



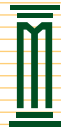
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CHINA'S HOUSING MARKET: IS A BUBBLE ABOUT TO BURST?

JAMES R. BARTH, MICHAEL LEA AND TONG LI



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I. Introduction

The recent meltdown of the U.S. housing market triggered a financial crisis that evolved into the worst recession since the Great Depression. Other mature countries such as Ireland and Spain also have suffered severe housing problems in the past few years. Those difficulties continue to be a drag on economic growth. In the United States, for example, the residential housing market is still seeking to recover to a steadier condition, and home prices have yet to return to their historical trajectory in many regions. The current “shadow inventory” of delinquent and foreclosed homes is taking time for the market to absorb, which impedes employment growth in construction and related sectors and thus overall economic growth.

In contrast, China has weathered the global financial turmoil in much better shape. A \$580-billion stimulus package in 2008 helped it prevent a sharp slowdown in economic growth. This action has been considered timely and effective by most observers. However, there also have been concerns that banks loosened their lending standards too much as a result of the huge stimulus, among other factors. This led to excessive lending to individual home purchasers and rapidly rising housing prices that, in turn, may eventually lead to an increase in nonperforming loans at financial institutions should those prices collapse. The result, if corrective actions prove insufficient, could be a banking crisis that might require a government bailout.

The crucial issue, therefore, is whether there is a housing bubble in major cities throughout the country that is about to burst. China has certainly experienced extraordinary growth in the housing market during the past decade, which has been accompanied by substantial increases in residential property prices. As a result, despite government policies and programs that support homeownership, owning a home has become increasingly less affordable for many working urban families, especially younger households. After 2010, however, the housing market started to display signs of a slowdown. This has been largely due to the government’s efforts to rein in fast-rising residential property prices. Although actions have been taken to control price increases to make homes more affordable, too sharp a pullback raises concerns that housing prices will simply collapse in the near future and cause financial instability.¹

¹ <http://online.wsj.com/article/SB10001424052702304906004576367121835831168.html>

The purpose of this paper is to examine whether the decade of rapid growth in home prices in fact represents a housing bubble. Another purpose is to assess whether the authorities are able to achieve a “soft landing” in the housing market if a bubble exists. This is especially important given that residential investment accounts for roughly one-sixth of economic growth and China's 2012 growth is on target to be the slowest in more than two decades. Still another point of inquiry is whether the home prices declines that have occurred in some regions will trigger a financial crisis, similar to what happened in the United States. The plan is to assess the current situation in China's real estate market, review relevant policies that have been implemented, identify potential risk factors, and consider policy ideas, including less emphasis on and support for homeownership, that would be appropriate based on other countries' experiences with housing booms and busts.

The remainder of the paper proceeds as follows: Section II discusses the changing landscape of the housing system after 1978 and summarizes subsequent policies that have affected homeownership. Section III focuses on the possible existence of regional housing bubbles, if not a national bubble, and policy measures taken to combat too rapidly rising prices. The last section discusses housing policy lessons from other countries that may be relevant for China.

II. Historical Overview of Housing Policies and Funding

Providing shelter for as many people as possible has been a key goal for every Chinese dynasty and regime since ancient times. Despite this long history, the promotion of private ownership of homes did not become a primary policy goal until after 1978.

2.1. A Brief History of Housing Reforms after 1978

During the period between the founding of the People's Republic of China and 1978, all land was publicly owned. According to the Chinese Constitution, "no organization or individual may appropriate, buy, sell or lease land or otherwise engage in the transfer of land by unlawful means." When deemed appropriate, the government has provided the free right to *use* land without a time limit. This right, however, could not be transferred to other users. Resources were allocated through a working unit-employee linkage. The size and location of homes depended on the number of years that a person worked and the size of the household, among other factors. Because all working units (employers) were publicly owned, funding for housing was provided directly or indirectly by the government as a subsidy.

Things changed, however, with economic reforms that began in 1978. Since that year, China has gone a long way toward commercializing homes for its citizens. An important early step was allowing foreign investors to establish factories in several "special territories." A land occupancy charge was imposed on foreign enterprises in those territories and coastal cities in 1980 — the first time that the use of land had a price attached. It soon became clear that this action would lead to the privatization of land and the shelter on it. In the earlier era of a planned economy, housing, hidden compensation and other assistance measures were woven into the fabric of the relationship between the working unit and the employee. To privatize state-owned enterprises, such a linkage had to be broken — and an alternative housing system introduced.

This happened with housing reforms that formally started in the mid-1980s. Importantly, in 1988, the Constitution was amended to allow for land transactions. This change set the stage for the privatization of housing in China.² A more comprehensive strategy was mapped out in 1994, which

² In China, ownership of residential properties is limited to a term of 70 years. Under current law, after this period expires, the right to use the land and property will no longer belong to the current owner. Effectively, therefore, the owners are users of the property who lease the land for 70 years. There is some ambiguity about the law in this regard and its implication for property taxes, which has been the focus of some debate in recent years.

included rent reform, sales of public housing, and provisions of affordable housing and property rights. Then, in 1998, a national law defined the concepts of “economically affordable houses” and “commodity houses.” Local governments determine prices of economically affordable houses before these projects commence. Such residences are usually sold for 3% to 5% above total costs and targeted at families with low and medium incomes. Commodity houses are purchased and/or rented at prices determined by the market. These actions provided for growth in the privatization of housing.

2.2. Current Status of the Housing System

Currently, there are three types of shelters for Chinese households: commodity houses, economically affordable houses and rental properties. In 2010, economically affordable houses accounted for merely 3% of all homes built, compared to nearly 25% at its peak in the late 1990s.³ Urban households can purchase either economically affordable or commodity houses. To qualify for the lower-cost category, applicants must have “hukou”⁴ and meet various requirements, including those pertaining to average living area, household income and household net assets. Once purchased, an economically affordable house cannot be sold for five years.

Until very recently, there have been few restrictions on the purchase of commodity houses. However, since 2010, municipal governments have limited the purchase of homes by non-residents to curtail speculation.⁵

Currently, more than 80% of homes are privately owned — evidence of successful privatization policies during the 1980s and 1990s. Unfortunately, China does not regularly publish homeownership data that are comparable to the accounting in other countries.⁶ However, according to recent figures cited by officials at the Chinese National Bureau of Statistics, the

³ It should be noted that economically affordable homes are in high demand, but the supply is not so readily forthcoming, given that other types of homes can be sold for much higher prices.

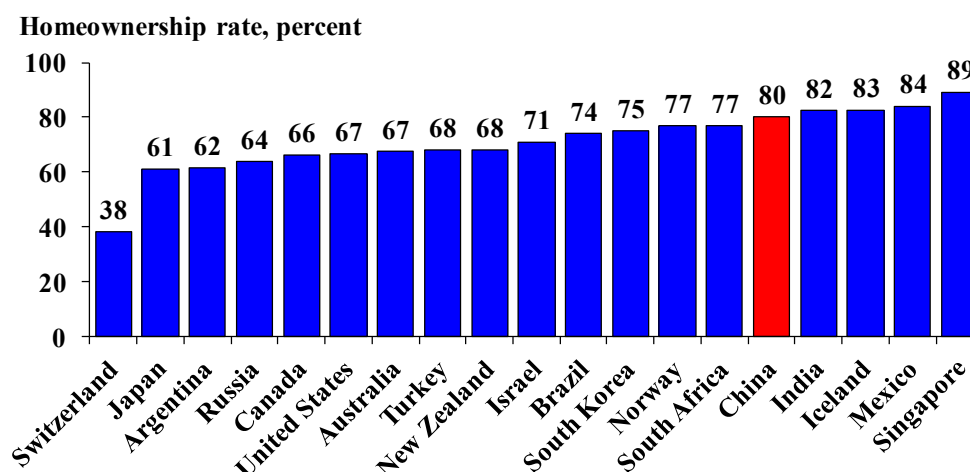
⁴ Hukou is a household registration system used in China. A hukou record officially identifies a person as a resident of an area and includes information such as name, parents, spouse, and date of birth. Social welfare benefits are usually tied to a person's hukou.

⁵ There have been rising concerns that such administrative measures may lead to distortion of prices in the housing market. See, for example, http://news.xinhuanet.com/house/2011-08/23/c_121896437.htm.

