

Dissecting China's Property Market Data

Meiping (Aggie) Sun

Key Points

- A potentially enormous new housing supply is underway in China, but the price of new homes moves almost perfectly with sales of new residential floor space rather than with completed floor space.
- There are low maintenance costs for buyers after purchase due to the lack of annual property tax and negligible depreciation of bare-shelled housing units.
- Developers are under pressure to raise more revenue mainly due to high interest-rate borrowing from shadow banks.
- The probability of a systemic collapse of housing market is minimal with existing taxation systems, monetary policy and the continuing urbanization process.

Introduction

The existence of high prices and enormous floor space under construction has led many to believe that there is a “bubble” in China's property market which may burst, similar to what happened in Japan in the early 1990s. Others point out that the housing market is behaving normally and follows mini boom and bust cycles like other industries. In this paper, I dissect China's property market to provide a plausible explanation of what happened in the past and what is likely to happen in the near future.

Background

Before 1998, China did not have a typical real estate market. In rural regions, peasants built their own homes on land allotted to them by the state or the collective. In urban areas, most of the housing was allocated by the government through “work units.”¹

“Commercial residential housing units,” the typical houses and apartments bought and sold in real estate markets, was not a new term to Chinese people. From the early 1980s, the construction of and sales of “commercial residential housing units” existed. Since China has remained caught in a traditional low-wage system, most individual consumers could not afford housing prices or commercial rents at the market price. Besides, work units treated housing as a social obligation towards their employees, particularly, when market house prices were unaffordable for most wage-earners. Therefore, work units acted as mediators between housing suppliers and consumers. Work units purchased housing at market prices and then resold to employees at affordable prices through a welfare-housing distribution system (see Figure 1).

The real estate market, which has played an important role in China's economic growth, was introduced to transfer ownership of the vast majority of housing to individuals when the state decided to initiate land reforms in the late 1990s. By September 1999, China abolished the welfare-housing distribution system and entered the “retail era” of real estate. The first home mortgages were extended soon after that.

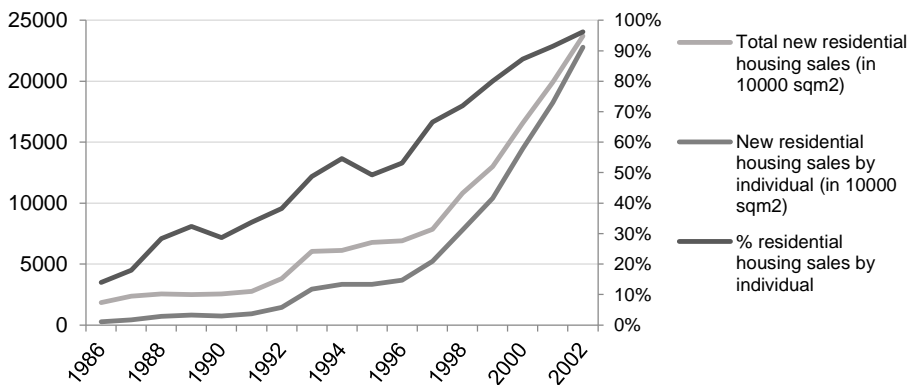
What happened?

Since 2000, house prices almost tripled and, apart from a brief dip in the midst of the 2008 financial crisis, they have continued to rise over time (see Figure 2).

¹ A work unit (*danwei*), literally means a place of employment in China. But it has many other economic, social, and political functions and plays a crucial role in employees' lives. For instance, work units assigned employees and their family living quarters.

At the same time, there has been a massive construction of new homes. Total floor space of residential housing under construction² has accelerated since 2000. By the end of 2014, there was about 5,150 million square meters of new housing under construction. The growth of completed residential housing continued to be very slow over the same period, implying that the share of housing projects that are completed has dropped sharply over time (see Figure 3). A massive amount of floor space currently under construction implies an enormous potential housing supply.

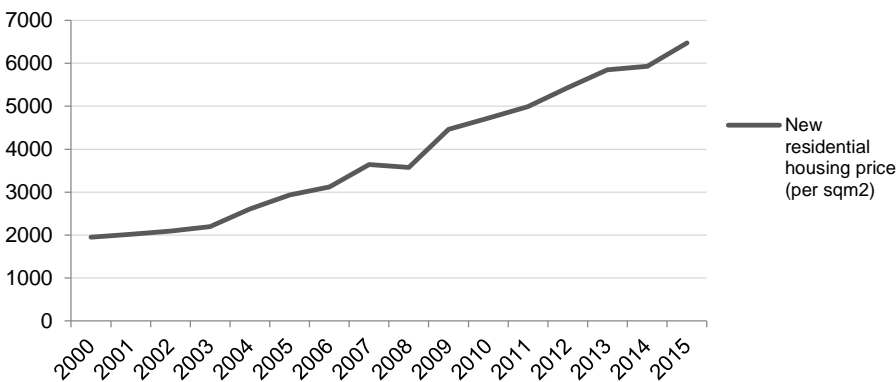
Figure 1: Total new residential housing sales, new residential housing sales by individual and percentage residential housing sales by individual



Source: National Bureau of Statistics of China (NBSC)

