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► **To cite this version:**

Natacha Aveline-Dubach. China's Housing Booms: A Challenge to Bubble Theory. Denise Pumain. Théories et modèles d'urbanisation, Theories and Models of Urbanization, Springer, pp.183-208, 2020, 978-3-030-36655-1. 10.1007/978-3-030-36656-8_11 . halshs-02963810

HAL Id: halshs-02963810

<https://shs.hal.science/halshs-02963810>

Submitted on 11 Oct 2020

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Chapter 11

China's Housing Booms: A Challenge to Bubble Theory

Natacha Aveline-Dubach

Abstract

Over the past two decades, Chinese cities have experienced real estate booms displaying clear signs of “bubble” elements, including, inter alia, prohibitive residential prices, an accumulation of debt, and severe overbuilding. In 2014, many media commentators claimed that Chinese property markets were about to burst. Yet house prices have started to rise again in major cities, and no significant slowdown has been recorded to date. This chapter addresses the challenges posed by China's residential market dynamics to the bubble theory. Adopting a political economy perspective that breaks with the approaches of real estate economics, it highlights the self-fulfilling logic of the housing booms, resulting from pervasive practices of land value capture by local governments. The paper stresses the inadequacy of the bubble framework to distinguish speculative and “fundamental” explanatory factors of price increases, and provides an alternative reading based on André Orléan's theory of conventions. It is argued that the asymmetric nature of the State's regulation of housing markets—a failure to rein in housing price hikes, yet efficiency in managing downturns—has played a crucial role in shaping the common representation of the market by investors. Beyond the challenge to bubble theory, China's experience of housing booms opens the way for the recognition of alternative paths to finance-led regimes of capital accumulation in the built environment.

1. Introduction

Since the 2000, residential prices have undergone a rapid acceleration in China, resulting in a growing divergence between the cost of housing and the dwellers' incomes. In the early 2010s, foreign media expressed concern that a major housing bubble had formed. This sentiment was supported by Chinese top officials' declarations that housing prices had become a source of worry. The buzz in the international media culminated in 2014, when residential prices recorded a small drop in Beijing and Shanghai. All ingredients of an imminent real estate crash seemed to be in place: extravagantly high residential prices relative to household incomes in major city-regions; a massive oversupply of residential space across the country; the large share of non-monitored 'shadow banking' in real estate financing; and wide media coverage even funded in China. The pervasive so-called 'ghost city' phenomenon throughout China was regarded as evidence of the dramatic magnitude of the bubble. Then, beyond all expectations, residential prices started to soar again in the biggest cities including Shanghai and Shenzhen, and increases spread to lower-range cities, without being followed by a dramatic price downturn at the time of the writing.

The purpose of this chapter is not to provide yet another test of the bubble hypothesis. Rather, it intends to highlight the challenges posed by China's residential market dynamics to the bubble theory. It is argued that current housing booms are operating as self-generating processes of urban and economic growth, but that this very dynamic tends at the same time to skew the perception of risks by home buyers, thus creating distortions in the supply/demand balance. In such a context, it becomes impossible to distinguish a clear-cut divergence between actual (speculative) and fundamental values, which theoretically characterizes bubbles. To get a comprehensive understanding of the underlying forces at play in the residential markets, the political economy of China's urban development must be taken into account, since the current housing booms are deeply rooted in a land-centered economic growth model. Drawing on previous work on China's unique mode of urbanization (Jiang et al.; Hsing 2010; Chien 2013; Lin 2014 ; Wu 2015a ; Theurillat 2016, to quote a few), this chapter conceptualizes China's housing booms as outputs of State productivist policies basing action on massive land value capture and exploitation of the rural-urban divide. It contends that the success of this model has anchored a cognitive bias amongst home buyers, or a 'convention' as defined by Orléan (1989), which encourages them to disregard the warning signs of oversupply in residential markets. To avoid the break-up of this convention, Chinese policy-makers are maneuvering through tight spaces, providing quick responses to market signals while pushing forward new developmental strategies. In this respect, China's experience provides evidence of alternative pathways to addressing the challenge of speculative behavior in the housing markets.

This chapter is divided into three parts. First, it discusses the underlying assumptions of the bubble theory in finance economics, and their application to property markets. The second part points out the inadequacy of the bubble approach in providing a systemic analysis of the speculative mechanisms in China's residential sector; it then develops an alternative framework incorporating the housing booms in China's land-centered model of economic development. Part 3 underlines the strong commitment of the State in regulating the excesses of this model, while seeking a way forward through a new productivist approach.

The method used has involved the reading of academic articles, publications of the real estate industry, policy documents and newspaper articles. It also draws on fieldwork studies of local

real estate markets conducted in a dozen of Chinese cities of various sizes, and follows up on previous publications by the author.

1.2. The Theory of “Speculative Bubbles” and its Application to Property Markets

The theory of asset price bubbles can be traced back to the 1980s, when a series of financial crises began to undermine seriously the then dominant neoliberal dogma that financial markets are intrinsically self-regulating. Drawing on the rediscovery of Keynes’ findings concerning speculative behavior in stock markets, a new stream of literature started to develop upon the assumption that investors’ strategies can create, under some conditions, a significant divergence of asset prices¹ from the value that would be an appropriate reflection of their underlying demand and supply positions. Such divergence phenomena were called “bubbles”, defined by Kindleberger (1991) as “a sharp rise in the price of an asset or a range of assets in a continuous process, with the initial rise generating expectations of further rises and attracting new buyers — generally speculators interested in profits from trading in the asset rather than its use of earning capacity. The rise is usually followed by a reversal of expectations and a sharp decline in price often resulting in financial crisis”.

Speculative versus rational bubbles

Conceptually, a bubble is regarded as a divergence between the actual market price of the assets and their intrinsic, so-called “fundamental” values. However, the characterization of bubbles has proved highly controversial. While many authors contend that bubbles are a purely speculative phenomenon, driven by investors’ belief that prices are bound to increase even when this is not justified by fundamental factors, neoliberal economists claim that bubbles can develop even with rational expectations by investors. For example, the Nobel Prize winner Jean Tirole (1985) demonstrated that a “rational bubble” may arise from differential information between traders, and could be kept alive indefinitely without exploding, because rational traders with perfect foresight would ensure a final economic equilibrium. Yet this result is a single solution of a model of equilibrium, based on the assumption that the market has a number of limited agents who are additionally infinitely-lived (the model assumes overlapping generations of traders). Joseph Stiglitz (1990) argues that one can always find a unique solution to a rational bubble amongst a large variety of equilibria, and he criticizes the assumption of infinitely-lived agents as being highly unrealistic. In the face of objections from numerous authors, the rational bubble hypothesis has not given rise to a flourishing strand of literature.

Empirical models of “speculative bubbles”, on the other hand, have developed strongly, but have also been subject to criticism. Flood and Hodrick (1990) analyzed several models of famous past bubbles and demonstrated that they suffered from the misspecification or from the underestimation of the role of fundamentals. The core problem lies in the difficulty of assessing the “fundamental price” of the assets. Financial economists use a wide range of analytical methods to compute this price, but the typical formulae combine two main elements: i) the discounted present value of the dividend (or rent for real estate) to the owner of the asset during

¹ An asset is a resource with economic value that an entity owns or controls, with the expectation that it will generate income.

the ownership period (d_{t+1}); and ii) the expected value that the asset will have at the end of the investment period (q_{t+1}). Flood and Rodrick (1990: 88) provide the following formula:

$$q_t = E_t \cdot \frac{d_{t+1} + q_{t+1}}{1 + r}$$

where q_t is the fundamental price of the asset, r the discounted rate, and $E_t (d_{t+1} + q_{t+1})$ the expected value of the future dividend (rents for real estate) and the future price of the asset at time t .