⁶ The “homeownership” rate published by the Ministry of Construction and Chinese National Bureau of Statistics is defined as the percentage of residential properties that are privately owned. In the United States and many other countries, the homeownership rate is defined as the share of households that own their homes.

homeownership rate is 80%.⁷ Figure 1 compares the homeownership rate in China to rates in several other countries. As can be seen, China has a higher rate than many more mature economies.

Figure 1: Homeownership rates in select countries



Note: Data are as of 2010 or most recently available.

Sources: EMF Hypostat, Whitehead (2010), Pollock (2010), U.S. Census Bureau, Euroconstruct, Chinese National Bureau of Statistics, United Nations, and Proxenos (2002) "Homeownership Rates: A Global Perspective." *Housing Finance International*. Vol. 17, Issue 2, 3-7.

2.3. Affordable Housing

Inequality in the availability of housing inevitably arises during the course of privatization for transition economies. Thus, one of the government's major goals in its housing reforms is to achieve fair, if not equal, allocation of housing resources. In addition, the government tries to maintain home prices at an affordable level for as large a segment of the public as feasible. Starting in the 1990s, working units no longer provided homes to their employees. To assist home purchases, subsidies were given and other arrangements made to aid most employees at state-owned enterprises based on the number of years they had worked and their living conditions. At present, the most important components in China's affordable housing policy portfolio are two programs: Economically Affordable Houses (already discussed) and Housing Provident Funds.⁸

Housing Provident Funds have helped China achieve a relatively smooth transition from working-unit-based housing allocation to the current system. It is essentially a compulsory savings plan with

⁷ <http://finance.ifeng.com/roll/20110922/4646923.shtml> last accessed 9/27/12

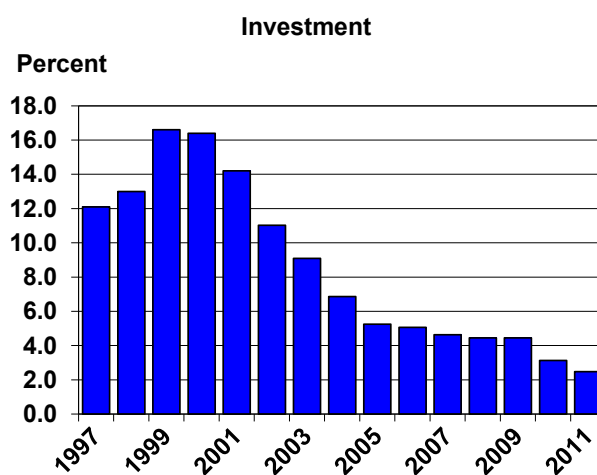
⁸ China's Housing Provident Funds are said to be modeled on Singapore's example. However, in the Singapore model, individuals borrow from their retirement funds to make a down payment, which must be repaid before retirement. This is not the case for HPF.

an employer-matched contribution. Most employers (but not the self-employed) are required to participate in the plan. Withdrawals from Housing Provident Funds can be applied only toward purchasing homes (either economically affordable or commodity houses) and for home improvements. Participants can also obtain loans from the Provident Funds at favorable terms, although the lending standards are relatively strict.

Money available through Housing Provident Funds are managed by municipal governments. As of year-end 2008 (the most recent year for which data are publicly available), the outstanding balance of all Housing Provident Funds was \$177 billion, with 77 million employees contributing. That year, the Housing Provident Funds extended \$30 billion of housing loans to participants.

Starting in 1997, the Chinese government has promoted economically affordable houses to boost the supply of homes available to the low-end market. The construction of these properties reached a high in 2000-01, accounting for more than 16% of investment in residential housing and nearly one-fourth of all homes sold in terms of living area. However, as shown in Figure 2, the market share of economically affordable houses steadily decreased after 2001. By 2010, only 3% of residential housing investment was devoted to economically affordable houses.

Economically affordable houses are heavily subsidized. Developers are able to obtain lower land prices for developing these properties and receive a tax/fee credit. Home buyers also receive a substantial subsidy. However, some see serious flaws in the design of the program. For example, Wang (2001), Sun (2004), Zhan (2003) and Duda et al. (2005) all argue that although such homes are priced substantially lower than market rates, the so-called affordable houses still remain too expensive for most households. In addition, although there are restrictions on these properties in terms of occupancy, many exceptions are made due to policy inconsistencies. As a result, some of these heavily subsidized residential properties eventually become commodity houses, shrinking the already-small pool of affordable houses.

Figure 2: Market share of economically affordable houses sharply declines

Sources: Chinese National Bureau of Statistics, China Index Research Institute

Since 2008, the government has somewhat shifted the emphasis from promoting private homeownership to providing more assistance to low-income households, motivated in large part by the substantial increase in income inequality that has occurred. Low-rent housing programs have therefore become a key policy focus. For differences between low-rent housing programs and economically affordable housing programs, see Table 1.

Table 1. Comparison of programs that assist low-income households

	Low-rent housing program	Public rent housing program	Economically affordable housing program
Target	Lowest income urban households	Low-mid income urban households, new employees and select residents with stable jobs but no hukou	Urban households that cannot afford commodity houses
Restrictions	<50 sqm. Need to quit when buying a home	<60 sqm	~60m. Can only be owner occupied before paying off the mortgage. If buying other homes, need to quit or pay the difference between affordable houses and commodity houses
Owner	Government	Investor (can be transferred, but not to owners)	Limited ownership, but can become full ownership after satisfying certain criteria

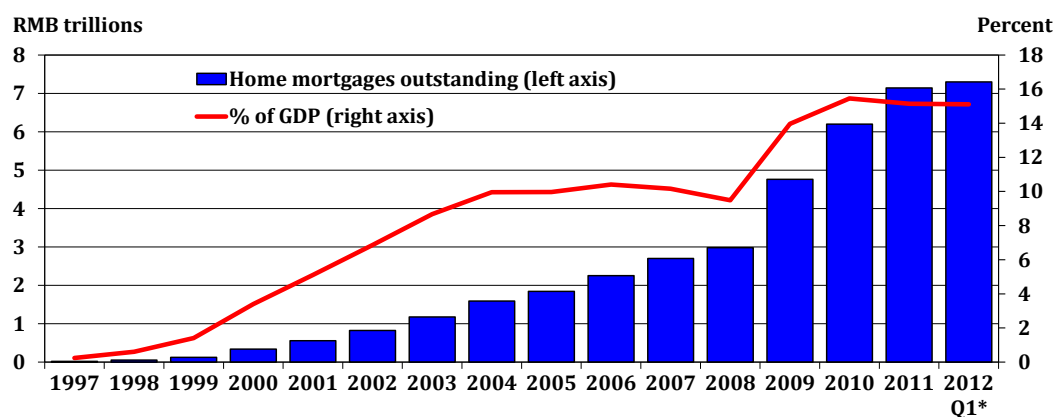
Source: CITIC (2011)

2.4. Sources of Funding

Who funds residential property purchases in China? A large portion of funding comes from households' own savings, which helps explain the relatively low consumption rate as a share of household income. A second source is employer-matched contributions from Housing Provident Funds. Mortgage loans are a relatively new way to obtain funds for housing. Most banks now offer variable-rate loans, and some offer fixed-rate loans. In addition to banks, employees can apply for loans from Housing Provident Funds, as noted above, at significantly lower rates and better terms. Because the secondary bond market in China remains underdeveloped, there are virtually no securitizations of mortgages or issuance of mortgage bonds.⁹

Figure 3 shows that residential property mortgages have been growing steadily, in terms of both outstanding amount and relative importance compared to GDP. Yet, although China's mortgage-to-GDP ratio has increased, Figure 4 shows that the ratio is still relatively low when compared with those in developed countries. But other developing countries such as Russia and Brazil have even lower mortgage-to-GDP ratios than China.

