

Brick by Brick: Unravelling China's property Puzzle

A history of the drivers of China's housing market and outlook

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Key points

- China's property market has been in a persistent downturn since early 2022, deeper and more prolonged than previous corrections. With weakening fundamental drivers and subdued investment appetite, the long-standing housing market boom appears unlikely to return
- The downturn has unique characteristics, distinct from crises in Japan in the 1990s or the US in 2007-2008. We estimate the theoretical market equilibrium at around 50% of the peak, but short-term outcomes depend heavily on uncertain future investment behaviour and potential policy interventions
- Even a soft landing in the property market would pose headwinds for broader economic activity. Strategies to boost other sectors, such as infrastructure projects and export growth, may have limited effectiveness compared to previous efforts.

Safe as houses

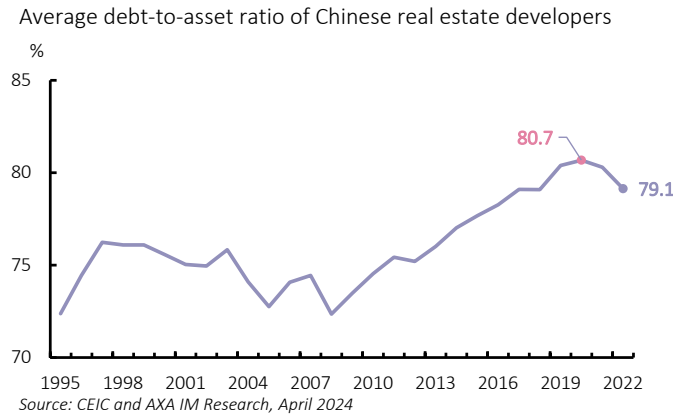
China's real estate sector has become a major pillar of its economy over the past decades, accounting for 25%-30% of the country's GDP. As well as providing homes for China's considerable population, property has increasingly been used as a prime store of saving – price rises in the past have made it a good investment vehicle and a perceived safe store of value. It has also been a hive of activity, with a vast building and property development sector having grown up around it. Given its significant contribution and influence on the overall economy, the property sector has been used by the authorities as a transmission mechanism to stimulate or deter broader economic activities.

However, more recently the property sector has been engulfed in difficulties. Property developers have been slow to produce finished houses and developers' average debt-to-asset ratio reached 80.7% in 2020 (Exhibit 1), continuously rising since 2008 – in 2022 real estate developers defaulted on more than RMB50bn worth of bonds. Following disruption during and after the pandemic, residential house prices have been falling. Given the property sector's significant influence on the economy, this has acted as a drag on broader activity.

The property sector is also tightly integrated with other economic sectors, especially banks and local government,

which help explain the spillover effects from the property sector’s slowdown.

Exhibit 1: Developers’ leverage kept rising from 2008 till 2020



This research paper is the first in a series, where we will investigate recent developments in the Chinese property market and its broader impact on specific sectors of the economy, as well as banking and government finance. In this instalment we provide a review of the property sector’s evolution over recent decades before presenting a comprehensive understanding of the current malaise in China’s property market, with an analysis of the fundamental demand and supply developments. We then look at the outlook for the sector, examining how the authorities look to manage the sector and achieve a soft landing, while comparing this outlook to some historic episodes of housing crises in other economies. In subsequent research papers, we will consider the impact of this on the banking sector and then government financing.

Property boom to managed “cooling off”

China’s history and housing market experience are very different from advanced economies in modern times. Up until the late 1970s, the vast majority of Chinese people resided in rural areas, living in self-built houses on land collectively owned by villagers. Less than 20% of the population resided in urban areas and these held non-farming jobs, assigned by the authorities, which often included housing arrangement. Unmarried young workers were typically assigned to collective accommodation owned by their employer, usually a state-owned enterprise (SOE), while married and more senior employees were allocated apartments, also owned by a SOE¹.

The reforms of former leader Deng Xiaoping in the late 1970s marked the opening of China’s economy; they welcomed

¹ In China’s planned economy there were very limited proactive job switches. Any changes in employment were likely to have been planned by the employer and therefore often came with a housing arrangement.

foreign investment and allowed entrepreneurs to start businesses. This triggered a wave of privatisation across the nation. For the first time, authorities stopped planned housing allocation completely – individuals were allowed to privately purchase and own residential property². It marked the inception of China’s private housing market.