As noted by Stiglitz (1990), this approach faces three problems. The first one lies in the need to forecast future long-term revenue streams while asset prices are generally subject to irregular business cycles. The models respond by generally assuming a regular pattern of revenue streams. The second problem is equally challenging: how can the terminal value of an asset be predicted several years ahead, when financial markets are subject to both endogenous and exogenous shocks? Thus, Stiglitz's question: "how do economists test whether the terminal price can be justified by fundamentals, without having data extending infinitely into the future?" (Stiglitz 1990: 15-16). The financial theory assumes that the terminal value is the expected value of future dividend and future price of previous periods, and thus calculates it based on a recursive process of the same equation. Finally, the third problem is to define the discount rates needed to translate future returns into current values. Here again, financial analysts have no choice but to forecast unpredictable conditions based on current interest rates.

Cognitive bias in the formation of asset prices

A major puzzle that econometric models are also unable to address is the conditions in which a bubble may initiate and terminate (Hui et al. 2012). While the field of behavior finance has provided valuable insight into investor's cognitive bias (see De Bondt 2003 for a review), the French School of Convention was the first to analyze the behavior of financial investors in relation to the successive dynamics of asset prices during a boom-bust cycle.

André Orléan (1999) contends that it may be rational for well-informed financial investors to follow the trend of a speculative wave if the market is driven by the perceptions of market players rather than by fundamental values. The reason is that investors make a greater profit by benefiting from the increase in asset prices rather than by betting against the tide of the market to restore equilibrium. Therefore, according to Orléan, the mechanism of price formation relies on a complex set of interactions between fundamental factors and collective cognitive dynamics. The nature of these interactions evolves over time, shaping different sequences in the speculative mechanism. The initial phase of asset inflation is triggered by the expectation of a significant change in the fundamentals of a given economy. Investors endeavor to achieve a common vision of these new market conditions, and gradually converge on a shared perception, a 'convention' (agreement) relying on a fundamentalist diagnosis (for example, the 'Internet convention' caused in the late 1990s by the emergence of new information and communication technologies). During this phase, investors tend to select information that confirms the relevance of the convention, filtering away warning signals. Nevertheless, as conflicting information on the convention accumulates, some investors come to question the convention and to develop strategies that challenge it. The third phase of investor behavior is thus marked by what Orléan calls a 'self-referential crisis', in which all investors lose their faith in the convention and focus on each other's strategies, adopting a herd behavior irrespective of fundamentals, thereby precipitating the fall in assets prices.

By embedding market's endogenous factors within asset price dynamics, the convention framework opens up new perspectives to address speculation mechanisms. It breaks with the key economic postulate that supply and demand are independent from each other. The emergence of a 'convention' leads to interactions between supply and demand, since the escalation in asset prices does not discourage investors' demand from growing. When investors' behavior is affected in such a way that it *transforms the fundamentals*, the convention may even become a self-fulfilling prophecy. In such a situation, investor's expectations are not validated because they are in accordance with fundamentals, but because they provoke behavior that makes them true *a posteriori*.

Application of the bubble theory to property markets

So far, the bulk of the bubble literature has explored asset price dynamics in financial markets. This should not come as a surprise, as most of the memorable crashes in history took root in finance. It was not until the 1980s that real estate markets started to experience frequent speculative mechanisms of large magnitude. The main cause of this change was the deregulation of financial markets, and the subsequent internationalization and de-specialization of banking businesses. Deregulation of financial markets originated in the US in the early 1980s, spread to Europe and Japan in the mid-1980s, and then to other East Asian countries. For the first time in history, synchronized boom-bust cycles arose globally in property markets (Mera and Renaud 2016). More was to follow: structural reforms carried out in the finance industry established a wide range of new financial channels dedicated to property investment (private equity, REITs), thereby increasing dramatically the mobility and liquidity of capital invested in real estate (Corpataux et al. 2009 ; Theurillat and Crevoisier 2013; Aveline-Dubach 2017). A major outcome of this change has been the rising power of global institutional investors who have become a driving force of urban (re)development projects in key city-regions around the world (Aveline-Dubach, forthcoming). Urban policies have tended to rely increasingly on the imperatives of investor's targeted risk-adjusted returns, thus exposing the urban built environment to the hazards of global finance (Halbert et al. 2014; Savini and Aalbers 2015).

Despite its 'quasi-financial' status as an asset class (Coakley 1994), real estate differs significantly from its purely financial peers. As an underlying asset of financial vehicles, it stands out by being both a *tangible* and *localized* commodity. These characteristics make real estate particularly prone to bubbles. Because of long production lags in property development, real estate is subject to intrinsic cyclical patterns (Barras 1983). Supply is slow to follow demand, and delay in adjustment of prices to fundamentals are potential drivers of market distortions (Ball and Wood 1999). Added to that, population ageing in advanced countries has increased the demand for property as a saving vehicle; with the proliferation of investment channels, episodes of capital over-accumulation in real estate have arisen in many places, entailing threats of construction oversupply. Because real estate investing is more spatially selective than purchase for owner-occupancy, increasing competition for scarce land puts upward pressure on property prices in sought-after, usually central, urban locations. This effect is amplified by the positive externalities generated by public investment in these places to improve cities' competitiveness.

Equally important, if not more so, the large amount of loan borrowing for real estate transactions has a magnifying effect on the amplitude of property boom-bust cycles. Herring and Wachter (2003) explain this effect by the behavior of bank managers. During the upward phase of the booms, banks are encouraged to extend credit as the value of loans collateralized

by real estate grows. When the downward phase of the cycle arrives, the drop in prices downgrades the value of banks' collateral and asset holdings. Banks respond by rising interest rates as risk premiums and consider the higher probabilities of shocks. Credit tightening soon transforms into credit rationing for all sectors of the economy, as banks try to rebuild their reserves, which puts further downward pressure on property prices. Needless to say, the effects described above are all the more exacerbated when banking credit is highly leveraged. Housing mortgages have a fairly high loan-to-value ratio, of over 70 percent worldwide according to a cross-national survey by IMF (quoted in Crowe et al. 2013). It is no surprise then that the vast majority of recent systemic banking crises has been associated with housing boom-bust cycles (two-thirds of the 46 crises analyzed by Crowe et al., 2013). Real estate slumps are also more harmful than stock market crashes: output losses are twice as big according to an estimation by Helbling and Terrones (2003), because they play an important role in collateralizing loans, and they hit a larger number of households.

While real estate assets have noticeable cross-national commonalities, their markets are embedded in highly differing local institutional and social structures (Wood 2004). Therefore, there is a strong idiosyncrasy in the way property prices behave, with asset prices depending, *inter alia*, on local regulations, the physical and social aspects of the urban fabric, credit conditions, cultural norms and practices of property and related players. These characteristics are often not paid much attention in the bubble tests, but they do influence the way analysts design their models.

Empirical studies on real estate bubbles

Due to the growing volatility in real estate markets over the past decades, a large number of scholars have come to develop econometric tests of bubbles. However, the complexity of these markets has led to a variety of methods for the assessment of fundamental values. Beyond this diversity, three main approaches tend to prevail.

A first approach consists in applying financial theory to real estate and to estimate housing prices based on forecast future revenue streams. For a housing investment, the price of the asset is calculated through the method mentioned above, which analyses future rental cash flows, and discounts them (with a targeted rate of return) to calculate an estimate of the present value. As discussed earlier, these models rely on highly simplified assumptions.