Figure 3: Home mortgages grow in amount and importance, 1997-Q1 2012

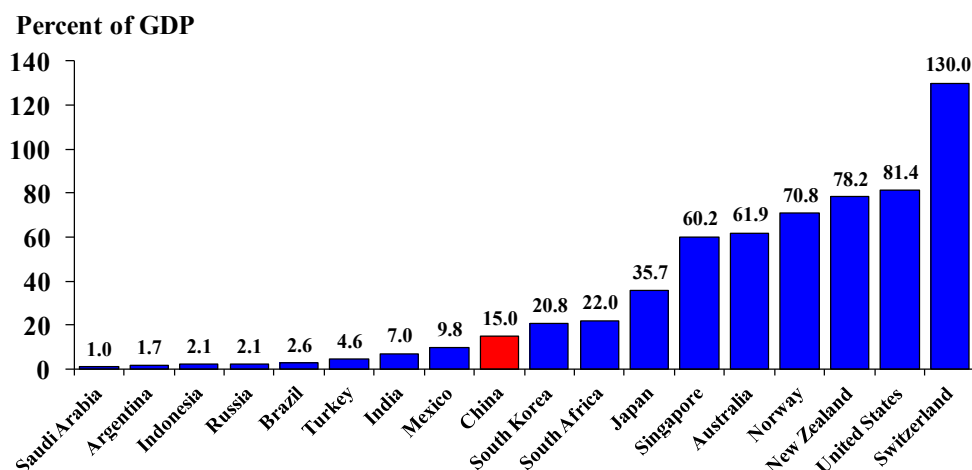


* Annualized.

Sources: People's Bank of China, Chinese National Bureau of Statistics, authors' calculation

⁹ China Construction Bank issued the first residential mortgage-backed securities in 2005 as part of a securitization pilot program approved by the People's Bank of China. The size of the issuance was 3 billion yuan.

Figure 4: Home mortgage debt-to-GDP ratios in selected countries

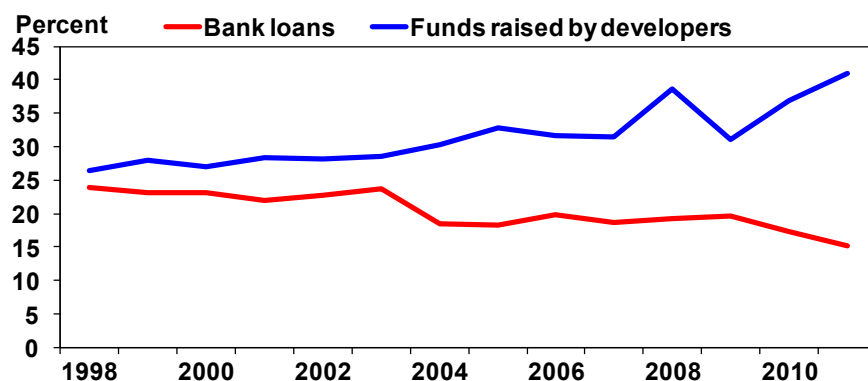


Note: Based on the latest available data. EMF Hypostat (2009) provides the latest data as of 2009, and Warnock and Warnock (2008) provides average data from 2001 to 2005.

Sources: EMF Hypostat (2009) for EU countries and Iceland, Russia, Norway, Turkey and United States; Warnock and Warnock (2008) for the rest of countries.

Figure 5 shows recent changes in funding sources for real estate developers. As of 2011, 41% of all real estate project funds were raised by developers themselves. The share coming from bank loans, by contrast, has been declining. This is partly due to the fact that banks have recently tightened their lending standards under pressure from regulators. It is also important to note that loans to real estate developers are increasingly being extended through trust companies and real estate investment trusts, which receive some funding from banks. In addition, a large share of the funds raised by real estate developers comes from pre-sales to individuals receiving funding through mortgages. According to the People's Bank of China, banks both directly and indirectly provide more than 50% of funding for real estate developers.

Figure 5: Sources of funding for real estate developers, 1998-2011



Source: Chinese National Bureau of Statistics

III. Regional Housing Bubbles

The September 2011 issue of the IMF's Global Financial Stability Report warned of potential financial instability provoked by a lengthy real estate building and pricing boom in China. According to the report, "Private-sector estimates suggest an even greater run-up in prices in some areas. Meanwhile, there is anecdotal evidence that many newly built units remain unoccupied, with investors focused exclusively on expected price gains. In this environment, the authorities' current efforts to cool the market might induce a sharper-than-expected correction in prices, depressing collateral values." There are increasing worries that a boom, combined with a slowing Chinese economy, will trigger the bursting of the housing bubble. The government's target for real GDP growth for 2012 is 7.5%, down from an actual rate of 9.2% in 2011.

3.1. What Is a Bubble?

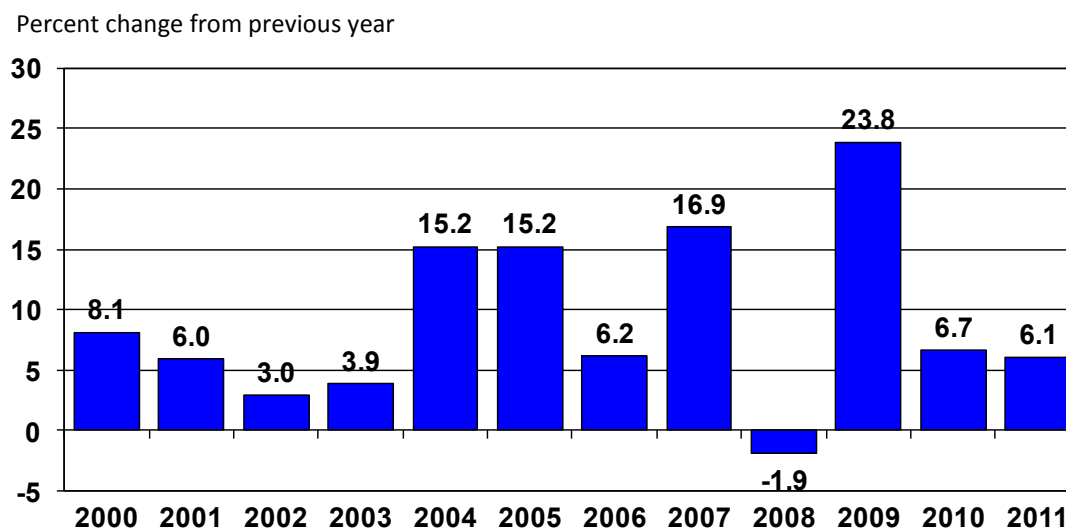
Defining the existence of speculative asset bubbles, of course, is not an easy task. Some believe that it is not possible to identify a bubble until it bursts. Others believe that investors cannot fully take advantage of mispricing in such a market — thus the existence of a bubble. In an interview with the New York Times, economist Robert Shiller lists factors giving rise to a bubble: ¹⁰

- *Sharp increases in the price of an asset like real estate or dot-com shares*
- *Great public excitement about said increases*
- *An accompanying media frenzy*
- *Stories of people earning a lot of money, causing envy among people who aren't*
- *Growing interest in the asset class among the general public*
- *"New era" theories to justify unprecedented price increases*
- *A decline in lending standards*

Based on this list, one might conclude that bubbles, despite recent government actions, do exist in some of China's regional housing markets — especially in big cities such as Beijing and Shanghai. Figure 6 shows that nationwide home prices have trended upward over the past decade, before abruptly declining in 2008. Then, in 2009, the growth in home prices reached a new high at 23.8%, before declining to 6.7% in 2010. These developments have attracted wide media attention, both at home and abroad, regarding the sustainability of China's housing boom and even raising concerns about a potential rupture of the housing bubble.

¹⁰ <http://dealbook.nytimes.com/2010/01/27/schillers-list-how-to-diagnose-the-next-bubble/>

Figure 6: Change in home prices

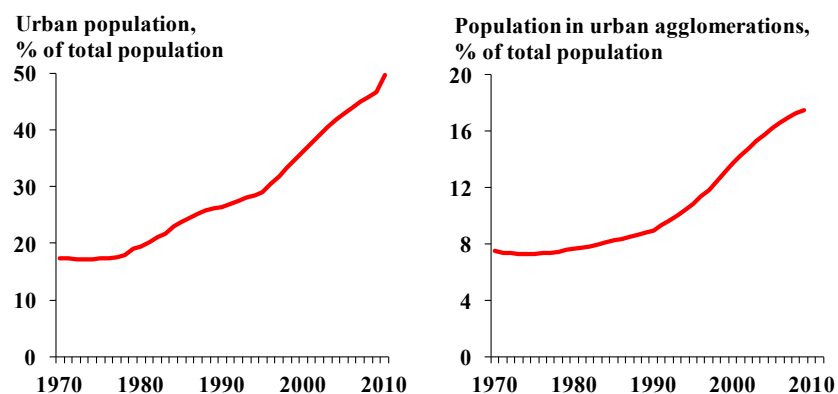


Sources: Chinese National Bureau of Statistics, authors' calculation

Note: Data are calculated using commodity residential property transaction volume and areas sold.