Since then, the Chinese property sector has experienced massive expansion. By 2022, China boasted the largest real estate sector in the world, valued at nearly US\$90tn, constituting 26% of the world’s overall real estate value³. However, as it rapidly expanded, it began to face challenges such as high leverage among private developers, increasing reliance of local governments on land finance, and deteriorating affordability mainly driven by property speculation.

A particular episode, during 2014-2016, saw China’s property prices started to decline in monthly terms (starting in September 2014) while investment in the sector retreated and newly started housing projects decreased. This was mainly due to oversupply caused by the housing sector’s rapid expansion after authorities launched a mega-stimulus package in 2008 to shield China from the impact of the global financial crisis. As China’s population and urbanisation were growing well, demand finally caught up as the price correction progressed, which eventually reduced the inventory level and stabilised the price in the market at the end of 2015.

However, in more recent years, a renewed wave of buying after the initial easing of pandemic lockdowns in early 2020 prompted Beijing to implement strict restrictions on developers, known as the “three red lines”. These restrictions limited developers’ access to financing tools and funds based on their financial positions. The intervention initially enjoyed success in early 2021, as developers gradually deleveraged while real estate investment and sales remained in expansionary territory. However, the stringent Zero-COVID policies enacted in 2022 resulted in prolonged and widespread lockdowns, freezing the country’s economic activity. These restrictions not only deterred potential home buyers from viewing properties but also led to a deterioration of household balance sheets and severely dampened consumer confidence. In hindsight, this appears to have been the straw that broke the camel’s back, marking the beginning of a renewed decline in China’s housing sector.

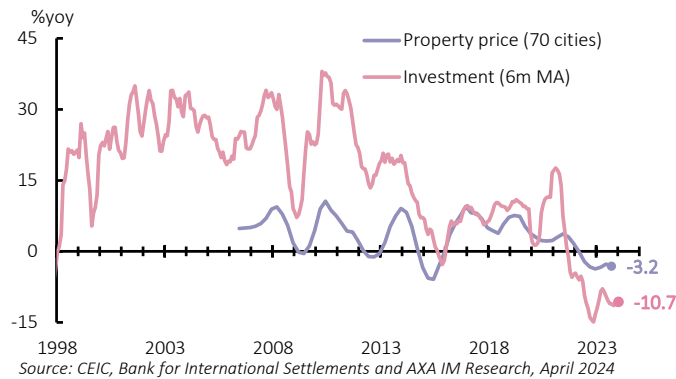
Exhibit 2 shows how property prices have been falling again, while property investment has faced double-digit declines and

² The journey of the private housing market in China started with experimental projects in Xi’an and Nanjing in 1979, but the market was not open to the vast of majority until the housing reform in 1998.

³ Tostevin, P. and Rushton, C., “Total Value of Global Real Estate: Property remains the world’s biggest store of wealth”, Savills World Research, Sep 2023

a rising number of developers have defaulted on their bonds due to mounting financial stress.

Exhibit 2: Investment and prices stayed subdued
China - Real estate investment and property price



Privatisation and urbanisation powered demand

According to a 2019 survey from the country’s central bank, 96% of urban households in China were homeowners, of which nearly 40% owned more than one property. This rapid increase in home ownership in just over 20 years underscores the country’s property market boom. Housing reform that started in the late 1980s provided incentives for urban households to purchase their own homes, while the rapid urbanisation progress saw millions flood into cities, boosting housing demand. Indeed, the historical economic reforms that started in 1978 in China led to the largest rural-urban migration in human history as labour demand surged in the newly industrialising cities. This massive labour relocation more than doubled the urban population, leading to a significant rise in organic demand for apartments.

This enormous increase in demand for housing, driven by privatisation and urbanisation, initiated the decades-long boom in the property market. However, as urbanisation slows and the population begins to decrease⁴, property demand is softening (Exhibit 3).