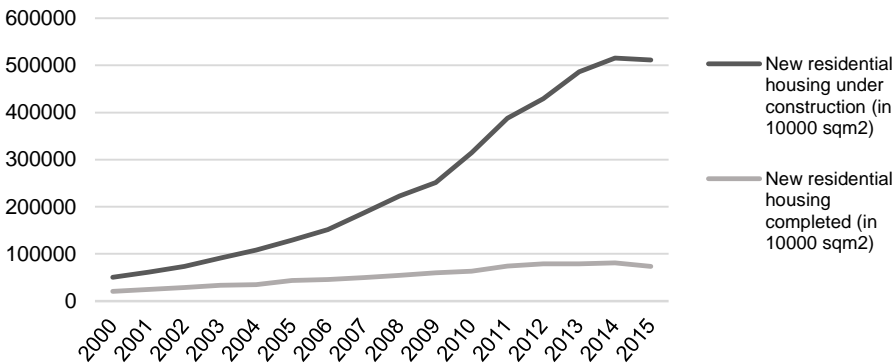
² Floor space of building under construction refers to newly started buildings, buildings started earlier and continued, buildings suspended but restarted, buildings completed and buildings started but suspended. Even just at the stage of laying the foundation, the total proposed floor space of the building will be counted as under construction. Buildings completed during that period are also counted as under construction for the same period because they have to pass quality inspections and be approved by the authorities before they can be counted as floor space completed.

Figure 2: New residential housing price (Yuan per square meter)



Source: NBSC

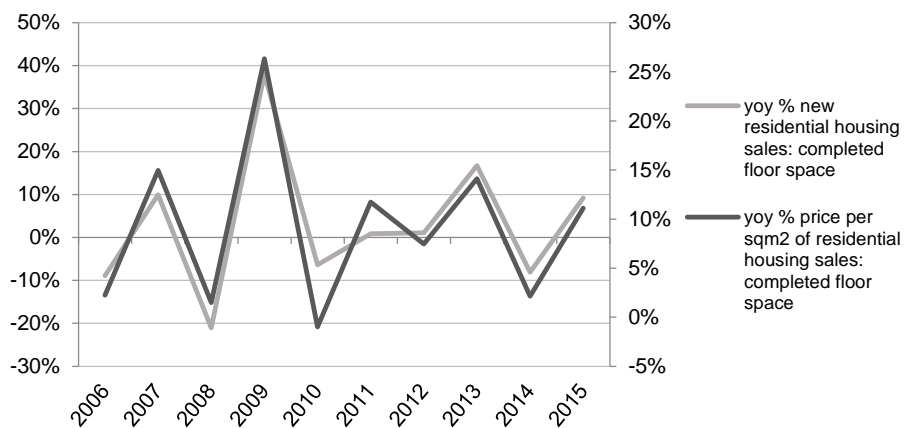
Figure 3: Comparison of new residential housing under construction and completed



Source: NBSC

Despite a gigantic potential housing supply historically, the price of new homes evolves almost perfectly (correlation coefficient of 0.94) with sales of new residential floor space, the demand for houses, (See Figures 4 and 5), than with completed floor space of residential housing supply (see Figures 6 and 7).³ This indicates that there has been a negligible influence of housing supply on housing prices.

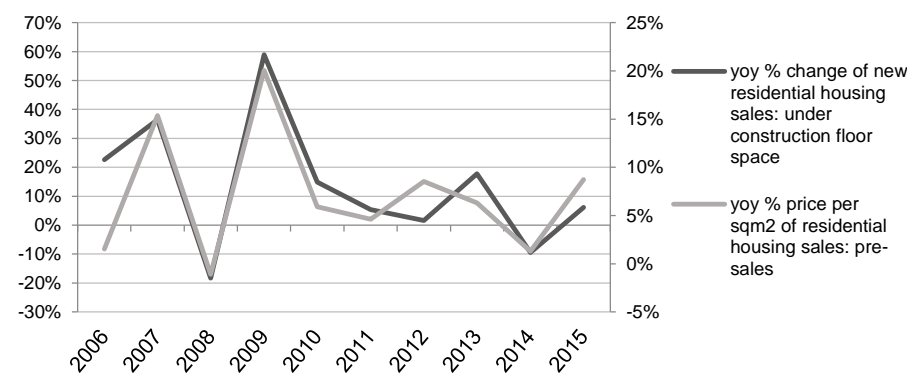
Figure 4: Price of new residential housing versus sales of new residential floor space (completed floor space)



Source: NBSC

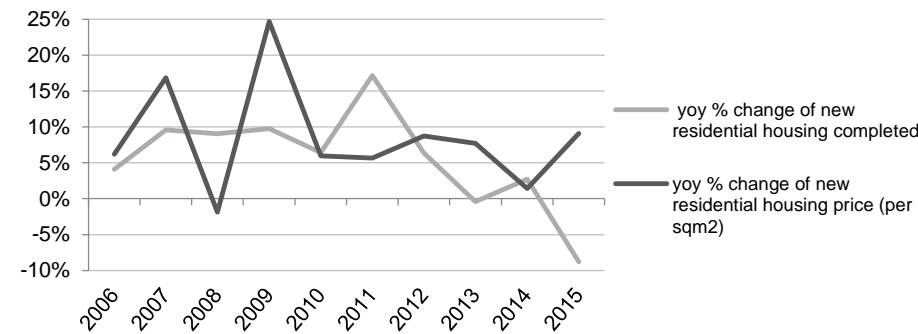
³ Before August 2005, there was only one aggregate monthly new housing sales figure which is the sum of 1) closing of completed floor space in that month, and 2) closing of pre-sales in that month. After August 2005, monthly new housing sales are listed under two numbers: 1) closing of completed floor space in that month 2) registered sales of pre-sales in that month. Due to this fundamental change in housing sales statistical caliber, housing sales data before vs. after August 2005 cannot be compared directly. Hence, in this research, we only take into account the housing sales data after August 2005 (see Figures 4 and 5).