The past growth in the housing market has been partly sustained by strong economic fundamentals. In this regard, the Economic Intelligence Unit forecasts that the urban population is expected to increase by 26% in the next decade, creating strong demand for residential housing. Per-capita disposable income and the population of the middle class, moreover, are expected to continue to increase as the economy grows fairly rapidly, albeit at a slower rate than in the recent past. These factors provide strong support for expectations of an expanding housing market.

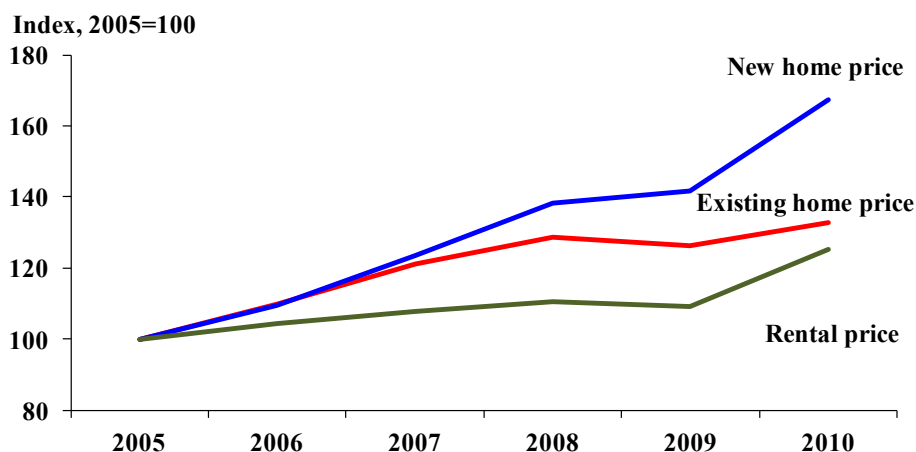
Already, 470 million people have moved from rural to urban areas over the past three decades. As shown in Figure 7, the share of the urban population has increased from less than 20% to about 50% as of 2010. Furthermore, the population in China's mega-cities now represents nearly one-fifth of its people. The increased demand for urban housing has helped to push home prices higher in these areas.

Figure 7: Urbanization is a driving force increasing home prices

Sources: Chinese National Bureau of Statistics, DataStream.

3.2. Emergence of Housing Bubbles

The price-to-rent ratio is an indicator that is frequently used to assess whether home prices are rising at unsustainable rates and thereby creating a bubble. Because there are no nationwide data for rents, we use Beijing data to illustrate. Figure 8 shows that home prices in Beijing have increased much faster than rental prices.¹¹ This is generally the case for other large cities. In addition, although existing home prices and rental prices began to show signs of convergence in 2010, the gap between new home prices and rental prices has nonetheless widened.

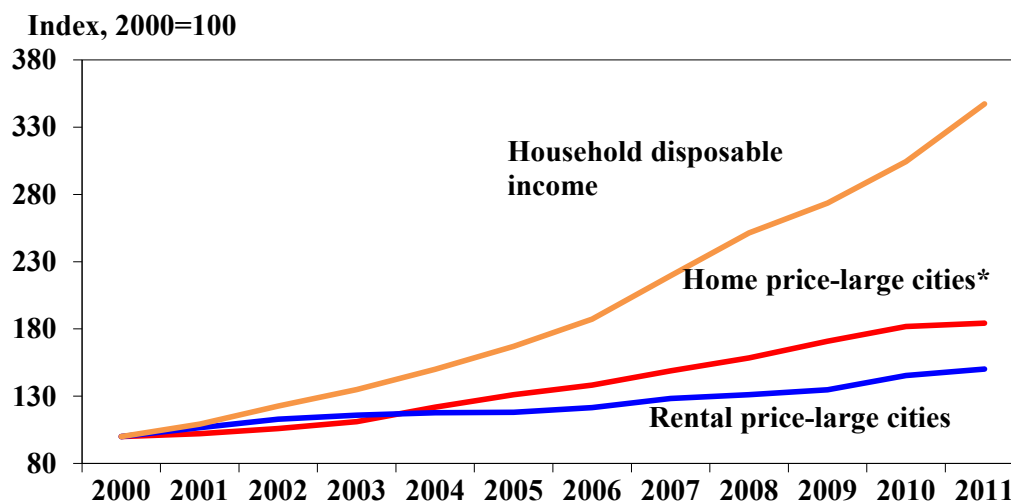
Figure 8. Home price increases in Beijing have far exceeded rental price increases

Sources: Chinese National Bureau of Statistics, DataStream

¹¹ Rental prices are measured in RMB per sqm (construction area) per month.

As Figure 9 shows, household disposable income has grown much faster than officially published home prices. It is not surprising given that household disposable income started from a fairly low level. However, the fact that income grows faster than home prices shows that the recent run-up in the housing market nationwide has somewhat strong fundamental support.

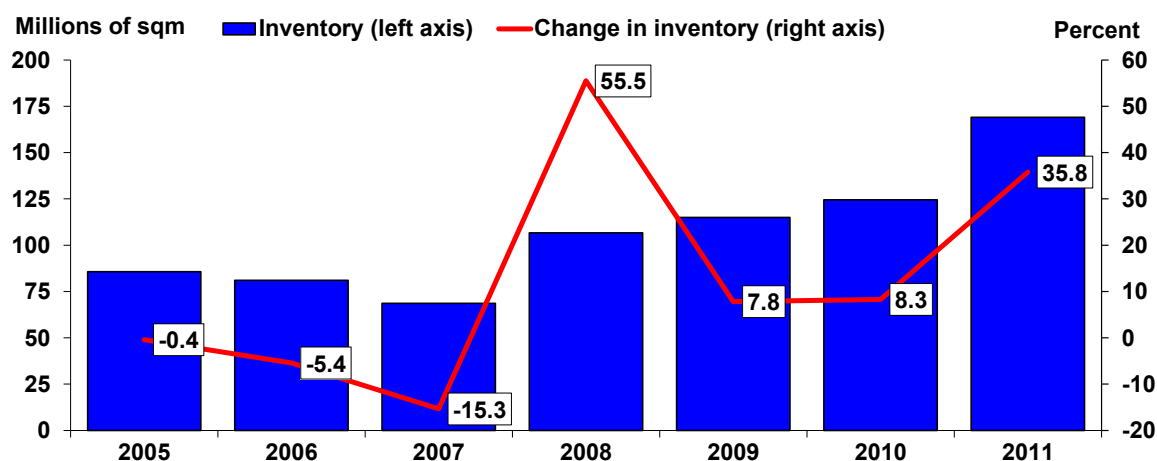
Figure 9: Disposable income grows faster than home prices



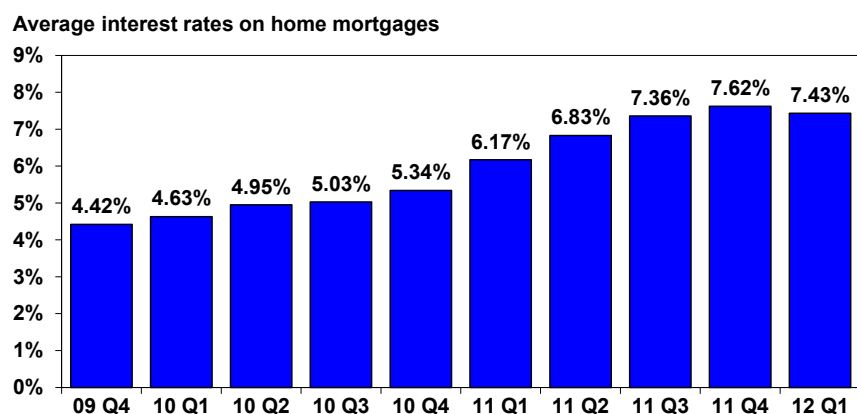
Note: 36 large cities from 2000 to 2010; 70 large and medium cities after 2011
Sources: Chinese National Bureau of Statistics, DataStream

There are, however, signs that the housing market is beginning to encounter problems. Figure 10 shows that the inventory of unsold homes has increased dramatically, by 35.8% in 2011. The year before, that inventory rose only 8.3%. Although China has not released vacancy data since 2008, according to recent research done by Standard Chartered Bank, the current inventory of vacant homes would take 35 months for the market to absorb.