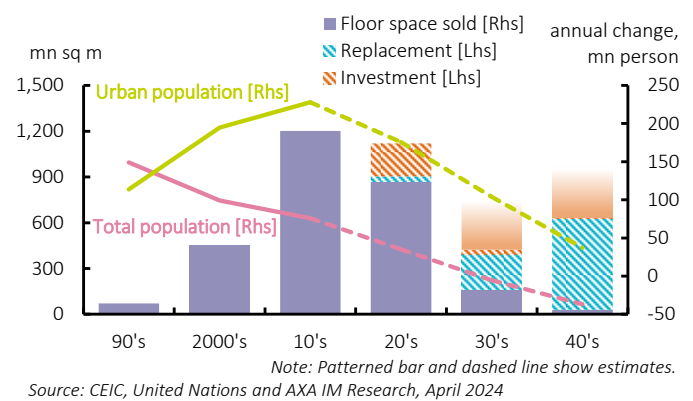
According to projections from the United Nations, China's population size in the 2040s will average 3% below the 2020s level, which will likely mark the population peak. In terms of average annual change per decade, the coming decades are likely to see population falling by 0.1% in the 2030s and by 0.4% in the 2040s, compared to recent decades where it grew by 0.6% in both the 2000s and the 2010s. Moreover, urban

⁴ The Chinese population dropped for the first time in 2022 since 1961 and continued to decline in 2023.

⁵ This is total demand and so includes investment demand, although replacement demand at this time was negligible, with most urban residential buildings only built after the 1990s with an estimated average lifespan of 30 to 40 years.

population growth is also expected to slow to an average of 0.1% per year in the 2040s, down from 3.2% in the 2010s.

Exhibit 3: Organic demand decreases alongside population
China - Trend in population and floor area sales, 10y avg



Putting this into perspective, 1.2 trillion square metres of residential floor space was sold⁵ every year in the 2010s. Based on the current decline in population growth and slower urban population expansion, and assuming average floor area per capita remains stable, organic demand is projected to average 870 million square metres per year in the 2020s – equivalent to a 3.3% annual decrease from the levels seen in the 2010s. More significantly, organic demand is expected to decline even more rapidly 15 years from now – averaging more than a 40% decrease per year between 2030 and 2050. Furthermore, with the typical lifespan of urban residential buildings ranging around 30 to 40 years, the initial wave of commercial residential buildings constructed in the 1990s will reach the end of their lifecycle in the current decade. Additionally, more buildings will be due for replacement in the forthcoming decades. Therefore, housing demand will gradually shift towards replacement and upgrade requirements in the next 5 to 25 years, which eventually will become the primary drivers of residential needs and property demand.

Speculation amid a lack of investment alternatives

China’s economy has made significant progress in recent decades and alongside its rapid economic growth, Chinese households have also experienced substantial increases in income⁶. However, due to an incomplete financial market (i.e., a lack of alternative investment options and policy regulations, as well as strict capital controls) in China, households began channelling their savings into the property market as a longer-term investment and trusted store of value. This pushed property prices up further.

⁶ Between 1998 and 2007, annual real wage growth averaged 9.0% per year, a rate similar to the real per capita GDP growth during the same period.

However, the characteristics of Chinese residential investment are different from more mature developed economies. Indeed, the rush into property was not because it was easy or cheap to borrow as has been the case at times in international markets. In fact, for Chinese savers, the most relevant cost of capital for buying real estate as investment assets is not the mortgage rate⁷, but the opportunity cost of putting their funds elsewhere. Additionally, due to the consistently high down-payment ratio requirement for additional properties — which was only relaxed recently to boost demand — the Loan-to-Value (LTV) ratio for additional property was capped at 50% or lower in many big cities. Yet, many investors chose not to take a mortgage loan at all⁸. This is due a combination of factors, including relative household wealth, historic housing affordability and cultural perceptions of the burdens of loans, not least given the non-limited liability of debtors in the event of default. More significantly, unlike in developed economies, China’s rental markets are small and mostly concentrated in top-tier cities⁹, so most investment properties, especially in the lower-tier cities, do not earn a rental yield. Rather, property investment in China is widely perceived as a zero-dividend, blue chip stock – where returns are not generated from rental income but from future asset appreciation instead.