Figure 5: Price of new residential housing versus sales of new residential floor space (pre-sale floor space)



Source: NSBC

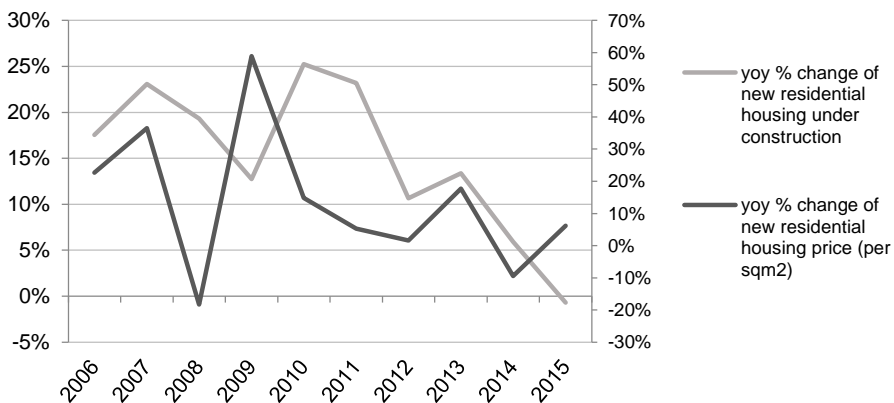
Figure 6: Price of new residential housing versus residential housing completed



Source: NBSC

The price to income ratio varies vastly among different cities in China (see Figure 8).⁴ First and second tier cities have much higher price to income ratios than smaller cities and towns. Coastal cities, on average, have much higher price to income ratios than inland cities. An extreme case is that of the city of Sanya (China's Hawaii) which has a price to income ratio of over 30%, the highest in China. During the past decade or so (see Figure 9) new residential housing has generally become more affordable.

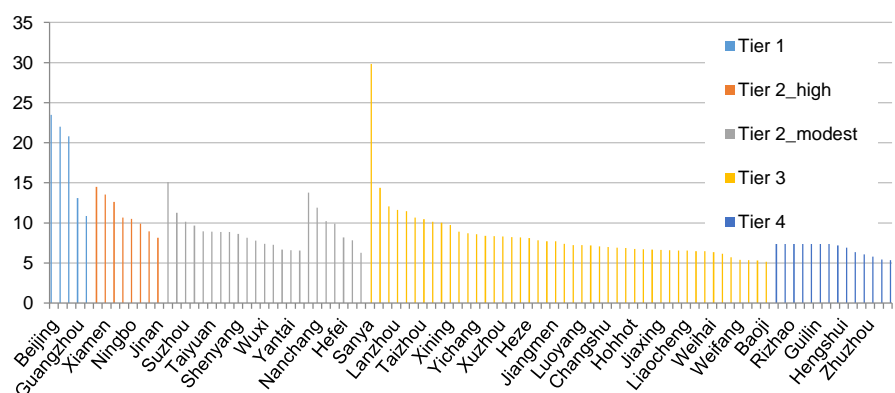
Figure 7: Price of new residential housing versus residential housing under construction



Source: NBSC

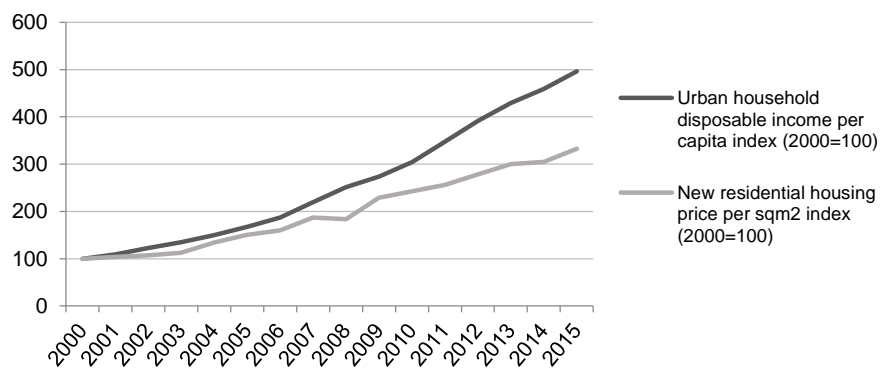
⁴ Housing Price-to-Income Ratio at city level (2014): The calculation is based on 100 sqm² because housing space is measured in construction area in China (in the US, the housing space is always measured as usable area). The usable area is usually between 70% and 80% of construction area. For aggregate household disposable income, average household size in China is assumed to be 3.

Figure 8: The price-to-income ratio in different cities in China



Source: NBSC

Figure 9: Urban household disposable income index versus new residential housing price index



Source: NBSC

What may happen next?