In contrast to the financial approach, which does not consider the characteristics of local property markets, the two other methods calculate fundamental housing prices based on a regression of actual prices on a set of demand and supply variables. One method focuses on local socio-economic and demographic factors. It combines variables such as households' incomes, demographic change, the employment rate, (regional) GDP per capita, housing starts and mortgage conditions. Another method, based on the hedonic approach, places emphasis on the attributes of property themselves (size, appearance, various features, and conditions), and their location characteristics (accessibility, schools, environmental factors and crime rate, to name a few).

While these different approaches may be combined to produce sophisticated models, the mere fact that they rely on such different ways of looking at intrinsic housing values is sufficient in itself to question their explanatory power. Bubble tests are nevertheless powerful in raising public concern about the potential threats of speculative housing markets for macroeconomic stability.

In parallel to econometric models, qualitative research provides new insights into market perceptions and the behavior of real estate investors. In a frequently cited paper, Case and Shiller (1988) compared the investment behavior of 5,000 home purchasers in four US metropolitan areas with contrasting market conditions, and found that buyers in the booming cities perceived little risk and showed strong investment motives. This was because first-time buyers believed that they should hurry up and invest in a home before the prices became totally unaffordable. These results provide empirical support for Orléan's contention that investors' shared perceptions of the market are a primary driver of asset price formation.

1.3. Housing “bubbles” with Chinese characteristics

The rapid escalation of housing prices in China is seen by many commentators as the manifestation of the next real estate bubble of worldwide importance. Indeed, the recent increase in value of China's homes (typically apartments in residential complexes) has been particularly impressive: according to underestimated official data (see below), residential prices in China's largest 35 cities increased by nearly sixfold from 1999 to 2016, and by more than eightfold in Shanghai in Shenzhen (Figure 1). Price hikes have shown a visible acceleration in the past decade, after the adoption of an extremely ambitious stimulus package to mitigate the impact of the global financial crisis in late 2008 (CNY 4 trillion, equivalent to US\$586 billion). In 2017, the Chinese banking sector estimated the price-income ratios at 32 in Shenzhen, and around 26 in Shanghai and Beijing.² Such dramatic price growth has quite naturally drawn the attention of scholars, and Chinese cities have become the new target for testing the bubble hypothesis.

Attempts to develop econometric models nevertheless face serious problems of data availability and accuracy. It must be recalled that China's real estate markets are very young, having existed for only three decades. The first legislation relating to property ownership in the transitional phase to a market economy was implemented in 1988. It enacted the separation of urban land ownership, which remains under State control, and land use rights. These are transacted by local governments at market-determined prices,³ for fixed periods ranging from 20 to 70 years, the latter for residential uses. It was not before 1999 that official data on housing became available. Existing data series can thus only capture an ascending phase of housing prices, which does not allow prices in China's housing markets to be compared across cycles. Furthermore, official data are not quality-adjusted. They are obtained by dividing the total sales revenues of commercial residential buildings by the total floor area sold, and are therefore seriously biased downwards (Wu et al. 2014).

² This figure is taken from China Banking News, July 6, 2017. <http://www.chinabankingnews.com/2017/07/06/housing-price-income-ratio-exceeds-10-across-16-chinese-cities/> (checked on September 20, 2018)

³ The decentralization process operated in the 1980s conferred great freedom on local governments to manage their economies. In 1998, the sale of land-use rights was put under their jurisdiction. The same year, the public residence allocation system was converted into a system of marketization.

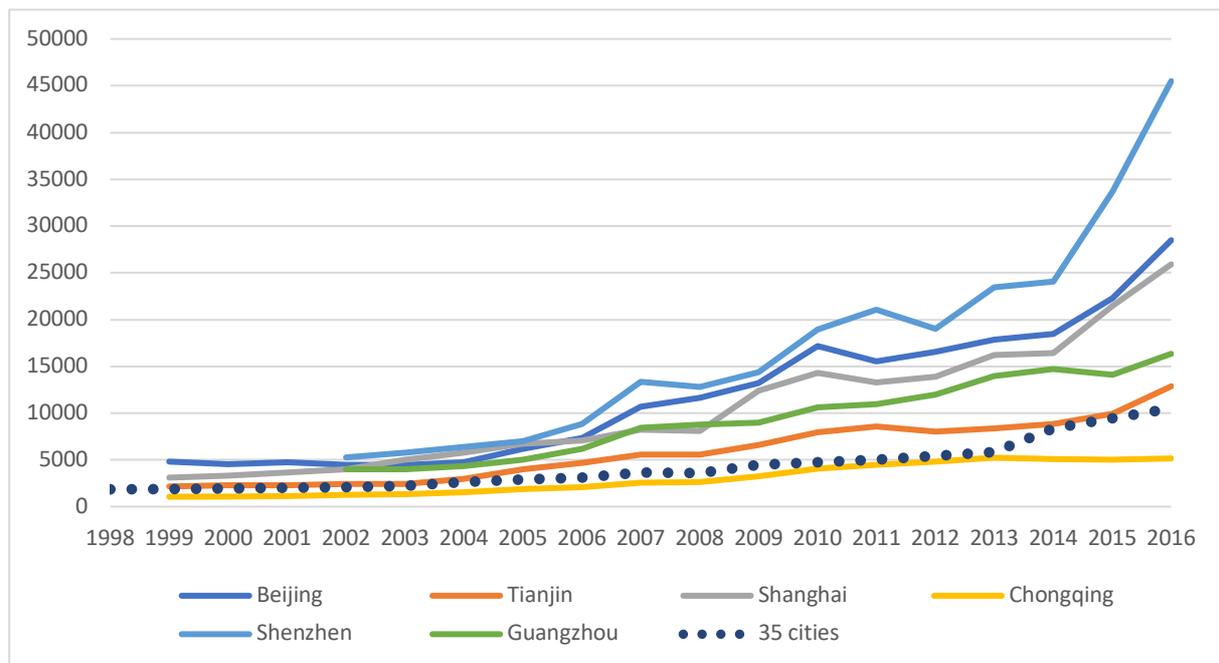


Figure 1. Change in housing prices in major Chinese cities (in CNY per square meter)
Source: National Bureau of Statistics of China.

Bubble prices versus fundamentals in Chinese housing markets

A number of authors have reported the existence of bubble phenomena in several Chinese cities. Scholars started to observe price deviations from fundamental values as early as in the 1990s-2000s in some major coastal cities (for example, Yue and Hongyu 2004; Zhou 2005). However, the majority of tests were conducted with more recent data. Using an independent data set controlling for housing quality,⁴ Dreger and Zhang (2013) calculated fundamental values based on macro-economic factors in 35 major cities from 1998 to 2009, and found that actual prices exceeded the fundamental values by 25 percent on average. They observed a larger magnitude of the bubble in the South-eastern coastal areas and special economic zones. Liu and Sun (2009) used a method based on price-to-income ratios and also concluded that major Chinese cities were experiencing bubbles, with particularly acute deviations of prices in first-tier cities.⁵ Some tests focusing on Beijing, Shanghai or Guangzhou provided further evidence of a serious misalignment of prices that can be interpreted as bubbles (Lyu 2010, Chen 2012). Chen and Wen (2017) approached the bubble hypothesis from the perspective of labor market dynamics. According to them, the bubble is the result of rational expectations by investors, with corporate investors (both SOEs and private firms) accounting for a significant share. Their decisions in favor of housing investment have been sustained by strong fundamentals resulting from the reallocation of labor and capital from a less-productive conventional public sector towards more productive private firms — especially following the restructuring of SOEs in 1997. Chen and Wen argue that housing investment is “driven by the expected strong future demand for

⁴ Wu et al. developed an independent data set using hedonic prices to control for housing quality. This dataset covers indices based on sales of newly built housing units in 35 major Chinese cities.