Figure 11, moreover, shows that interest rates on home mortgages have increased by three percentage points from 2009 to the first quarter of 2012. This is a cause for concern because most home loans in China are variable-rate mortgages.

Figure 10. Rising inventory of homes

Note: China hasn't released vacancy data since 2008. According to recent research done by Standard Chartered Bank, current vacant residential properties would take 35 months for the market to digest.

Figure 11. Rising home mortgage interest rates

Note: A typical home mortgage in China is a 20-year adjustable-rate mortgage (ARM).

3.3. Determinants of Home Prices

There is a growing literature that focuses on the determinants of China's rising home prices.

Glindro et al. (2005) examined determinants of house prices in nine Asia-Pacific economies and found that the run-up there reflected "mainly an adjustment to more buoyant fundamentals than speculative housing bubbles." Many authors, however, pointed out that government supports have also played an important role in pushing up prices. Huang (2004) studied the housing markets and government behavior in three Chinese cities (Beijing, Chongqing and Jiangyin) and found that local governments' actions played a role in creating different housing stocks and market structures. In a

more recent study, Xu and Chen (2010) examine data from 1998 to 2009 and conclude that monetary policy clearly accelerated home price growth, while speculative investment inflow did not have a significant impact on home price growth after controlling for money supply growth.

Although there is a lack of evidence of a nationwide housing bubble, some studies find overpricing may still exist in mega-metropolitan areas such as Beijing, Shanghai and Chongqing. Ahuja et al. (2010), for example, find that “for China as a whole, the current level of house prices do not seem significantly higher than would be justified by underlying fundamentals. However, there are signs of overvaluation in some cities’ mass-market and luxury segments.”

Furthermore, an empirical study by Wu et al. (2010) concludes that “[although] we could not provide a definitive test with our limited data... multiple parts of the evidence... suggest the potential for substantial mispricing in Beijing and other Chinese housing markets.... The magnitude of the increase in land values over the past 2-3 years in particular in Beijing is unprecedented to our knowledge.”

Table 2 seems to indicate that home prices in Beijing have risen to a level where salaries/income cannot feed any further increase. An average Beijing family earns earned 7,033 yuan per month in 2010. The average monthly payment for a home in a suburban area, if they were to obtain a 30-year fixed-rate loan with a 20% down payment, is 5,510 yuan. Homes in city center (within the fourth ring) are even more out of reach because prices there are three times that of suburban homes. In addition, although we used 30 years in the calculation of monthly payments, most banks do not offer fixed-rate mortgages for longer than 10 to 15 years.

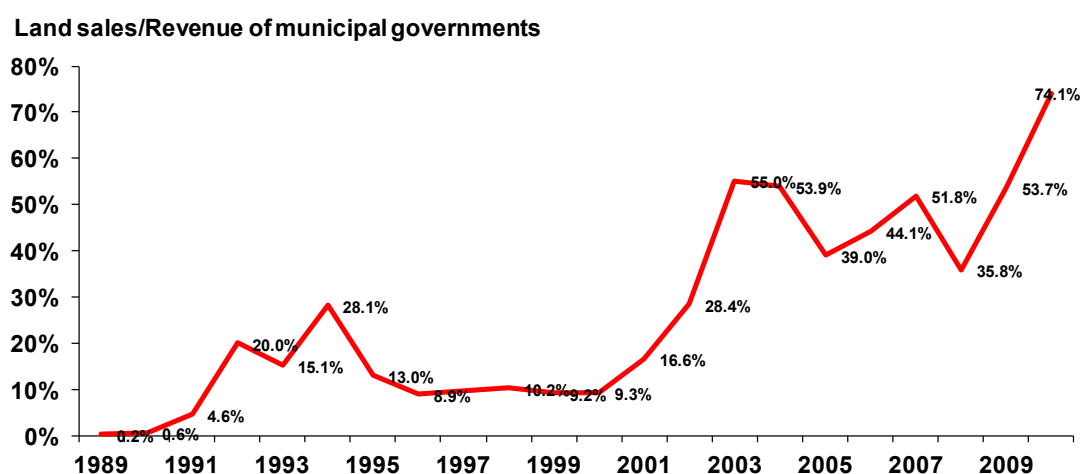
Table 2. Affordability of homes in Beijing

	City center	Suburban area
Median price per sqm (2010)	¥34,905	¥11,444
Home price (2010, assuming size is 90 sqm)	¥3,141,450	¥1,029,960
Down payment (assuming 20%)	¥628,290	¥205,992
<i>Compared with: Average deposit per household in 2009</i>	¥211,512	
Monthly payment (assuming 20% down, 7.05% mortgage rate for 30 years)	¥16,805	¥5,510
<i>Compared with: Median monthly household income in 2010</i>	¥7,033	

Sources: Chinese National Bureau of Statistics, Beijing Bureau of Statistics, authors' calculations

The fast growth of Chinese home prices is also partly caused by the behavior of municipal governments. Prior to 2007, the sale and leasing of state-owned land were an important source of revenue for local authorities. The ratio of land sales to municipal government revenue increased from less than 1% in the early 1990s to more than 50% by 2007. Since 2007, local governments no longer have full control over these proceeds. However, revenue from land sales (or rather, leasing) still remains a major portion of local governments' income. Furthermore, municipal governments are able to use land as collateral to obtain loans to fund various projects.

Figure 12: Land sale proceeds compared to on-budget revenue of municipal governments



Source: Guan (2011)

Municipal governments hold sway over the land that may be used for home building. Zheng and Zhang (2010) point out that in order to raise land prices and thereby increase revenue, municipal governments put restraints on the use of land for residential purposes. This helps explain the low price elasticity of land supply, which in turn pushes up home prices as demand increases. Furthermore, local authorities are especially reluctant to provide land for affordable housing projects because such development attracts low-income residents from surrounding regions and puts ever more pressure on public utilities and existing infrastructure.

The \$580-billion stimulus package created in response to the global financial crisis undoubtedly contributed to a real estate boom after 2008. As consumer demand in advanced economies weakened, the Chinese government accelerated investment to offset the decline in exports and keep the economy growing at a brisk pace. The government has proceeded cautiously in stimulating

demand, given the slowdown in growth in 2012, due to its concern that the earlier large stimulus led to excessive credit growth, including that flowing into residential real estate.

3.4. Policy Concerns

It is clear that signs of risk have emerged in China's real estate markets. According to recent media reports, vacant homes account for an ever larger share of homes sold, as indicated above, leading to worries about slackening demand and excessive investment. It is generally believed that the problems exist mainly in the commercial and high-end residential markets, not in the affordable housing segment. It is thus alarming to many that the share of investment devoted to affordable houses has been declining steadily. The share of high-end housing, in contrast, increased during the past decade. This raises the question of whether real estate developers can remain financially healthy when the demand for high-end homes drops off. If not, this will undermine the quality of bank loans.

The Chinese government's policy toward the housing market fluctuates as the economic climate changes. It is generally recognized that there are several stages of government policy change, as summarized in Table 3. During the most recent cooling-off period in 2010 and 2011, many municipal governments have banned non-residents from obtaining mortgage loans. In addition, one now must put down 60% for a second home and buy a third home with cash. These measures are aimed at tempering urban households' demand for multiple homes as investment properties. The goal is to effectively rein in prices without causing a "hard landing."

Figure 13 shows some of the government actions taken to moderate the increase in national home prices during the past decade. As can be seen, prices have continued to trend upward over the period despite multiple tightening efforts, which stirs concerns that prices are still rising too rapidly in some regions and may undercut the broader economy if they were to collapse. In response, many Chinese banks have canceled an informal 15% discount on first-mortgage interest rates, which had offset to some degree the government's efforts rein in rising house prices.