Concerns about a collapse in China's property market have been elevated due to deteriorating sales figures and reports of large price cuts. There is no doubt that the property market is experiencing a correction. Monthly price changes have been slowing since late 2013, and property developers report that sales have fallen by about 9% year-to-date since April 2014. New housing starts (measured in gross floor area) are down 25% year-to-date although overall property investment is up by 16.6%. The risk of a systematic collapse of the housing market is considered minimal with the pace of urbanization, favorable taxation, housing market financing, and a lack of alternative investments.

When observing surging Chinese property prices and declining affordability in large cities, many tend to draw comparisons to Japan's housing bubble in the late 1980s. China undoubtedly is similar to Japan in the formation and expansion of a credit bubble, which threatens the solvency of local governments, companies in traditional sectors with excess capacity, and financial sector institutions including banks.

China's housing market versus Japan's housing market

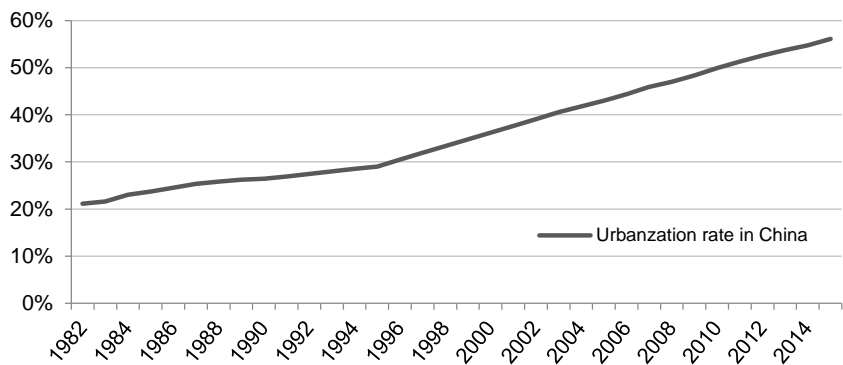
Despite the similarities, China's current housing market is different from Japan's in several ways. First, there is still fundamental demand for residential housing in China. The urbanization rate in Japan reached 72% before 1970 and stayed around 77% by the end of 1980s and any new demand for housing by rural-to-urban migrants was exhausted by then. In the 1980s, most housing and land sales were speculative. Conversely, China's urbanization rate was only about 53% in 2013 (see Figure 10).⁵ There will be a permanent migration of at least another 150 million people to the cities to

⁵ It should be noted that the distinction between "urban" and "rural" in Chinese data is not based on population density but on administrative boundaries. All residents of officially designated urban places were considered to be the urban population, including any rural *hukou* people who, without sending all the income back to the rural area to support their core family, had lived there for more than a year. There is currently about 169million "temporary" rural-to-urban migrants who work in cities to earn income to support family members back in the rural area. This floating population is not counted as urban population since they only seasonally live in an urban area. Their average monthly earnings is only about 2,500 RMB (420 US\$), way too low to afford permanent housing in cities.

reach an urbanization rate of 80% which could support urban residential construction for many more years.

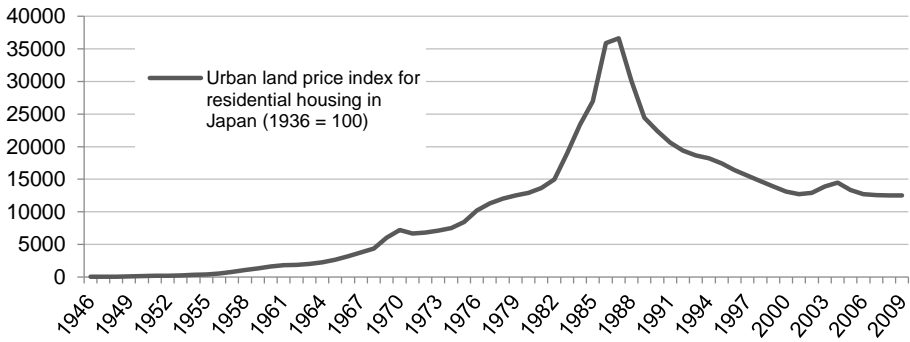
House prices in Japan kept rising from 1946 to 1991 as the country experienced rapid economic growth and progress in urbanization. Even after the housing bubble burst in the early 1990s, house prices in 2009 were higher than in the early 1980s (see Figure 11). There was not a systematic collapse in housing market when the urbanization rate was still growing and below 70% (See Figures 12 and 13). Similar phenomenon was observed in South Korea, one of the Four Asian Tigers, with rapid economic growth (see Figures 14 and 15).

Figure 10: Urbanization rate in China from 1982 to 2015



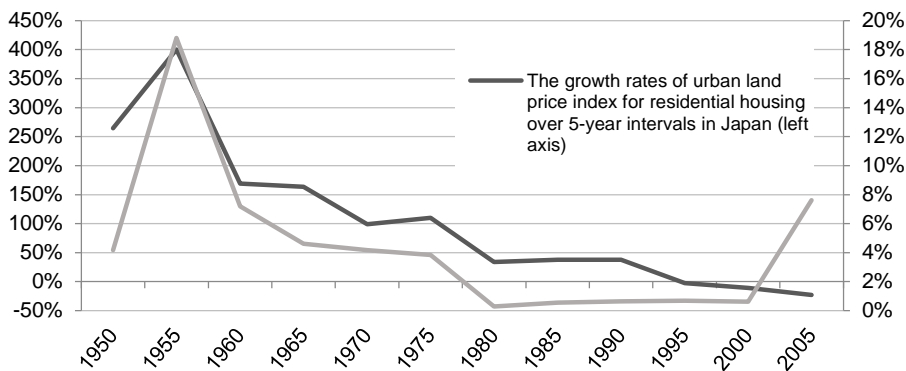
Source: NBSC

Figure 11: Urban land price index for residential housing in Japan (1936 = 100)