⁵ China’s cities are divided into four categories. The first tier includes the four most developed metropolitan areas: Beijing, Shanghai, Shenzhen, and Guangzhou; the second tier includes most provincial capitals and some very developed prefecture cities. Tier 3 cities include prefecture cities that have medium to high levels of income, while Tier 4 cities are further behind economic development and smaller in size.

housing, which is self-fulfilling and rationalized by the fact that the future rate of capital returns, will be sufficiently low in the post-transition stage. Under such an expectation, holding housing today can yield large capital gains tomorrow even if housing has no intrinsic value” (Chen and Wen 2017:6). Their model thus predicts the deceleration of the currently fast-growing bubble as the surplus labor in rural areas falls.

Other authors have expressed more reserved views about the characterization of bubble. Ahuja et al. (2010) ran a model based on macroeconomic factors (real lending interest rate, population density, real GDP per capita, and land prices) in 35 cities over the period 2000-2009. Their model rejected the bubble hypothesis for China as a whole, but indicated excessive prices relative to long-term fundamentals in several coastal cities (Beijing, Shanghai, Shenzhen, Ningbo, Fuzhou and Xiamen) and in two inland cities (Wuhan and Kunming). Ren et al. (2012) made a more radical rejection of the bubble hypothesis. Their model did not estimate fundamental values, but yearly residential returns (rental income and capital income) in 35 cities between 1999 and 2009. The forecasted returns were estimated based on a set of macroeconomic factors. The authors did not find evidence of a bubble, but explained the high returns on housing investment by the circulation of capital from rich to poor regions.

Whatever the characterization of China’s housing booms, the bubble tests converge on a diagnosis that housing prices are at ‘above-fundamental’ levels, with large variations across cities depending upon their size and location. China is clearly facing a speculative mechanism that has taken root in its major city-regions, especially the coastal ones, and is moving towards lower-tier cities and inland regions, partly fueled by inter-urban capital flows. Yet these dynamics are far from being purely speculative. As underlined by Chen and Wen (2017), the reallocation of labor from low-productivity to high-productivity sectors has been a major fundamental driver of increases in residential prices. However, such a finding only accounts for part of the formation of housing prices. To fully grasp the underlying forces of the housing booms, it is necessary to re-situate them in the process of China’s unique urbanization model. I contend that this model combines three key elements: a productivist approach in State policies, a mechanism of large-scale land value capture, and the exploitation of the deep rural-urban divide.

The housing bubble as a creation of the developmental State

In the post-Mao era, the main mission of the China Communist Party (CCP) was redefined as “from achieving Communism to achieving rapid economic growth” (Heilmann 2008). China’s State thus took inspiration from its neighboring East Asian ‘developmental states’ (Johnson 1982) to achieve a State-guided economic miracle (Baek 2005). Yet China’s policy-making is shaped by very distinctive dynamics, defined by Chien (2010) as an ‘asymmetric decentralization’ process, whereby the large autonomy granted to local governments to develop their economies is counterbalanced by political centralization under the CCP. Local officials are not elected but assigned by the Party, which means that their career advancement depends on their ability to generate GDP, accommodate FDI, and increase trade (Chien 2007). So far, this has been mainly achieved by providing high-quality urban physical infrastructure and supplying cheap land to export-oriented manufacturing enterprises (in Special Economic Zones and in peripheral urban areas), thereby releasing cheap labor from the State sector to the more productive private sector.⁶

⁶ The number of workers in SOEs stood at 122 million in 1998, and fell thereafter to 76 million in 2006. The remaining SOEs account for 30 percent of the total assets in the secondary and tertiary sectors. They are bigger, more competitive and more profitable than were former SOEs (X. Ren 2013).

The real estate industry is also a major pillar of economic growth, and as such has been strongly encouraged to expand, especially in the housing sector (Wu 2012). Home ownership is emphasized by the State as a major determinant of social status (Hu 2013). Housing units are additionally key status goods for marriage purposes in China, due to the gender imbalance resulting from the one-child policy. It is estimated that there are currently 30 million more men than women aged 25 or more, and young males who own a home will have a greater chance of finding a bride (Wei et al. 2012). Buying a residential unit is strongly encouraged by the substantial financial aid from the parents, especially in one-child families (Or 2018). Home ownership also serves as a store of wealth for the old age, in a ‘productivist welfare regime’ (Holliday 2000) characterized by the underfunded provision of pension and healthcare.

The State has encouraged the purchase of newly built residential units supplied by property developers through several programs, including the Housing Provident Fund Program that involves employers’ contributions to employees’ mortgage loans at better terms than conventional mortgages. Mortgages delivered by banks to home purchase mainly target newly-built housing units. Over the past ten years, 70% of housing sales in the 35 Chinese major cities have been newly-constructed homes (Zheng et al. 2016).

The productivist policy also involves the strong control of financing channels, so as to allow State-led allocation of capital towards targeted industries via the banking sector. Market finance is restricted. Banking channels are prevalent, with the “big four” state-owned banks controlling more than half of loans and assets.⁷ Interest rates on checking and saving accounts are kept below the market rate, to ensure cheap credit to privileged firms — primarily SOEs and, to a lesser extent, major private groups. Stock markets are poorly regulated and dominated by SOEs, the exchange rate is tightly managed, and capital outflows from China are closely controlled. As a result, the availability of financial assets as saving vehicles for Chinese economic agents is very limited, which makes housing a most desirable investment target. Given the wide array of agents that have limited access to banking credit, informal finance has developed through ‘shadow banking’, a poorly regulated sector including small loan companies and usury-rate lenders, but mostly revolving around the indigenous trust industry⁸. A significant share of informal credit from this composite ensemble is linked to banks (Sherpa 2013).

Local governments have also increasingly relied on shadow banking to deal with the rapidly increasing cost of urbanization. The centralization of tax resources in 1994 left them with a large funding gap that they were prohibited from resolving by borrowing directly in the markets or even from banks (Figure 2). To boost their economies, local governments have invested heavily in the construction of urban infrastructure. They have developed intermediary bodies known as Local Government Financing Platforms (LGFPs), which raise extra-budgetary capital through bank lending or financial markets (equity or bonds) on their behalf. These debt instruments receive explicit guarantees by the collateralization of local governments’ land banks. Local debt surged through LGFPs after the adoption of 2008-2009 stimulus package. In

⁷The “big four” state-owned banks are the Industrial and Commercial Bank of China, the Bank of China, the China Construction Bank, and the Agricultural Bank of China.

⁸ The Trust industry is a unique financial system that has very little in common with Western trusts industries. It is primarily engaged in two main categories of services: private placement investment banking (for both high-net-worth individuals and corporate investors), and conduit business (operating as a conduit to allow banks investing in forbidden asset class). The trust industry has grown rapidly after the GFC. The total value of its assets under management rose from 960 billion 2007 in to 23 trillion in mid-2017. Chinese policy-makers are actively working to normalize this industry.