Exhibit 4: Property investment has outperformed others
China - Investment return comparison



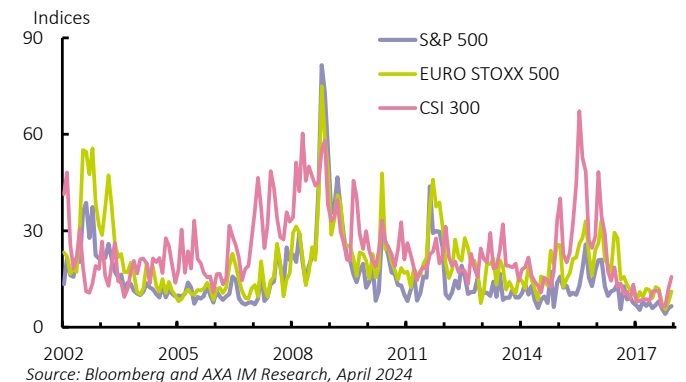
Despite some of the costs associated with real estate investment, including liquidation difficulties, it has been widely viewed as a “safe” investment that has offered almost the best returns compared to other investment options. Even accounting for the recent dip in housing prices, an investment in a property in 1998 would have roughly provided a 420%

⁷ From 2018 to 2021, the average mortgage rate for first time buyers in China had a variance of just 0.02, with the highest rate at 5.71% in 2018 October and the lowest rate at 5.22% in January 2021.

⁸ No statistics are available to show the percentage of investment property with an underlying mortgage loan. For reference purposes, one report in 2016 from *Forbes* stated that only 18% of all the households in China had a mortgage loan; another snapshot from *Statista* shows in 2019 22% of households in China owned at least one property with a mortgage.

return by 2023, whereas an investment in a Shanghai stock market index-tracking fund would have achieved less than 250% – (Exhibit 4). These returns have also come without the excess volatility seen in China’s stock market. With the exception of the global financial crisis, the Chinese equity market has experienced persistent high volatility compared to the US and the European markets (Exhibit 5). Moreover, stock market investment is also deemed riskier than housing investment due to the lack of regulations (e.g., due to reported insider trading)¹⁰. More broadly, incomplete financial markets in China and capital controls creating relatively strict restrictions on overseas investments have left Chinese investors with few other choices.

Exhibit 5: More volatile stock market pushes capital to housing
Volatility of stock markets, 10-day volatility, monthly avg



Our estimates indicate that on average, between 2008 and 2022, there were 32% more units of houses sold every year than the number of newly formed households. Assuming each household only needs one property to live in¹¹, it suggests that 32% of urban residential properties sold in China were purchased for investment purposes. However, while property investors were enjoying favourable returns, problems began to emerge. First, the speculative investment has propelled housing prices higher, contributing to property prices growing at a pace eight percentage points¹² faster than wage growth between 1998 and 2007. This dynamic, of course, made property investment even more attractive, contributing to an upward spiral of prices and returns. Consequently, social problems such as wealth inequality and property affordability were deteriorated. The price-to-income ratio – a measure of property affordability – in China reached nearly 35 in 2023 (Exhibit 6), implying that it would take a family 35 years of annual disposable income to

⁹ By 2018, less than 15% of the Chinese population lived in a rental property, compared to 37% in the UK (2018), 34% in the US (2022), and 36% in France (2017).

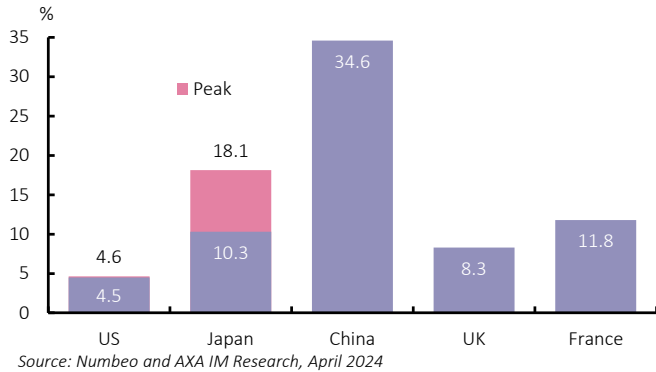
¹⁰ Bayoumi, T. and Zhao, Y., “*Incomplete Financial Markets and the Booming Housing Sector in China*”, IMF Working Paper, Dec 2020.

¹¹ Based on this assumption, any additional property sold is recognised as an acquisition for investment purposes. However, there may be some overestimation.

¹² Chen, K. and Wen, Y., “*The Great Housing Boom of China*”, American Economic Journal, Apr 2017.

pay for a property there¹³. This ratio is far above international comparisons and more than three times that of Japan, and almost two times that of Japan during the peak of the Japanese asset price bubble in the 1990s.

