in line with fundamentals.

Second, bank mortgage underwriting standards and capitalization levels should engender confidence that the financial system can withstand the impact of normal market adjustments.

Third, increased participation of private agents in the mortgage market outside the banking system is desirable, but this should be based on sound credit fundamentals, not explicit or implicit government guarantees. It is time to rethink and build a sound mortgage risk-sharing framework to buffer the growing residential mortgage market and expand housing finance accessibility for households with sufficient financial means.

Finally, the focus of the regulatory authorities should seek to balance concerns about the safety and soundness of banks with consumer protection.

B. Long-term challenges and goals

As one of the world's biggest economy and trader, developments in China reverberate around the world. As such, a well-functioning housing market is not just of local interest. As Min Zhu noted in his speech at the Bundesbank in 2015, "housing is an essential sector of the economy but also one that has been the source of vulnerabilities and crises." A crisis in China's housing market would be of considerable global concern. In a recent study, Shaghil Ahmed at the Federal Reserve looked at this through various channels, including China's role in global supply chains and the growing importance of its imports as the domestic sector of the economy takes a leading role in development, particularly for emerging market economies, and the potential impact on

[39] See https://www.fhfa.gov/PolicyProgramsResearch/Programs/AffordableHousing/Pages/Affordable-Housing-FMandFM.aspx

[40] See https://www.fhfa.gov/duty-to-serve

global capital markets[41]. The policy prescriptions listed here are designed to reduce the chances of such an event in the near term, and to limit the fallout should one occur. Nonetheless, it is widely acknowledged that these risks can only be damped over a longer period through structural reforms that address the ability of the financial sector to allocate capital to its most efficient uses. As we have seen, concerns about efficiency as a driver of growth are important, but risk failing to receive broad public support unless the benefits of this growth are broadly shared.[42]As housing remains the most important path for wealth-building in most households, the essential nature of the sector is clearer than ever.

[41] See Shaghil Ahmed, “China’s Rise, Changing Stripes, and Global Implications of a Potential Slowdown” http://voxchina.org/show-3-66.html

[42] See Prakash Loungani “Inclusive Growth and the IMF” https://blog-imfdirect.imf.org/2017/01/24/inclusive-growth-and-the-imf/

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