2013, infrastructure construction accounted to approximately 86.8% of total funds invested by local governments.⁹

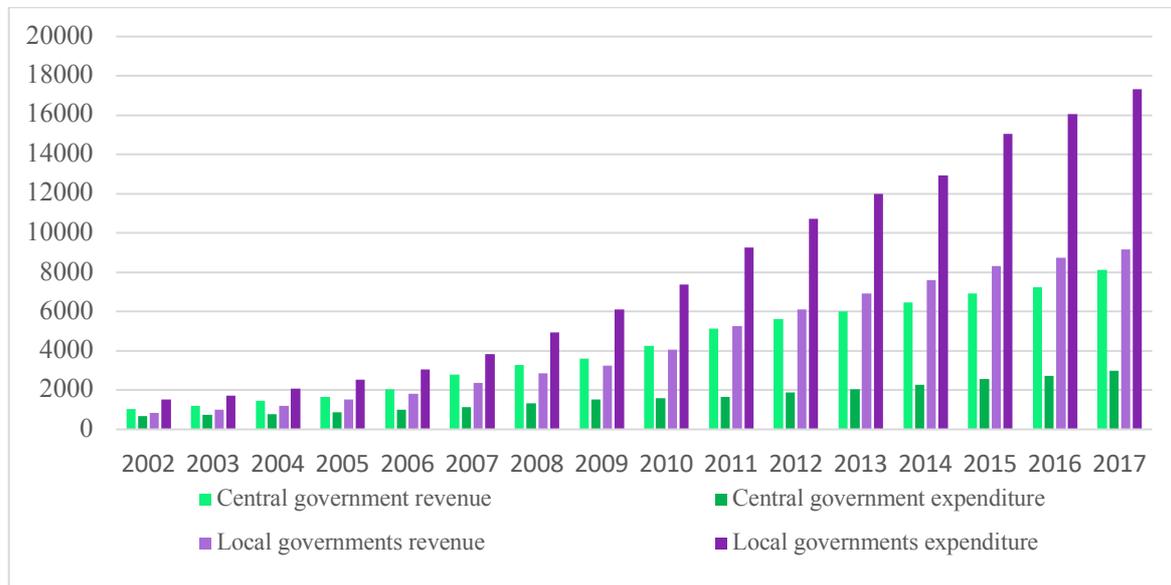


Figure 2. Increase of local governments' funding gap (billion CNY)

Source: National Bureau of Statistics of China

Despite the development of off-balance sheet funding channels, local governments still have to pay off their debts and find ways to balance their budgets. This challenge has been dealt with by the emergence and progressive generalization of large-scale mechanisms of land value capture, implemented after the 1994 tax reform. Also referred to as “urban-centered accumulation” (Hsing 2010) or “landed urbanization” (Lin 2014; Ye and Wu 2014), the process of value capture takes place in successive stages, which Fulong Wu has described comprehensively: first, land rights for industrial purposes are sold by local states at low prices in urban peripheries to enlarge the manufacturing base of the city and create jobs. This translates into GDP growth, which increases tax revenues and raises land prices as industrial zones urbanize. Then, once urban development reaches a certain level, the land use rights of serviced parcels of land are sold to developers at their highest value for commercial and residential purposes. Revenues from the leases are then used to balance the local budgets and pay off debt for infrastructure construction (Wu 2015b).

To magnify value capture, local states leverage the highly differential treatment of citizen and property rights between rural and urban areas. Migration of rural populations to cities was restricted after 1958 by a system of official registration (*hukou*) that assigns local benefits (from retirement pension, to education, to healthcare) to households, based on agricultural and non-agricultural residency status. After the economic reforms, the system was relaxed to allow rural populations to migrate to cities. But these workers were denied access to urban welfare. They greatly contributed to faster GDP growth in cities by supplying low-cost labor in the manufacturing sector without exerting pressure on local finances. Housing booms have also been fueled by internal migrants' abundant labor force in the construction sector, kept at low wages though informal working contracts under conditions of “tolerated illegality” (Swider 2015). The urban/rural divide was further exploited by massive farm land grabs in the urban

⁹ <https://www.prometeia.it/atlante/China-government-debt>. Checked on September 3, 2018.

fringe areas (Siciliano, 2004). Farmers' land use rights could be expropriated and compensated at rates far below the market prices (at the agriculture production value) because land ownership is held by village collectives, and farmers had little power and resources to resist local governments' decisions. Hence, local officials have managed to expand massively the geographic boundaries of their jurisdictions, so as to replenish local land reserves with the aim of developing new industrial spaces and pursuing value capture strategies.

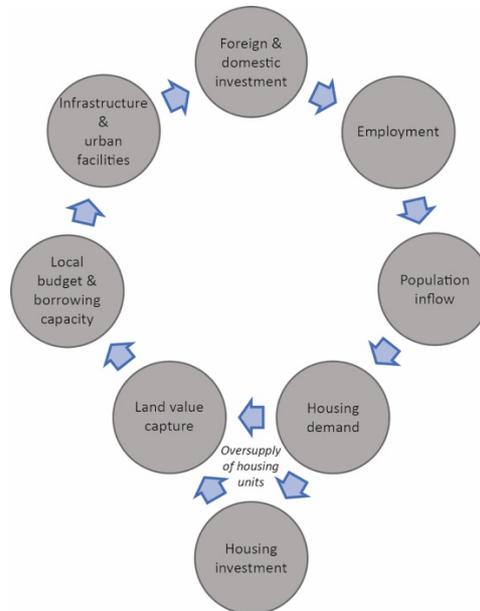


Figure 3. The land-centered economic growth model of Chinese cities

Source: the author, adapted from Wu (2015b)

The whole system of land value capture is supported by continuous property investment (either directly or indirectly) from both households and entrepreneurs, and is based on the collateralization of local government land banks. Because the system generates jobs and urban infrastructure, and contributes to increasing incomes, it works partly as a self-fulfilling mechanism that drives up fundamental values (Figure 3). Yet, at the same time, it creates housing vacancies, as investors primarily focus on capital gains, and are encouraged to acquire several properties by the absence of property taxation (see below). One may wonder why home buyers do not perceive the growing risk involved in the accumulation of vacant homes. This puzzling investment confidence can be regarded as the expression of a strong faith by households and firms in the capacity of the current economic model to generate further increases in incomes. More precisely, housing investors share the belief that the exorbitant home prices are justified by the extraordinary achievement of China's economy, under the CCP leadership. This 'convention' draws on investors' inexperience of a property crash in an emerging and constantly rising real estate market. It also builds on investors' awareness that the State has a strong political stake in supporting housing markets. Zheng et al. (2016) pointed out a positive change in investors' outlook in 2009, after the adoption of the Four Trillion Yuan stimulus package and accommodative measures to cope with the Global Financial Crisis. Furthermore, the convention is strengthened by the centralization of power in the hands of President Xi Jinping, a leader who embodies long-term political stability and the continuity of China's economic performance (Cabestan 2015).

1.4. The State's management of the speculative mechanism

It should be noted that, in face of dangerous speculative elements in the housing market, the Chinese State has managed to avoid a 'hard landing' until now. This is the result of a strategy built up over time, produced by the complex dynamics of central-local interactions, and based on try-and-error, learning-by-doing approaches.

Avoiding mainstream financial channels to fund the domestic real estate industry

First and foremost, Chinese policy-makers benefited from the lessons of previous financial crises triggered by real estate boom-bust cycles. Thus, at an early stage of the commodification of the housing markets, they opted for a set of measures seeking to avoid systemic risks in the economy at large, and in real estate sector in particular.

A first step was to impose prudential requirements for mortgage lending, which is mostly operated by the four major commercial state-owned banks. Loan-to-value ratios of home buyers are set at low rates, and although total household debt has considerably increased since 2009, it remains inferior to that of major economies: 49% of the country's GDP in December 2017,¹⁰ compared to 50% on average in the European Union, 78% in the United States, and more than 80% in South Korea and Taiwan.¹¹ The banking sector is much less involved in the funding for real estate developers, with an official share of 20-30% of total funding. Non-banking capital includes self-funding and revenues from pre-sales, as well as issuance of financial assets (bonds and shares) for listed SOEs and major private developers (Theurillat and O'Neill 2017). However, the largest share of developers' funding comes from informal finance, especially through wealth management products, quasi-real estate investment trusts (Q-REITs), and pawn shops (Sherpa 2013). Through these investment channels, individual and corporate investors find indirect ways to engage capital in real estate by taking shares in property development projects (Theurillat and O'Neill 2017).