Table 3. Government-promoted booms and cooling-off periods in the housing market

Time period	Policy climate
1998-2002	Boom (Encourage the development of private housing markets)
2003-2007	Cooling off (Higher interest rates and bank required reserve ratios; administrative measures to stabilize home prices)
2008-2009	Boom (Lower interest rates and required reserve ratios; administrative measures and guidelines to encourage the development of housing markets; economic stimulus package; pilot securitization programs; personal home mortgages)
2010-2011	Cooling off (Higher interest rates and required reserve ratios; administrative measures and guidelines to rein in rising prices; new restrictions on home purchases and mortgage down payments)
2012	Boom (Lower interest rates and required reserve ratios; lower interest rates on mortgages; easier provident fund policy and down payments in certain regions)

Source: Authors

3.5. Some Empirical Analysis

Quantitative studies of China's housing market suffer from problems in the quality of housing data. The Chinese National Bureau of Statistics used to publish 35 metro housing price indices, together with a national composite. However, these indices were discontinued in 2011. Currently, NBS publishes housing price indices for 70 metros, but no longer publishes national composites. In addition, according to NBS, data after 2011 use a different methodology and are not directly comparable with components of the previous 35 metro price indices.

It is not likely to produce a weighted composite because there are no transaction data for the 70 metros. Furthermore, these indices are normalized, making it impossible to conduct cross-region comparison of home prices.

Following Franklin et al. (2009), we use property transaction volume and area of properties sold to calculate house prices per square meter. This measure can be calculated at the national level for all commodity properties from January 1996 onward and residential properties from January 1999. It can also be calculated at the province level, for commodity properties only, starting in January 2004.

For purposes of empirical analysis, we produced a national home price index. This is calculated as the total transaction volume in the previous 12 months divided by the total area of properties sold in the same period.

We use a simple empirical model to examine possible determinants of home prices nationwide and in Beijing. Table 4 summarizes the results. We use the percentage change in real home prices as the dependent variable. Although changes in household income and urban population, and the tightening of housing policy, all have statistically significant impacts on home prices in Beijing, their impacts on nationwide home prices are not significant. This is important because it reinforces the view that it is much easier for the central government to influence home prices in areas close to it than prices in more remote sections of the country.

Table 4: Some empirical results

	Dependent variable: real home price (% change)	
	Nationwide	Beijing
Real disposable income per person (% change)	1.48	1.99***
Urban population (% change)	10.25	58.36***
Number of months for consecutive policy tightening	1.16	-6.03***
R-squared	0.4409	0.9893
Adjusted R-squared	0.2313	0.9787
Number of observations	12	7

Note: *** denotes significance at 1% level.

One caveat for our analysis is that home price data in China are problematic enough that these results are only illustrative. For example, home purchase contracts can be written so that part of the price shifts toward “home improvement” costs (for which there are no data). Unfortunately, even data collected independently by private data vendors suffer from the same problem. That said, home prices across regions are clearly not uniform. For more information, see Appendix Tables 2 and 3.

We believe that the recent home price increases were largely driven by fundamentals with a significant assist from the stimulus. It is not likely, it appears, that the Chinese economy will suffer a hard landing due to a collapse in home prices. However, despite the government's efforts, the

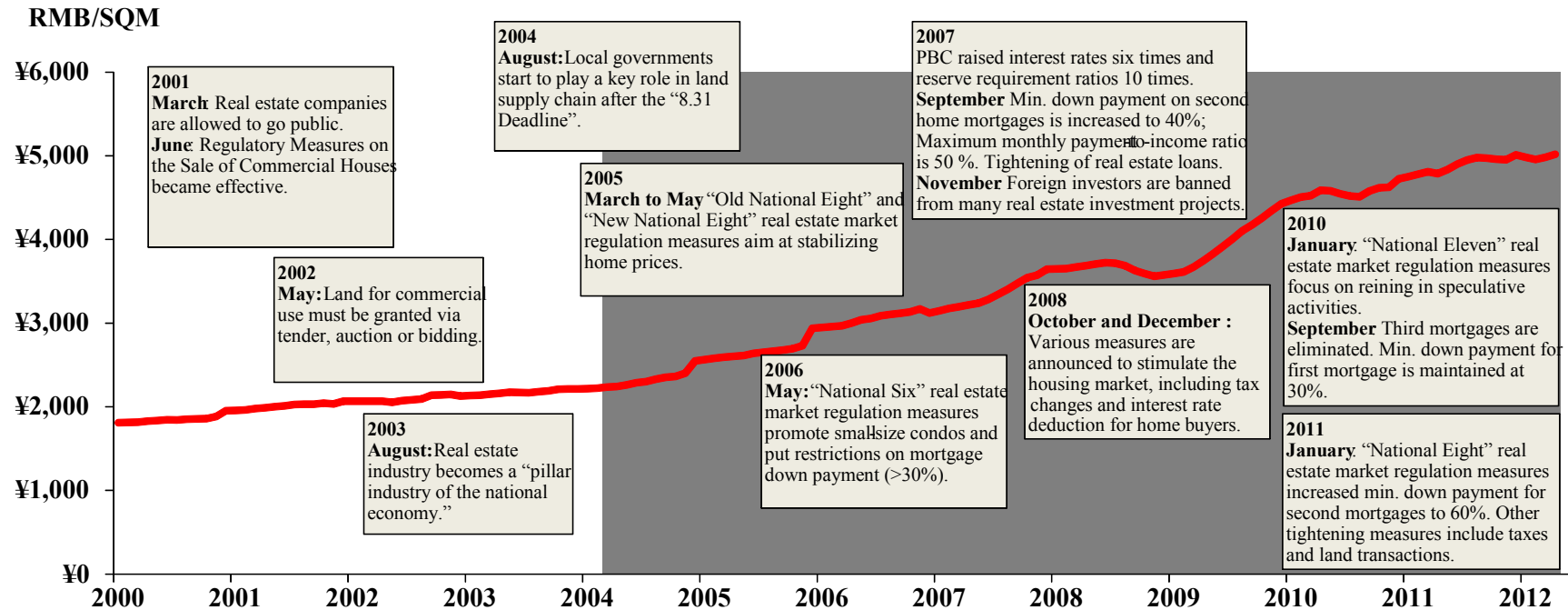
condition of real estate developers does merit some concern. It was recently reported that smaller builders are facing a tightened lending environment, and their profit margins are shrinking. Since these firms usually have a debt-to-asset ratio above 70%, their solvency is being severely tested as the economy continues to slow. Smaller developers are also being acquired by larger ones. Yet a positive sign is that most real estate developers listed on the Shanghai and Shenzhen stock markets remained profitable in 2011.¹²

The bigger concern, of course, is whether the problems in the real estate market will eventually threaten the health of China's banking sector. A "special territory," Hainan province, experienced dramatic real estate booms and busts in the early 1990s. Hainan was selected as a pilot region for housing reform. From 1989 to 1992, housing prices in Hainan more than quadrupled.¹³ The boom ended when the government decided to curtail bank credit flowing into the real estate sector. The bursting of the bubble put \$3.6 billion of nonperforming loans on the balance sheets of the Big Four commercial banks. It was not until 2006 that the insolvent real estate developers were resolved and the housing inventory in Hainan returned to a more sustainable level. Fortunately, the government can take quick and decisive action if it so chooses to address any sign of a sharp decline in home prices.

¹² Standard & Poor's recently warned about increasing liquidity pressure for Chinese real estate developers in the next 6 to 12 months. See <http://online.wsj.com/article/SB10001424052970204831304576595712512609964.html>

¹³ <http://news.163.com/07/0831/09/3N7CBP8A00011SM9.html>.

Figure 13. National home prices in China are insensitive to tightening policies



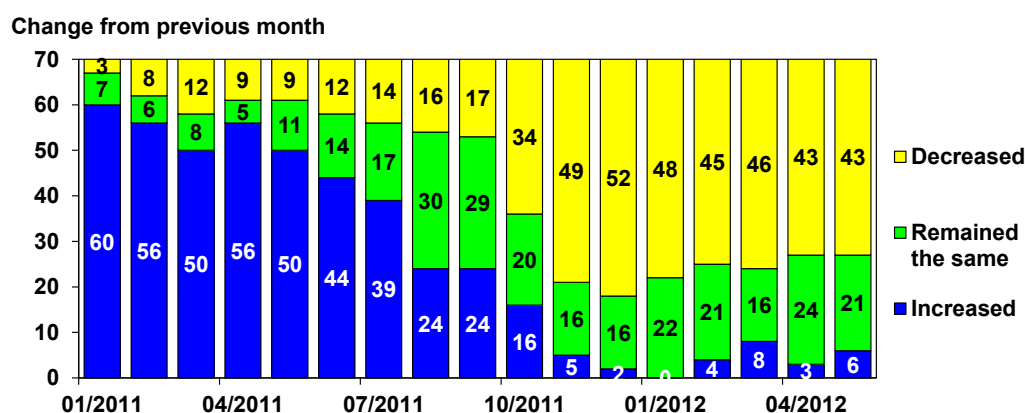
Note: Home prices are average of previous 12 months. Shaded areas denote tightening of housing policy.