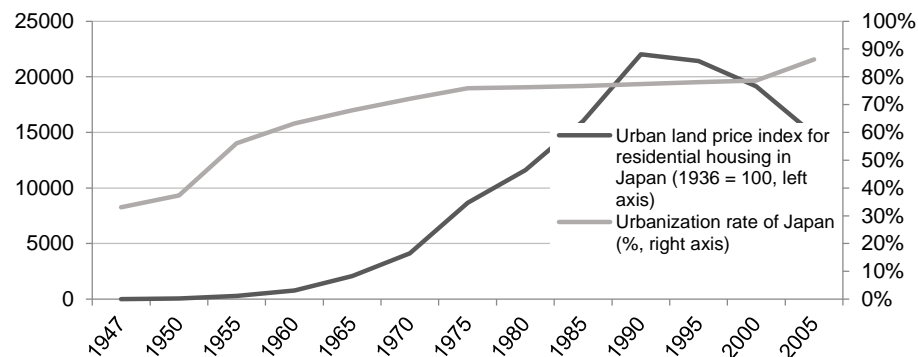
Source: Statistics Bureau of Japan (SBJ)

Figure 12: Growth rates of urban land price index for residential housing versus growth rates of urbanization rate in Japan



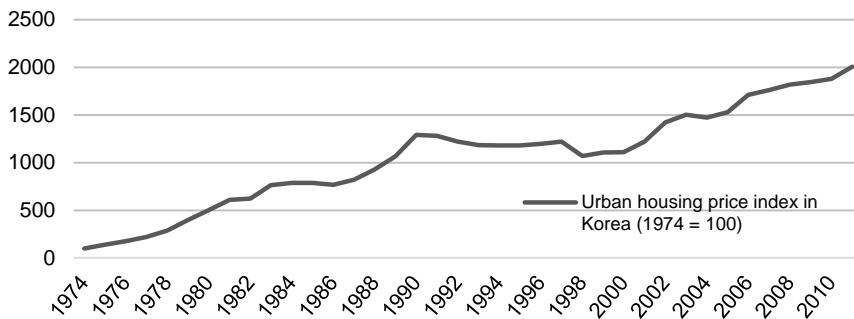
Source: SBJ

Figure 13: Urban land price index for residential housing versus urbanization rate in Japan



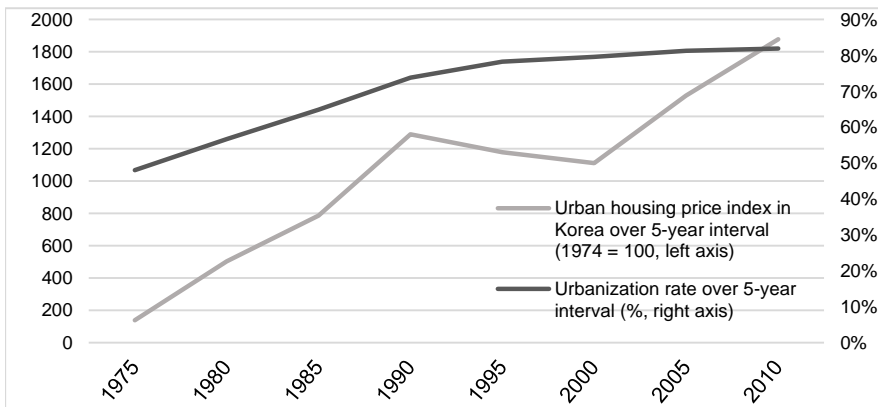
Source: SBJ

Figure 14: Urban housing price index in Korea from 1974 to 2011 (1974=100)



Source: Korea Housing Bank, Housing Economics Data Book, (1991); Bank of Korea, Economic Statistics Yearbook, (2013)

Figure 15: Urban housing price index versus urbanization rate in Korea (1974-2011, over 5-year intervals)



Source: Korea Housing Bank, Housing Economics Data Book, (1991); Bank of Korea, Economic Statistics Yearbook, (2013)

Besides, due to the *hukou* policy,⁶ most urban residents have to be home-owners to gain access to various public services and welfare. For instance, only children of local home-owners will be accepted into public schools (elementary and secondary). Conversely, in most other developed countries, all local residents (renters and home-owners) are treated equally.

Second, households in China are not highly leveraged. Thanks to the one-child policy, a typical Chinese home buyer couple born after 1980 receives significant financial support potentially from four parents. Furthermore, compared to a 5-7% savings rate of U.S. households, the average Chinese household has a savings rate of about 30% of its disposable income. As a result, primary home buyers in China typically do not incur a high debt to buy a property (see Figure 16).⁷ Not surprisingly, Chinese residential mortgage debt was 15% of GDP as of 2009, compared to 81% in the U.S., according to the Milken Institute.