The shadow banking sector as a whole recorded marked growth after the stimulus package, surging from less than 10% of the system in 2008 to almost 40% in 2013; in 2016, it amounted to an estimated at CNY 71 trillion, or 118% of GDP (Collier 2017). Given the large size it has reached, and due to its interconnections with banks, the informal sector carries potential systemic risk, but it remains quite fragmented and primarily confined to domestic investors.

Letting the grey finance sector grow helped to avoid developing transnational financial channels to fund the domestic real estate industry. Despite the pressure exerted by global investors to develop mainstream financial instruments in China's property markets, government authorities have continuously sought to "keep foreigners hands off the Chinese land" (Hsing 2006) and have avoided exposing the domestic real estate industry to the vagaries of global finance. Unlike India, which recently established Real Estate Investment Trusts (REITs), China has not operated the securitization of its real estate. A handful of REITs listed in Singapore and Hong Kong have developed China-based property portfolios, but the number of their assets under management is very limited (Aveline-Dubach 2017a). Foreign equity funds have been allowed to penetrate China's real estate sector, but their market share has become negligible

¹⁰ This figure does not consider consumption loans that are used to circumvent regulations for housing investment.

¹¹ <https://www.ceicdata.com/en/indicator/china/household-debt--of-nominal-gdp>. Checked in Sept. 2018.

(Aveline-Dubach 2017b)¹², except in some recently commodified subsectors such as infrastructure, logistics and long-term care facilities for elderly. Local regulations demand foreign capital to be anchored in China through joint-ventures with domestic development firms. The benefits of such arrangements are not so much to providing capital to domestic developers — those meeting high foreign standards are major players — but rather from generating an inflow of advanced foreign technical and operational knowledge. By channeling foreign expertise and capital towards various property sub-sectors in this way, Chinese local governments have successfully helped the domestic real estate industry move up the value chain (Aveline-Dubach, 2017b). Now that the reliance to foreign partnership is considerably reduced, the risks of external shocks to local property markets have decreased accordingly, confining the land value capture mechanism to a closed, mainly domestic system. It is important to stress that these strong barriers to capital inflows in property markets stand in sharp contrast with overseas investment in trophy property assets by Chinese institutional investors, in accordance with the asymmetrical integration of China's macroeconomic regime into the world economy (Boyer 2013).

Market monitoring and public intervention in real estate markets

As rapidly growing housing markets became unstable, Chinese policy-makers endeavored to provide quick responses to market signals. Since 2003, a succession of measures has been taken, mainly under central government's administrative guidance, alternatively to cool off or stimulate residential markets in line with the changes of local housing prices. Cooling off measures typically include: increases in interest rates, policy guidelines for commercial banks to rein in the pace of mortgage loan issuance, tighter down payment ratios (up to 70% for second homes and cash purchase for third homes in many cities), restrictions on the resale of homes in less than five years. When housing prices recorded a small drop in a given city, the cooling measures are relaxed until the next round. Prices have recently stabilized in major cities, but several local governments or first and second-tier cities have introduced lottery systems for housing sales with government-imposed prices to “curb speculation”.¹³ This system allows some first-time buyers to purchase affordable housing, but it also encourages backdoor tactics such as extra charges or even corruption.¹⁴

A less well-known form of state intervention in the housing markets has consisted of ‘extinguishing the fire’ when a local property market goes into meltdown, to avoid a spreading of investors’ panic throughout the country. The city of Wenzhou, which was hit by a financial crisis in 2011, provides a good example of such strategy. This prosperous coastal city of 3 million inhabitants experienced a boom in real estate. Local investors were mostly SMEs, financed by informal credit, which were pouring capital into an array of risk sectors. By 2011, the average residential price in Wenzhou reached CNY34,000 per square meter (€4,220/m² at the current exchange rate), surpassing that of Shanghai and Beijing at the time. When the central bank raised interest rates to contain inflation, credit demand shifted towards the shadow

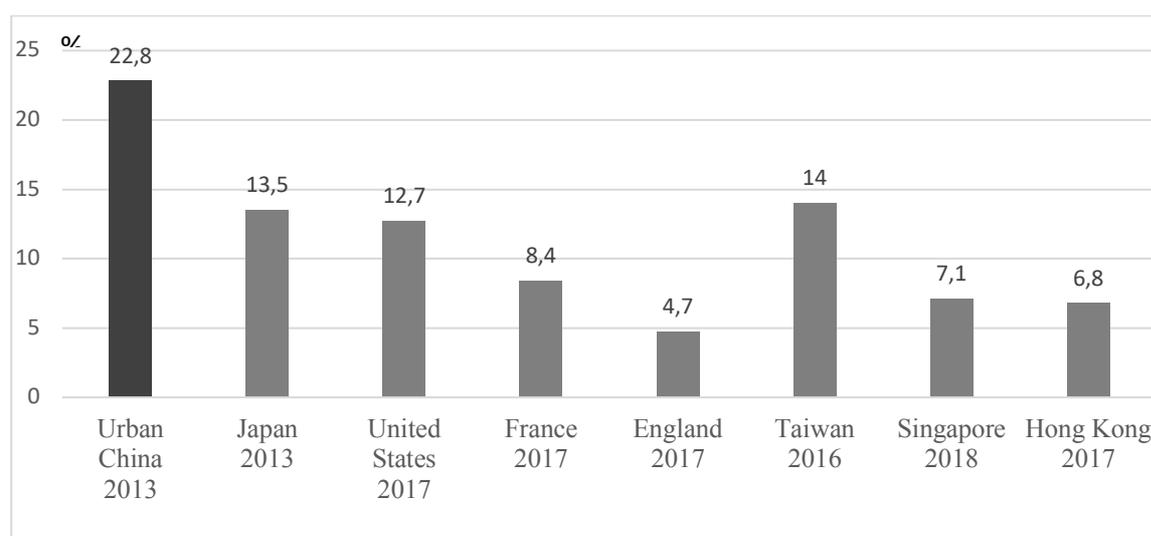
¹² Hong Kong developers are by far the main ‘foreign’ players in the Mainland. Some groups manage a large number of buildings in major cities and hold extensive landbanks. However, unlike Western operators, they seldom invest in property through financial vehicles.

¹³ China Daily, “8 cities with a lottery system for housing sales”, June 4, 2018. <http://www.chinadaily.com.cn/a/201806/04/WS5b147119a31001b82571de20.html>. Checked on November 15, 2018.

¹⁴ South China Morning Post, “Shanghai authorities get more involved in supervising lottery system used by developers to allocate properties”, May 5, 2017. <https://www.scmp.com/property/hong-kong-china/article/2093036/shanghai-vows-crack-down-home-sales-irregularities>. Checked on November 15, 2018.

banking sector, pushing up the yearly share of the informal lending market from 15 to 43% (Yufeng et al. 2018). A growing number of Wenzhou's SMEs could not repay their debts, and default rates soared, entailing a financial meltdown, with a 50% drop in housing prices. Given the significance of informal credit delivered through relationship-based and personalized transactions in Wenzhou, the vast majority of capital loss was mutualized by local families. Although the formal banking sector was much less affected, the dramatic situation of local industry prompted the central authorities to step in. SOE banks were asked to grant extended credit to Wenzhou SMEs, and to loosen interest rates. Premier Wen Jiabao and other top leaders even visited Wenzhou to calm the panic.¹⁵ The Wenzhou crisis sent warning signals to Chinese policy-makers, pointing to the dangers of unregulated capital accumulation. Since then, considerable effort has been made to normalize the informal Chinese trust industry and to restructure the liabilities of local governments through debt swaps.