IV. Conclusion and Policy Recommendations

The landscape of China's housing market has changed dramatically over the past three decades. After successfully privatizing the housing sector in the 1990s, policy makers have consistently promoted homeownership for the average Chinese household. However, after years of extraordinary growth, there are concerns that housing price bubbles have developed in some regions. The collapse of such bubbles could lead to a further slowdown in the nation's economy.

To combat large and numerous housing price bubbles, Chinese policy makers implemented a series of corrective policies after 2008. They include increasing bank required reserve ratios 12 times in 2010 and 2011, expanding the cushion against any housing-related losses. Furthermore, the People's Bank of China increased interest rates three times in 2011 to curtail demand for mortgages. Administrative measures to rein in speculative activities and investment purchases have also curtailed the demand as home prices started to fall in some, but not all, regions (see Figure 14 and Appendices 2 and 3). Real estate developers now face tightened credit conditions and consequently have produced fewer housing units. A challenge that remains for policy makers is to ensure a "soft landing" in the housing sector and avert a financial crisis should some developers become insolvent. China has a large and expanding informal lending market for which no reliable statistics are available. In recent months, the shadow banking sector has become more active, adding to uncertainties about the consequences of a potential real estate bust.

Figure 14. Home prices start to stabilize and even decline in some regions
Home price index for 70 metros



Source: Chinese National Bureau of Statistics

To more effectively combat housing bubbles, the introduction of property taxes should be considered as a complement to the monetary policy instruments of higher interest rates and reserve requirement ratios. Indeed, Crowe et al. (2011) suggest that “higher rates of property taxation can help limit housing booms as well as short-run volatility around an upward trend in prices.” Of course, the 70-year land-use right specified by current law has created a legal issue involved in taxing properties that are not “owned” by the occupants.

It is also important to recognize that home prices follow different trajectories in different regions. Therefore, it may be reasonable to tailor policies to different localities. It should be noted that municipal governments have every incentive to support local housing market expansion to ensure robust GDP growth, despite the central government's efforts to limit bubbles.

That said, our view on the Chinese housing market and economy is cautiously positive. The policy of requiring higher down payments when lenders extend mortgages is helpful in curtailing pricing increases. Significantly, China has accumulated a large cushion against the possibility of a housing crash. The government debt level, although rising in recent years, is still fairly low at approximately 40% of GDP compared with 92% in the United States, 80% in Germany and 220% in Japan. Furthermore, China has \$3 trillion in foreign exchange reserves that it can access when needed, and the People's Bank of China holds nearly \$700 billion in required reserves. Chinese banks depend on deposits as a major source of funding. Consequently, they are less vulnerable to a liquidity crunch than U.S. banks, which are more reliant on short-term borrowed funds.

Other countries' experiences can perhaps shed some light on the future direction of China's housing policy. The Asian giant borrowed the concept of Housing Provident Funds from Singapore. Centralizing and ensuring efficient use of these funds can assist the promotion of affordable housing policies. A growing chorus of voices in the United States is urging another look at public policies that promote homeownership. Should homeownership be a right or a privilege? Should promoting it always be an important aspect of a country's economic policy? Recent events in the U.S. housing market seem to suggest that promoting homeownership at the expense of lower loan quality, higher levels of household debt and higher home prices can lead to unintended consequences for the economy. Focusing greater attention on renting as an alternative merits more consideration because it better accommodates a mobile labor force such as China's and helps address the demand from lower- and middle-income households.

Furthermore, to better assess the effectiveness of current policies and identify early signs of a housing bubble in the future, regulators should improve their data collection practices and compile consistent home price indices at the national as well as local level. Lastly, China has a relatively underdeveloped bond market. To provide home financing for average households, it is desirable to deepen the bond market and perhaps allow mortgage-backed securities and/or covered bonds. In the long run, a consistent and balanced housing policy will bring more resilience to the Chinese economy and promote stable economic development.

Appendixes

Appendix 1. A Timeline of Key Housing Policies

Pre-reform	By law, all lands are publicly owned. The Constitution provides that “no organization or individual may appropriate, buy, sell or lease land or otherwise engage in the transfer of land by unlawful means.” The government provides the free right to use land without a time limit. That right cannot be transferred to others.
1980	A land occupancy charge is imposed on foreign enterprises in “special territories” and coastal cities.
1985	The “Law of Land Administration of the People's Republic of China” is announced. The Shenzhen branch of the China Construction Bank issues the first home mortgage loans to a customer in China.
1986	Reform of the urban housing system is initiated.
1987	The “Law of Land Administration of the People's Republic of China” is enacted, confirming the separation of land ownership and land use rights. The first public auction of the right to use state-owned land takes place in Shenzhen.
1988	The “Implementation Plan for a Gradual Housing System Reform in Cities and Towns” marks the nationwide implementation of housing reform. A constitutional amendment provides that “no organization or individual may appropriate, buy, sell or otherwise engage in the transfer of land by unlawful means. The right to the use of land may be transferred according to law.”
1994	“A Decision From the State Council on Deepening the Urban Housing Reform” is issued, which defines the goal and overall strategy of reform. It lays out all aspects of housing reform, such as Housing Provident Funds, rent reform, sale of public housing, provision of affordable housing, and property rights.
1995	The Hainan province real estate bubble bursts.
1998	“Circular of the State Council on Further Deepening the Urban Housing System Reform and Accelerating Housing Construction” unveils the blueprint for commercializing urban housing: Families with the lowest incomes rent the low-rent housing provided by the government or the work unit; families with medium to low incomes purchase economically affordable houses, and families with high incomes purchase and rent commodity houses at market prices.
1999	The “Guidelines for Personal Consumption Credit Operations” marks the beginning of personal loans, including mortgages.
2000	The end of housing allocation in China.
2002	Land Public Bidding System is enacted.
2003	“Circular of the State Council on Promoting the Continuous and Healthy Development of the Real Estate Markets” acknowledges that the real estate industry is a pillar of the economy.
2004	Starting August 31, all lands are publicly bid and auctioned. Home prices soar.
2005	The “Eight Rules,” the “New Eight Rules,” and “Opinion of Such Departments as the Ministry of Construction on Effectively Stabilizing House Prices” signal the central government’s first efforts to rein in home prices.
2006	“Opinions of the Ministry of Construction and Other Departments on Adjusting the Housing Supply Structure as Well as Stabilizing Housing Prices” requests municipal governments to produce detailed development plans on residential housing. It is required that 70% of homes should be smaller than 90 sqm.
2007	The government says it will increase taxes to discourage sales of large homes and start taxing the appreciation of property values based on actual market prices. “Certain Opinions About Solving the Housing Hardships of Urban Low-Income Households” confirms that affordable urban housing is a top policy priority.