Third, there is lower opportunity cost of holding real estate properties for home-owners in China compared to in other developed countries. China does not have an annual property tax. Home buyers' only tax obligation is a property transaction tax which is a very small percentage of the housing sales price. Furthermore, it is common for sellers and buyers to mutually agree to report a lower housing sales price to authorities to further evade a tax burden. Home-owners do not have to pay maintenance fees for apartments or condos they own unless they physically live there. Furthermore, most new residential apartments are so-called "Mao-pei fang" (empty concrete shells) which are just the indoor constructions devoid of walls and floor finishing's but with utilities. Such bare shelled housing units incur negligible depreciation.

Fourth, a lack of alternative investments makes real estate attractive. Due to the restricted capital market in China, Chinese investors do not have many options to grow their savings. According to J.P. Morgan, 1,000 yuan invested in bank deposits from 2001 to 2010 would have appreciated to just 1,014 yuan on an inflation-adjusted basis. Deposit rates have increased recently, as

⁶ The *hukou* system, or Household Registration System, is a system of residence permits unique to China. It identifies a person as a resident of a particular area of the country.

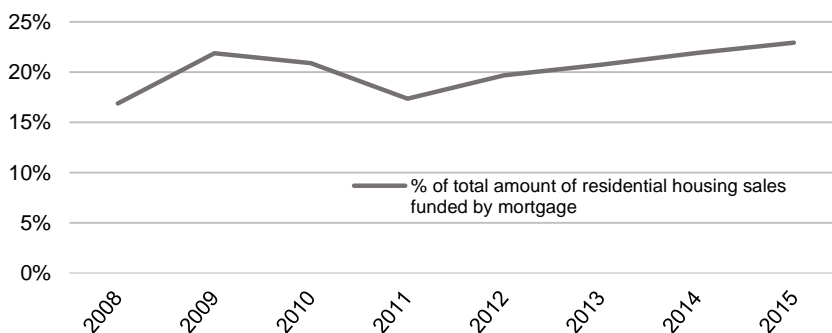
⁷ Also, the official minimum down-payment for a home is 30%.

higher reserve requirements have raised the demand for deposits, but they are still quite low and unattractive. The returns on life insurance policies are not much better.

China's bond market is illiquid and prices do not reflect actual risk levels. The Chinese domestic stock markets, as well as those trading in Hong Kong and New York, have been hit by numerous scandals. Furthermore, domestic investors have limited opportunities to legally invest abroad. Chinese investors have a historical affinity for gold, but, gold does not generate income and physical gold has storage and security costs. In comparison, real estate is attractive: the housing price has been steadily growing despite cyclical downtimes. Meanwhile, the carrying cost of an apartment is modest, particularly if the interior is unfinished as in “Mao-pei fang” case.

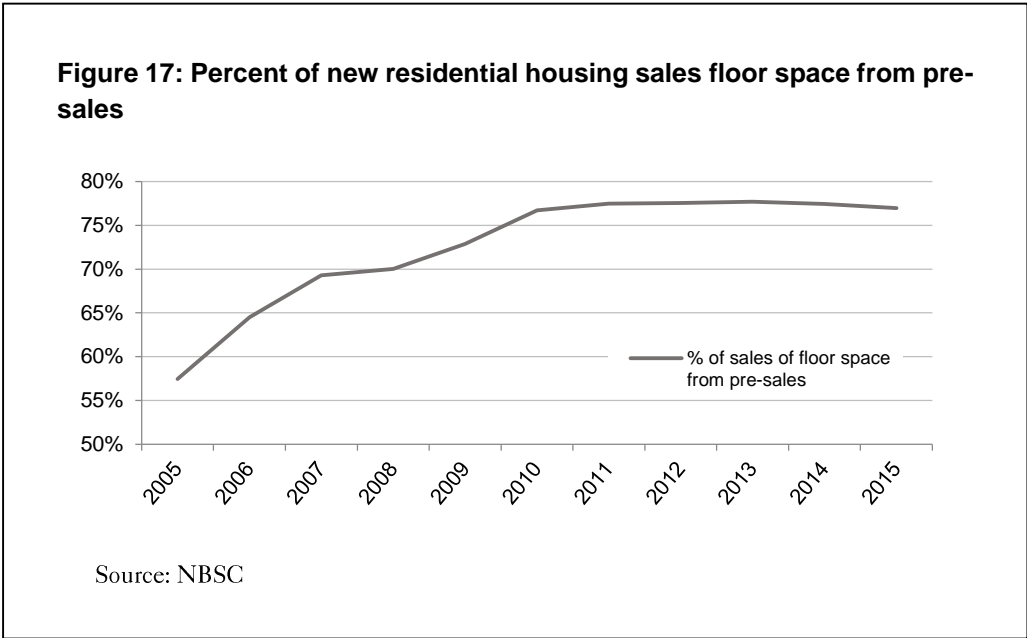
Due to a lack of alternative investment opportunities such as securities or commodities (as shown above), most home buyers put significantly large amount of their cash saving as down-payments on real estate, a proportion way higher than the minimum required rate of 30%. As shown in Figure 15, the ratio of mortgage loans vs. the value of total housing sales has been consistently below 22% for the past few years.

Figure 16: Percent of total amount of residential housing sales funded by mortgage



Source: NBSC

Meanwhile, developers take advantage of cash flow reliefs as they can sell residential housing before actually finishing them. Buyers usually pay at least half of the sales price half-way through the construction and pay in full when the construction is complete, which means that developers can recoup the costs and prioritize the completion of residential buildings with better pre-sales. Currently, almost 80% of residential property sales are through pre-sales (see Figure 17).