In parallel to direct intervention in the housing markets, the State has acted to satisfy households' demand for profitable saving vehicles by opening up transnational channels for residential investment. In other words, the State has opted to 'export the housing bubble' so as to relieve the pressure on domestic housing markets rather than resorting to developing alternative saving vehicles by liberalizing the financial industry. These investment channels are controlled by the State, so that the volume of capital involved can be fine-tuned in accordance with the movements of domestic housing markets. A handful of key Chinese developers operate in this overseas residential sector, focusing on North America, Western Europe and Asia Pacific. Needless to say, investments through these channels have increased both housing prices and housing vacancy in many recipient markets, and were subsequently not well received by local populations (Moser 2018). In 2017, China's outbound direct real estate investment reached US\$56.5 billion (including a large share of property purchased by institutional investors), an amount equivalent to the cumulated sum of UK and US cross-border capital in real estate the same year.¹⁶ Although capital outflows in real estate have been recently restricted in China to prevent a weakening of the yuan (Meyer 2018), cross-border investment by Chinese institutional investors and households have become a potential threat for the stability of property markets in a number of regions.



¹⁵ Derecet News business, October 18, 2011, <https://www.deseretnews.com/article/700189099/Debt-panic-in-Chinas-Wenzhou-may-auger-wider-woes.html>. Checked on September 25, 2018.

¹⁶ JLL Global Research, China 12 : China's cities go global 2018. This figure includes investment in Hong Kong.

Figure 4. Comparative housing vacancy in several countries (% of housing stock)

Source: CHFS, Japan Statistic Bureau, US Housing Vacancy Survey, INSEE, England's Ministry of Housing, Communities and Local Government statistics, Taiwan Ministry of the Interior's Construction and Planning Administration, Singapore Urban Redevelopment Authority, Hong Kong Data Government Statistics.

The Chinese State is naturally more concerned with the huge accumulation of unoccupied residential units at home. Housing vacancy is unique in China in the sense that the vast majority of unoccupied homes is held by households. According to the latest 'official' estimate provided by the China Household Finance Survey (CHFS), they were 52 million vacant housing units in China in 2013, of which 3.5 million were as developers' inventory.¹⁷ This represents an average 22.4 % of the housing stock in China's urban areas, a much higher rate than Japan, the US and Taiwan (Figure 4). Although the CHFS survey was updated in 2015 and 2017, no data have been published at the time of writing. Therefore, the 2013's figure is likely to be significantly underestimated. In particular, the stock of developers' inventories has grown considerably over the past years. Glaeser et al. (2017) used a developers' database (Soufun, for 32 cities) and found that the surface of newly built unsold units had grown nearly threefold (from 4.1 to 11.3 billion sq ft) during the period 2011-2015. Two-thirds of this inventory is concentrated in third- and four-tier cities. This situation reflects a lack of technological skills in smaller cities, along with comparatively lax land control policies (Li 2017). In 2015, President Xi Jinping expressed his will to "reduce the stock (*qukucun*)" in the property market as one of his key objectives. To this end, the government introduced stimulus measures to absorb inventories, such as interest rate cuts and tax reductions. Stock reduction measures also seek to encourage migrant workers to buy unsold housing units through the relaxation of *hukou* regulations. The government announced a plan to grant urban *hukou* to 100 million people by 2020 in small and medium-sized cities (Losavio 2018). Yet this raises serious challenges, as a large number of rural migrants may not find adequate jobs enabling them to purchase homes in less developed cities.

Setting up an alternative productivist model

Chinese policy-makers are aware that regulating the excesses of the current land-centered economic model is not sufficient, and this has prompted them to promote a new model of development. Since 2014, China's economy has entered a single-digit growth stage known as the 'new normal'. To avoid falling into the 'middle-income trap', a situation in which a country has lost its competitive edge in the export of manufactured products because of rising wages (Gill and Kharas 2007), the Chinese economy has to move up the value chain. The government has launched a very ambitious policy of innovation in technology and services, to keep up with advanced countries and achieve the transition towards high-income. This entails a greater reliance on domestic-led growth through measures targeting a mass consumption society. Rural populations, which represent a high potential for innovation and consumption, are to play an active part in this new development model. High-skilled migrants, in particular, are seen as a potential resource to forge new avenues of urban innovation through hybridization and cultural diversity.

In many cities, former *hukou* regulations are being replaced by points-based systems filtering rural migrants (Zhang 2012). The conditions for being granted permanent urban citizenship depend on city size, and become harsher with size, with first-tier cities and wealthy second-tier

¹⁷ CHFS Data Talks, *Trend in the housing market and Housing vacancy rate in urban China*, 2004. This survey was based on interviews of some 28,000 households, carried out in 262 counties and 29 provinces.

cities imposing extremely stringent conditions. Migrants are selected according to criteria such as education, age, type and seniority of employment, type of housing, payment of urban social insurance and length of residence in the city (Losavio 2018). They are put under pressure by the points-based system to enhance their competitive edge over the years. Those migrants who manage to get good scores but do not reach the threshold are granted partial citizenship (incomplete local welfare), whereas lower-skilled migrants are excluded from urban welfare benefits or encouraged to move to smaller cities.

Contrary to the official narrative of social inclusion conveyed by the *hukou* reform, the urban/rural divide is not disappearing, but rather transforming to serve the new productivist model. Lyu et al. (2018) have coined the expression ‘innovation-based urbanization’ to characterize this new growth model. With the rise in both incomes and skills in the manufacturing sector, the massive exploitation of cheap migrant labor is going to lapse in many cities. China is no longer a low-cost outsourcing destination for global manufacturers but is becoming a hub of global supply chains in which domestic and foreign firms compete to attract Chinese talent. Exploitation of the urban-rural divide through land grabbing at urban fringes is also getting less easy, as a result of government measures to preserve agricultural land and the increased ability of collective landowners to negotiate high compensation fees. More generally, the land value capture mechanism operated by local governments is being challenged by the maturity of property markets, and the subsequent contraction of demand for new homes that will generate shrinking land sale fees in the long run.

Introduce alternative financial instruments to meet shortfall in local resources

Alternative financing tools have thus been established to move towards a new model of local finance. A new special bond with set quotas was created in 2014 to help local governments raise funds for infrastructure construction in a more transparent way. The same year, public-private partnerships (PPPs)¹⁸ were launched to fund infrastructure projects. They experienced a sharp boom, reaching 14,220 projects with an aggregate value of CNY17.8 trillion in November 2017.¹⁹ However, approximately 60% of PPP projects turned out to be funded by state-owned entities, with financial arrangements often seeking to circumvent controls on local government borrowing.²⁰ This went so far as to push the central government to cancel some 2,500 PPPs in 2017, involving 18% of estimated PPP capital.

Simultaneously, some cities initiated new arrangements to transfer the burden of transit infrastructure funding to local public metro companies. In exchange, the latter have been empowered to construct and manage high-rise buildings over their station depots, and to draw profit from joint-developments with private developers. While this transit-based type of land value capture has recorded much success in Hong Kong (Aveline-Dubach and Blandeau 2018), it is not likely to alleviate the risk borne by the public sector in China, as a large part of ‘private capital’ comes from state-owned property developers.

¹⁸ A PPP is a partnership between a public authority and a private operator aimed at providing a public project or infrastructure, in which there is a transfer of significant risk to the private party.