Exhibit 6: China’s skyrocketing price-to-income ratio
Price to household income ratio (2023)



Furthermore, with an increasing number of properties being acquired for investment purposes but not being rented means that many are unoccupied – giving rise to the phenomenon of ghost towns spreading across the nation, particularly in lower-tier cities. Despite a gradual decrease in the property vacancy rate in recent years, it has persistently stood above 20% on average between 2013 and 2018 in China¹⁴. This elevated vacancy rate exacerbates the challenges amid the current property downturn.

The material risk then is that rational investors opt to liquidate their housing assets to limit losses if they foresee no potential for price recovery. Such actions could trigger a wave of selloffs and intensify the decline in property prices within a short period. Recently, we have witnessed persistent declines in property prices, widely acknowledged as a long-awaited market correction. Unlike in the past, Beijing is being conservative in stimulus aimed at arresting these declines. As prices continue to drop, we anticipate a corresponding weakening in investment demand. In the long run, it is difficult to gauge Chinese investors’ appetite for property, but stabilisation in investment demand could take place as household balance sheets revive reflecting broader economic stimulus against a backdrop of still limited alternative investment options.

An efficient tool loses its impact

Historically, China’s housing market has also served as a significant macroeconomic stabilisation tool for the country. Given its deep integration with other sectors and close linkage

¹³ China’s price-to-income ratio peaked in 2023 at 34.6 but declined to 29.7 by April 2024 as property prices slid.

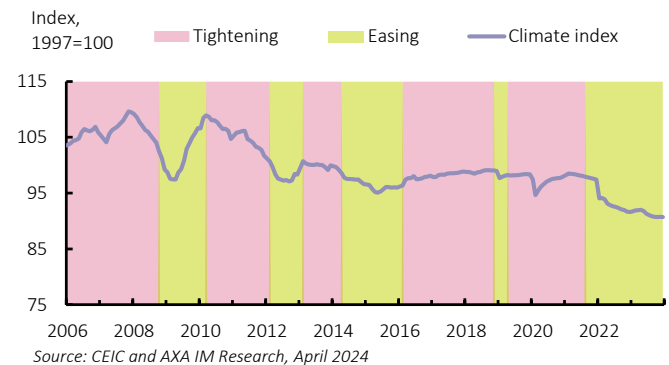
¹⁴ In 2013, the average vacancy rate in China was 22.4% (Chen, K. and Wen, Y., “The Great Housing Boom of China”, American Economic Journal, Apr 2017). In

to overall economic performance, alongside a steady stream of willing investors, it accounts for roughly 25% to 30% of GDP, possessing the potential to generate substantial impacts on the economy. Consequently, Beijing has been able to leverage the real estate sector as either an economic catalyst or inhibitor.

One of the most profound examples of this occurred in 2008. At the time, China faced substantial economic challenges stemming from a significant drop in external demand on which the country’s economy heavily relied, as the financial crisis swept the globe. In response, the authorities announced a RMB4tn stimulus package at the end of 2008, equivalent to 12.5% of GDP at the time. This package encouraged investment in real estate, resulting in growth of more than 30% in 2010 in this sector, which in turn brought the GDP growth rate back to double digits, reaching 10.6%.

However, the latest market downturn may indicate that the authorities are losing efficacy with this tool (Exhibit 7). The sector’s activities failed to revive despite several rounds of supportive measures including mortgage rate cuts, relaxation of purchase restrictions in major cities, and reductions in upfront deposit ratios. Although aimed at easing the balance sheet pressure that existing and prospective mortgage owners face and boosting housing demand, households seem to have lost faith in property’s future. Once an efficient channel to boost the economy, the property sector’s malaise now appears to be weighing on broader economic development.

Exhibit 7: The latest policy easing cycle failed to revive
China - Property market climate index and policy stance



Not a repeat of Japanese - or the US

China’s current real estate woes often draw comparisons to two other significant property collapses in history: Japan in the 1990s and the US subprime crisis of 2007-2008, which eventually led to the global financial crisis. However, we argue, given the different structural composition of China’s housing market,

2018, across 41 cities in China, the vacancy rate averaged at 20.7% (Tan, Z., et al. “Housing Vacancy Rate in Major Cities in China: Perspectives from Nighttime Light Data”, Complexity, Hindawi, Sep 2020).

whatever the outlook, China’s evolution will still be unique and different from both the Japanese and US experiences.