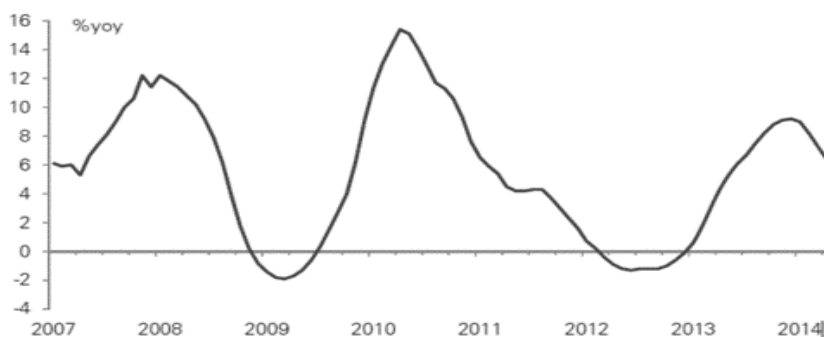


The lack of an annual property tax coupled with minimal depreciation explains well the existence of “ghost towns” in some cities. In the past few years, western mainstream media have been chasing reports of ghost cities in China. Except for the few mining-based cities such as Ordos, the so-called “ghost towns” in Zhengzhou (the capital city of Henan province), Xinyang (a major city in Henan province), Changzhou (in Jiangsu Province), etc., these cities are fundamentally different from typical “ghost towns”. In western countries, “ghost towns” were created due to massive emigration of local residents after the collapse of local economy. The famous case is the “ghost town” in Detroit after the auto industry collapsed during 2008

recession. But those cities in China had not yet even blossomed in local economic development when these claimed-so “ghost towns” claims appeared. Actually, these buildings were just built in advance by developers, as the government was expanding the territories of cities, when the cost was low and then the buildings were left in an inventory with high price tag. The developers are confidently waiting for people's income to catch up, even when this could mean a few years or even a decade.

A nice example came from a report on 60 Minutes which aired on March 3rd, 2013. The news claimed that “China is building houses, districts, and cities with no one in them” and showed scenes of tightly packed high-rises unoccupied in Zhengdong New District, Zhengzhou, Henan Province. Yet, when a journalist personally went to the district after watching the report of 60 minutes, he found an entirely different scene. The Zhengdong New District was full of sparkling new cars, well-dressed pedestrians, corporate offices of major businesses, skyscrapers full of occupied offices, etc. It's likely that 60 minutes casted the scenes a few years ago when the buildings were just constructed and the district was not newly started. Similar claims were also debunked for other so-called “ghost-towns” (Shepard, 2013).

Generally speaking, the risk of a systematic collapse of the housing market is minimal in my view, even though there will be potentially massive supply of floor space coming onto the market (from the floor space currently under construction). On the other hand, the absence of any systematic collapse in market prices does not mean that there won't be any pain in the interim. Although annual housing prices have been steadily increasing (except in 2008), there have been mini cyclical downturns that are apparent when analysing monthly data (see Figure 18). The slowdown in the property market in 2014 is the third one in about six years. So the prospect of declining prices is certainly not unprecedented.

Figure 18: YoY % price change of new residential housing

Sources: Wind and Deutsche Bank Research

The first downturn in 2008 was mainly caused by the global financial crisis and the market was later bailed out by the 4-trillion yuan state-initiated investment in fixed assets. The second slump in 2010 was driven largely by home purchase restrictions. In 2010, a purchase restriction order was issued by local governments in China's major cities, including, Beijing, Shanghai, and Guangzhou, to curb the overheating of the residential real estate market by imposing restrictions on purchasing power. According to the latest regulation, only those with local *hukou* (i.e. household registration status), or those who can prove they have worked in the local city for five consecutive years are eligible to purchase property. Those who have local *hukou* can own a maximum of two houses in their names, while those relying on work history in the city can only buy one house. The city forbids companies to purchase residential houses. This restriction excluded many high-end local buyers.

The third slowdown, observed in 2014, is different from the first two, as it is mainly driven by local market forces. Developers, lured by the potential profit in the real estate sector, massively expanded floor space under construction without a solid financing base. Part of the nearly 5 trillion yuan property development loans from formal banks could face more challenges

going forward when developers face increasing difficulty generating cash flows as sales slow down. Having said that, we believe the overall credit risks associated with formal property development loans in the banking sector is still fairly limited. The criteria for bank loans are quite stringent due to the tight regulations by the China Banking Regulatory Committee (CBRC). As a result, the developers who actually have obtained bank loans typically are those of respectable credit worthiness and for high-quality projects.

Many small regional developers, however, are effectively excluded from the formal banking system, and thus have to resort to the shadow-banking sector, such as entrust loans⁸ and trust loans⁹ for borrowing. By Q1 of 2014, the outstanding balance of entrusted loans was 8.3 trillion RMB. According to an estimate based on the data by listed companies, about 20% (or roughly 2 trillion RMB) was invested in real estate development. It is estimated that about half of the 11 trillion RMB outstanding trust assets as of Q1 2014 (or about 5 trillion RMB) have been invested in property development.¹⁰ Overall, the nearly 7 trillion RMB of shadow banking exposure to the property sector is of higher credit risk (Qian and Li 2013). Interest payment of these shadow funds can be potentially problematic, let alone repayment of the principal. With 7 trillion RMB in outstanding balances, the interest payment (with interest rates ranging from 15% to 18%) can be as high as 1.26 trillion RMB.¹¹ To break even, developers must experience price increases of at least 189 RMB per sqm² (3.23%). There were already several reported defaults on trust loans from property developers in the first half of 2014. More cases of defaults and consolidations were likely to have emerged in the second half of 2014 and as well as in 2015, when 75% of the existing trust products are going to mature.