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	<p>The down payment requirement for first-time homeowners is increased to 20%. Required down payments for second homes are raised to 40% from 30%, and requirements for commercial properties increase to 50% from 40%.</p> <p>The government bans foreign investors in Chinese real estate from borrowing offshore.</p> <p>Monthly payment-to-income ratio is capped at 50%.</p> <p>Property Right Law is enacted.</p>
2009	<p>A series of policy changes is announced to support the property markets: lower mortgage rates, reduced down payments, lower transaction taxes.</p> <p>In December, further measures are announced to support the property market, including cuts in business and transaction taxes for real estate sales and policies to make it easier for developers to obtain credit.</p> <p>Also in December, China announces that individuals must own their homes for five years to be eligible for sales tax exemption, up from the previous minimum of two years. It also says it will increase the supply of lower-cost housing.</p>
2010	<p>In March, China orders 78 state companies whose core business is not property to submit plans to divest from the sector within 15 working days.</p> <p>In April, "Notice of the State Council on Resolutely Curbing the Soaring of Housing Prices in Some Cities" is issued. China announces a rise in down payments required on second homes to 50% from 40%. The government says banks must charge a minimum mortgage rate on second homes of 1.1 times the benchmark interest rate and increases down payments on first homes larger than 90 square meters to 30% from 20%.</p> <p>In August, regulators order lenders to test the impact of a fall in house prices of up to 60% in key cities and instruct banks to stop extending mortgages to people buying their third homes in some cities.</p>
2011	<p>In January, "National Eight" regulations increase minimum down payment for second mortgages to 60%. Some cities, including Beijing, put new restrictions on home purchases by non-residents. Other tightening measures involving taxes and land transactions are enacted throughout the year.</p>
2012	<p>Provident funds in some regions ease loan policies for first-time home buyers.</p>

Sources: Media reports, People's Bank of China, State Council, authors

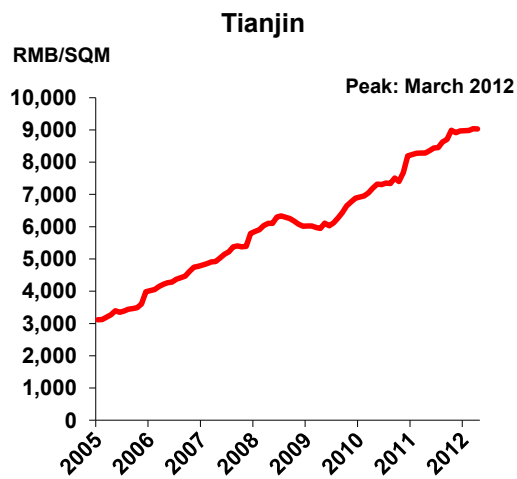
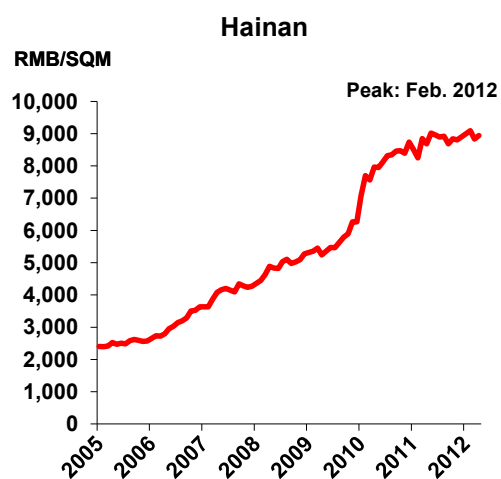
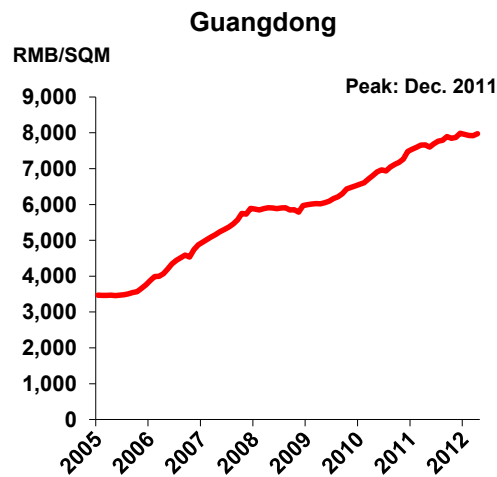
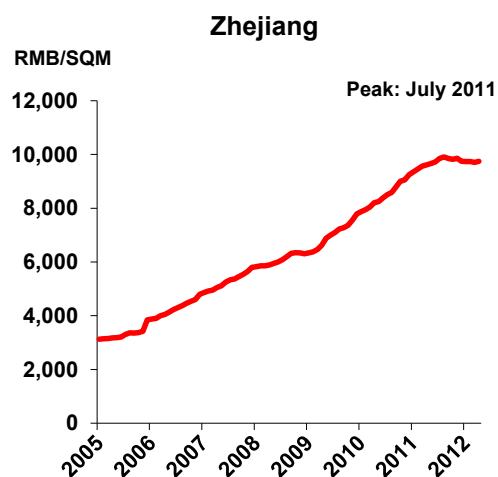
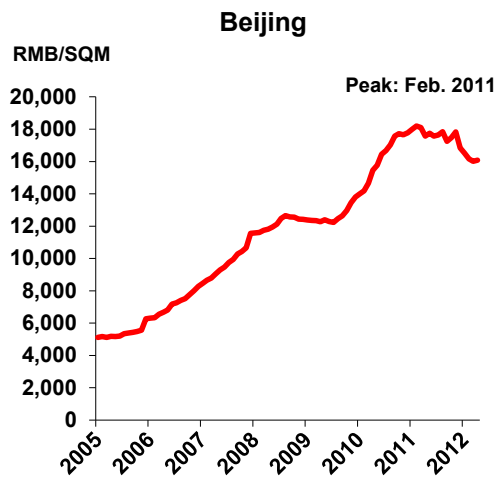
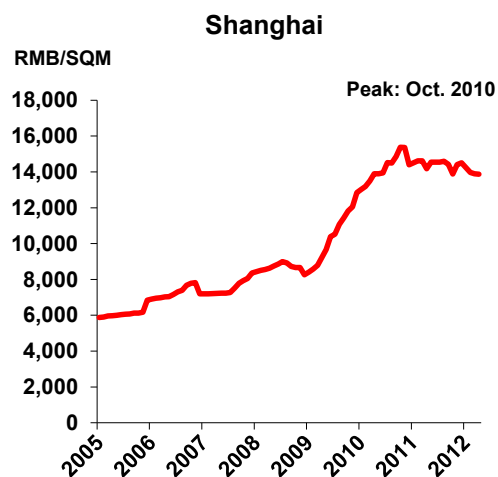
Appendix 2: Home Prices in Provinces

Residential property prices in Beijing, Shanghai, Zhejiang, Hainan and Guangdong have experienced slow or negative growth in 2011 and 2012. In contrast, inland provinces such as Jiangxi and Shaanxi have seen extraordinary growth.

Annualized growth

	Dec. 2004-Dec. 2007		Dec. 2007-Dec. 2010		Dec. 2010-April 2012
Beijing	31.7%	Hainan	24.0%	Jiangxi	51.5%
Zhejiang	23.1%	Beijing	23.3%	Shaanxi	48.5%
Tianjin	23.0%	Zhejiang	19.9%	Fujian	37.1%
Fujian	22.3%	Jiangxi	18.1%	Hubei	31.3%
Hubei	22.2%	Sichuan	17.5%	Sichuan	27.8%
Jiangxi	22.1%	Tianjin	17.5%	Hunan	27.6%
Sichuan	22.1%	Shanghai	16.2%	Yunnan	24.5%
Hainan	21.1%	Fujian	16.1%	Guizhou	24.5%
Guangdong	19.2%	Guizhou	15.9%	Gansu	22.8%
Hebei	18.3%	Chongqing	15.9%	Henan	22.4%
Guizhou	16.0%	Anhui	15.4%	Hebei	20.9%
Chongqing	15.5%	Hubei	14.3%	Shandong	20.8%
Shaanxi	14.9%	Hebei	14.1%	Anhui	19.4%
Jiangsu	14.8%	Jiangsu	13.9%	Xinjiang	19.1%
Anhui	14.3%	Shaanxi	13.8%	Ningxia	17.8%
Hunan	14.0%	Guangdong	13.6%	Jiangsu	17.3%
Liaoning	13.2%	Hunan	13.0%	Chongqing	15.6%
Henan	12.7%	Xinjiang	11.8%	Tianjin	13.8%
Shanghai	12.6%	Henan	11.6%	Heilongjiang	11.7%
Shandong	12.5%	Shandong	11.6%	Guangxi	10.0%
Xinjiang	9.6%	Shanxi	11.6%	Guangdong	8.9%
Heilongjiang	8.6%	Heilongjiang	11.5%	Zhejiang	7.2%
Shanxi	8.1%	Liaoning	11.0%	Liaoning	6.6%
Yunnan	8.1%	Ningxia	9.8%	Hainan	3.2%
Gansu	7.7%	Gansu	9.4%	Shanxi	0.6%
Guangxi	7.0%	Guangxi	9.4%	Shanghai	-4.9%
Ningxia	4.3%	Yunnan	8.1%	Beijing	-12.5%

Appendix 3. Home Prices Are Declining Where Sales Prices Are Highest



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