Much has been written about the Japan’s property collapse, which marked the beginning of Japan’s lost decades in terms of economic growth. In the late 1980s, Japanese property prices soared alongside its stock market prices, as the economy expanded briskly after the currency accord of 1985, leading to a material easing in monetary policy that resulted in rapid credit expansion, relatively easy borrowing, overconfidence, and speculation that eventually created an asset bubble. The land value to GDP ratio peaked at 560% in 1990, up from 320% before the start of the easing cycle in 1984.

In comparison, China’s property value¹⁵ to GDP ratio reached a record high of 240% in 2020 and has been trending downward thereafter, suggesting any overvaluation is not on the same scale¹⁶. Additionally, as we will go on to discuss in subsequent papers, China’s banking system is not as exposed to mortgage holder defaults as Japan’s. This reduces the risks that China would face to a financial crisis if difficulties in the property market worsen, which was one of the major challenges that Japan faced in the aftermath of the bubble bursting.

Similarly, the US subprime crisis in 2007 began with subprime mortgage defaults from low-income homebuyers, which triggered the collapse of the property sector, and eventually precipitated a financial crisis. This crisis stemmed from inadequate risk assessment and a lack of regulations in the banking sector. As more people defaulted on their mortgages, financial market stresses became apparent in 2007, resulting in a wave of bankruptcies in the US financial sector. This translated a property crisis into a financial crisis and subsequently into a historic economic recession.

To a large extent both the Japanese and US property collapses were particularly damaging as they exposed domestic banking sectors to large losses through mortgage defaults. China’s banking sector is better protected in that sense. First, the persistently high upfront deposit ratio required means the LTV ratio is kept low in China. Prior to the latest policy easing cycle, the deposit required for purchasing a first home was around 30% of the property value on a nationwide average. For any additional homes, the deposit requirement was around 60%.

¹⁵ The land in China belongs to the state and the collectives, meaning homeowners do not have freehold of the land they live in. Instead, they only have the “right of use” which is granted for 70 years. However, Japanese homeowners own the freehold of the land they reside in. In that sense, we made the comparison between China’s property value as a share of GDP with Japanese’s land value as a share of GDP, instead of a like-for-like comparison.

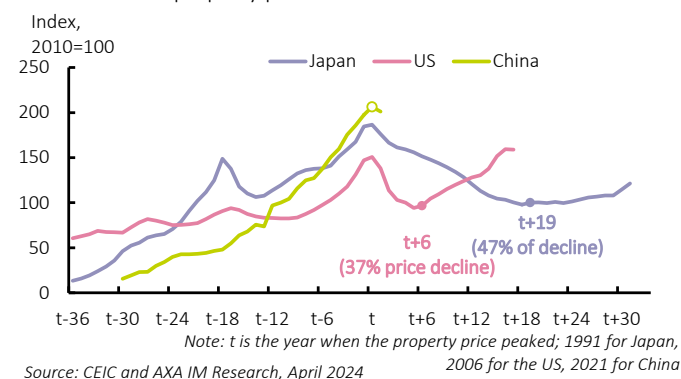
¹⁶ While China may not contend with geographical constraints as stringent as those encountered by Japan during urban expansion, it does grapple with the challenge of maintaining sufficient agricultural land to sustain the nation’s food supply (Huang, T., “Why China’s housing policies have failed”, Peterson Institute for International Economics, Jun 2023).

Second, mortgage loans in China are recourse loans, which allow creditors to seize other assets of the borrower in addition to the property financed by the mortgage if the borrower defaults¹⁷. This mechanism would further reduce any bank losses in the event of mortgage default, adding another layer of buffer for the banking sector. Moreover, the quality of mortgage loans in China has remained high, with the non-performing loan ratio staying below 0.4% from 2009 onwards.

Pace of correction is the key uncertainty

Given the current elevated price-to-income ratio and the lower-than-mortgage-rate gross rental yield¹⁸, we estimate that the theoretical market equilibrium price could be around 50% below the current level. This assumes household income or rent does not significantly outgrow housing prices, mortgage rates remain around their current levels, and investment appetite in the housing market diminishes during this correction period. However, the pace of correction in the market is highly uncertain and depends in a large part on investor behaviour.