⁸ Entrusted loans (or designated loans) are inter-corporate loans that go through a financial institution (typically a bank). The creditor specifies the terms of the loan such as the recipient, amount, purpose, date of maturity, and interest rate and so on. For entrusted loans, the financial institution involved then acts purely as an intermediary and does not bear the credit risk.

⁹ Trust loans are similar to entrusted loans but the funds are raised by trust companies from corporations or individual investors in the form of so-called trust products.

¹⁰ There is no published source for specific usages of trust loans because lack of official data. These numbers were derived from conversations with executives and staff working in various trust companies. According to these people, the typical interest rates range from 15% to 18%.

¹¹ This is the upper bound of interest payment. Out of the 7 trillion RMB in outstanding balances, 2 trillion RMB entrusted loans have lower interest rates ranging from 8% to 11%.

Nevertheless, default risks are not likely to turn into a full-blown collapse. The magnitude of the debt problem, although not small, is still manageable since at least 40% of the financing of developers still comes from down payments and residential mortgages. Observing the slowdown of housing sales, many cities have already lifted home purchase limit orders in the past year or so. In these cities, there will be no restrictions on the number of houses people can buy and home purchases will be open to both locals and non-locals, according to the municipal housing authority. This will help to prop up the property market, to some extent.

In October 2014, the central bank loosened mortgage rules for home buyers applying for loans for cheaper housing provident funds which marks the latest measure from Beijing to support the sluggish property market. Home buyers are now allowed to borrow from a housing provident fund to purchase a home in a different city, and the threshold for qualifying for such loans has been lowered, according to state media citing a joint directive issued by the housing ministry, the finance ministry and the central bank (Zhen, 2014). People can apply for these mortgages if they have contributed to the fund for at least six months, compared with a previous 12-month requirement. These moves come after the People's Bank of China and the banking regulator on September 30 eased mortgage restrictions and directed commercial banks to make mortgages cheaper. In February 2016, China's central bank cut the minimum mortgage down payment for first-time buyers from 25% to 20%, as it sought to further shore up the property market.

Meanwhile, developers have become more conservative on the property sector outlook and curb the speed of expansion to save the market from going out of control. Land sales revenue of 81 cities fell by 23.9% year-on-year in December 2015, steeper than the 14.1% drop in December 2014. At the same time, the shadow banking system is experiencing fast de-leveraging as the Chinese government seeks to curb shadow banking. The banking regulator tightened rules on new trust products in April 2014 (CBRC 2014), after failures of such investments sparked protests. In December 2015, The China Banking Regulatory Commission (CBRC) issued the first draft of rules to reign in the fast growing peer to peer lending industry.

Also, witnessing numerous defaults on trust loans, investors will likely become more cautious when investing in shadow banking. With easing housing purchase policies, self-adjustments of developers, and de-leveraging shadow banking, the “correction” in housing market is not expected to turn into a “bust”.

All in all, within the current setting, it is improbable that a systematic collapse in the housing market will happen. If the Chinese government implements annual property tax as in most developed countries, developers will have no choice but to quickly release tremendous floor space into the market to recover liquidity for taxation. This could cause a huge drop of prices in a short period of time. Similarly, if developers continue to expand borrowing from shadow banking and assume a higher leverage level, there will be much more downward pressure on housing prices as well. However, with massive housing under construction, the Chinese government could initiate and implement property tax regulation at a slow pace to guarantee a smooth transition. As such, the probability of systematic collapse of China's property market is minimal with existing taxation system and urbanization progress.

References

China Banking Regulatory Commission (CBRC) (2014) The CBRC Approved the Implementation of the Advanced Approach of Capital Management by ICBC and other Five Banks. Available online at:

<http://www.cbrc.gov.cn/EngdocView.do?docID=0A0B8A77B1FE4B1CB6C4FDF23AD819B6>

Qian, X. and Li, X. (2013) Operation Mechanism and Guarding Financial Risk of Entrusted Loans: Stemming from the Public Data of Listed Companies in China from 2004 to 2013. *Reform*, 29 November. Available online at:

http://www.reform.net.cn/book_r.php?bid=87&tid=986

Shepard, W. (2013) A Journey to China's Largest Ghost City. *Global Chronicle*, 29 March. Available online at: <http://www.vagabondjourney.com/zhengzhou-zhengdong-china-largest-ghost-city/>

Statistics Bureau of Japan (SBJ) (2014) Japan Statistical Yearbook. First Editorial Section, Statistical Information Planning Office, Statistical Information Systems Division, Statistics Bureau, Ministry of Internal Affairs and Communications.

Zhen, L. (2014) China Public Housing Fund Will Expand Borrowing Nationwide. *Investing in Chinese Stocks*, 15 October. Available online at: <http://investinginchinesestocks.blogspot.co.uk/2014/10/china-public-housing-fund-will-expand.html>