¹⁹ Reuters, Business news, November 17, 2017. <https://www.reuters.com/article/us-china-economy-ppp/china-overhauls-2-69-trillion-public-private-projects-as-debt-fears-rise-idUSKBN1DH0DE>. Check on September 20, 2018.

²⁰ Nikkei Asian Review, May 17, 2018. <https://asia.nikkei.com/Opinion/China-must-put-the-private-into-PPP2>, checked on September 20, 2018.

The untapped opportunity of a property tax system remains to be explored. China stands out amongst the world's nations in having no tax on the ownership of private residential properties. In 2018, the Finance ministry announced its determination to roll out a nationwide property tax to be levied by local governments, based on assessed values. However, no clear time schedule has been set. The project is to be implemented very gradually and carefully, following the usual try-and-error approach. Liu (2017) points out that a property tax faces strong resistance by urban households. Over 90 percent of households own one or more housing units, of which a significant share is vacant, and do not provide earnings. Thus, the taxation is a politically sensitive project that will probably take many years before being fully implemented, especially in a rapidly ageing society with weak welfare provision.

The development of new financial resources is only part of the needed changes of the current urbanization model. Land use efficiency must be improved to prevent further housing vacancy and solve the 'ghost city' problem. The government has engaged in tackling the issue by actively promoting rental housing tenure. In big and medium-sized cities, property developers are encouraged, by way of easier land supply, to shift their business model away from sales-led development towards construction projects for long-term leasing. One of the major real estate developers, the Vanke group, has even decided to establish the rental residential housing business as a core activity. The potential benefits of promoting rental tenure are many. It would preserve households' wealth, provide means to pay the property tax, improve occupational mobility in big cities, and above all restrain future growth in housing vacancy. However, there is a huge gap between what needs to be achieved and reality. Home ownership is a cornerstone of China's welfare, and this will be exacerbated in an ageing society. It is moreover deeply ingrained in households' representations of wealth and marriage practices. Beyond cultural barriers, ownership tenure remains predominant in legal terms. Rental status has weak legal protection and does not provide similar access to urban resources as does home ownership (such as access to educational facilities, for example). Although local governments are trying to improve the attractiveness of long-term leasing in their jurisdictions, this form of housing tenure is likely to remain limited in scope for a while.

1.5. Discussion and conclusion

This chapter has highlighted the role of housing booms as crucial engines of urbanization in China's distinctive context of highly decentralized, land-centered, manufacturing-based productivist model of economic growth. Following Wu's account of China's housing cycles (Wu 2015a), the chapter puts the politics of land development, shaped by intrinsic central-local tensions, at the heart of China's macroeconomic policies. The purpose here has been to bring home buyers' speculative behavior into this framework, using the bubble theory. However, this study reveals the limits of the bubble framework to grasp both the 'fundamental' and the speculative aspects of China's housing booms.

Booming residential prices in China's big cities do not merely reflect the rapid demographic and income growth of a transitional economy, but are drivers of self-fulfilling dynamics through the pervasive practice of value capture led by the government. As such, rising prices have contributed to equipping (and, in many instances, over-equipping) Chinese cities with quality urban infrastructure and industrial facilities. This has generated a manufacturing ecosystem that has no equal in other BRICs, and which contributes to enhance China's economy in the global value chain.

On the other hand, empirical research on bubbles has underscored the puzzling simultaneous escalation of residential prices and increasing housing vacancy, which has led to Western media erroneously predicting that China's bubble was about to bust. Yet, bubble analysts have failed to explain households' distorted apprehensions of risk, beyond the lack of alternative saving vehicles and the economic and social value of home ownership. It is argued here, in line with previous work on speculative behavior (Case and Shiller, Orléan) that the *perception* of the market has a strong influence on price dynamics. The striking confidence of Chinese home buyers can be viewed as the result of a 'Xi Jinping Thought Convention' shared by market players, based on the belief that China is destined to a bright future under the guidance of an ambitious, thoughtful leader whose power will remain unchallenged. This convention relies on the strong 'fundamental' assumption that the aggressive innovation policy currently conducted by the government in all domains, and which exceeds levels observed in neighboring East Asian developmental states, will indeed succeed. However, expectations of future income growth are not sufficient to alleviate the currently high risk of housing investment. Other non-fundamental factors strongly contribute to shaping the convention. They include: i) home buyers' inexperience of major real estate downturns in an emerging and ascendant market; ii) inaccurate information about property markets: Chinese households have access to information about housing prices through the Internet, but the domestic media tend to downplay local downturns of property markets, and conversely to convey comforting official declarations for investors; and iii) home buyers' faith in the capacity of the current regime to regulate residential markets. This confidence is based on hard facts. Policy-makers' efficiency in avoiding a downturn in property markets has been effective until now, owing to extensive State influence over the whole urban production chain, including: public land ownership, the predominance of state-owned entities in urban development, State control of the banking sector, State intervention in property markets as well as stringent restrictions on mainstream global channels of property investment. An equally crucial condition of the government's efficiency is the capacity to deliver 'just-in-time' policy responses. This has been made possible by fast and decisive decision-taking in an authoritarian regime in which the whole administrative system is under Party control. It can be assumed that the asymmetric nature of the State's regulation of housing markets — failure to rein in housing price hikes, efficiency to manage downturns — has played a role in shaping investor confidence.

Neoliberal commentators claim that excessive government intervention has an exacerbating effect on the housing cycle. Yet Chinese policy-makers have drawn lessons from the Japanese experience of the 1980s financial bubble and how a slow State's policy response can be very harmful. Accordingly, they are making full use of their multiple levers to keep alive investor confidence. Drawing further lessons from the GFC systemic crisis, Chinese policy-makers have stayed away from the development of financial channels using Wall Street's standards, and instead have allowed the growth of informal finance, with the trust industry as major funder of property and urban infrastructure projects. There is undoubtedly much risk involved in the trust sector's proliferating debt, but the risk is limited by a lower connectivity and a predominantly domestic structure of these funding channels in the real estate sector. China's experience and management of housing booms therefore suggest there may be alternative paths to neoliberal capital accumulation and regulation regimes in the urban environment.

Although this chapter has addressed the linkage between economic growth, urban development and housing production, the critical connections between housing booms and social inequalities would deserve further exploration. Recent years have been marked by a boom in the informal market for "Small Property Right Housing" (SPRH), in which migrant households can buy

residential units at much lower than market prices in urban villages. Following the seminal paper on SPRH by He et al. (2019), further research is needed to examine the mutual relationships between regular and informal residential markets, as well as to assess the ability of the SPRH to mitigate the pressure of soaring housing prices on the lowest-income groups.

Obviously, Chinese policy-makers are facing major challenges to maintain balance in housing markets. The two interdependent pillars of the prevailing model of economic and urban growth — the value capture processes operated by local governments and the exploitation of the urban/rural divide — face a challenging environment in big cities, due to prohibitive housing cost on the one hand, and the effects of the new productivist policy on the other hand. Against this background, the government is actively trying to promote alternative financial channels to fund local infrastructure and services. So far, its efforts have not been very successful. The PPP projects have hardly managed to avoid further collusion between local governments and state-owned entities, and the proposal to tax private property is meeting strong skepticism by homeowners. Efforts to promote the rental housing tenure are primarily aimed at restraining the supply of new homes for sale, not at reducing existing housing vacancy. While there is an urgent need to preserve the wealth stored in household's homes, especially in a rapidly aging society with underdeveloped welfare provision, it may take years to gain acceptance for new norms of housing tenure and property taxes by Chinese households. It thus remains to be seen if China's distinctive regime of capital accumulation in its urban environment can be adapted to the country's new growth model.

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