Exhibit 8: Market correction in China could take years
Real residential property price index



If investment demand picks up again, it could support property prices, potentially mitigating the extent of the price correction. Conversely, if property investors start to withdraw from the market against a backdrop of expected ongoing price correction, the price correction could be faster. Considering historic examples, differences in housing corrections can be large – the US housing market appearing to take around six years to complete its correction, while the Japanese correction

¹⁷ Fang, H. et al. “Demystifying the Chinese Housing Boom”, NBER, Apr 2015.

¹⁸ China’s gross rental yield is 1.7%, while the mortgage rate is estimated to be around 4.0% (based on the latest data shown in June 2021). In comparison, in the US, Japan and the UK, the gross rental yield is 4.6ppt, 1.2ppt and 1.0ppt higher than their mortgage rates respectively. We acknowledge that the rental market is small relative to other developed economies and the statistics may be distorted by China’s top-tier cities where the rental market is more present. Nevertheless, the comparison between the two statistics echoes the argument that the market equilibrium property price is well below the current level.

was more like 20 years (Exhibit 8). For China, where the correction started two years ago, it could still need several more years to bottom out. Both future investment behaviour and government policy interventions will play a pivotal role in shortening or prolonging the price corrections timeline.

Given the spillover to the broader economy, the speed of the correction is the primary concern. In a worst-case scenario a fast adjustment could trigger a property crunch and pose risks to other sectors and overall economic performance. However, a slower adjustment could result in a soft landing, reducing spillover effects. For better or worse, the government will play a pivotal role in managing this.

Measures have been implemented to support both property demand and supply. In top-tier cities, where strict purchase restrictions were once in place, most measures have been lifted, thereby boosting mainly organic demand, albeit modestly. Nationwide, the minimum down-payment ratio has been reduced for both first-time buyers and additional home buyers, thereby lowering the capital requirements for potential home buyers (and raising the possible leverage to the sector). Moreover, rate cuts on the mortgage-rate-anchored five-year loan prime rate and reductions in the interest rate spread that mortgage loan providers charge were implemented in 2023, eventually feeding through to ease the financial burdens of mortgage holders. On the supply side, to assist financially troubled developers in delivering unfinished projects, large commercial banks were given a "whitelist" of property developers who could gain access to cheap loans from the bank, while also encouraging creditors to prioritise the credit demand from property developers. These measures should provide some boost to activity.

If Beijing is unable to reverse the pessimistic price expectations of property investors, subsequent selloffs could be triggered in the secondary market, accelerating price declines (Exhibit 9). As discussed, mortgage exposure to the banking sector is far more limited compared to international property collapses in the US and Japan. However, households will bear a negative wealth shock as their assets devalue, leading to a decline in consumption and adding deflationary risks to the already low-inflation economy. Again, China's consumption share of the economy is far lower than in either Japan or the US, mitigating the impact. Yet, this would still deliver a material shock to the economy.

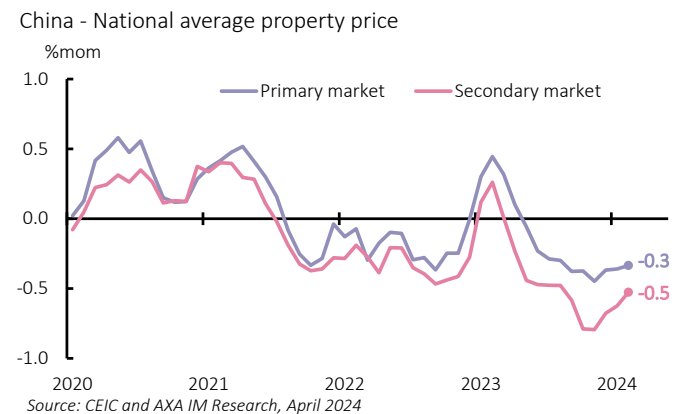
Looking ahead, the authorities could provide direct fiscal support for the sector, which could include a value-added tax cut to boost consumption, and to the labour market more generally, to generate positive income effects to offset the negative wealth impacts from the price decline in properties.

¹⁹ The authorities have been controlling the magnitude of price cuts in the primary market (allowing cuts of less than 5% in general) since 2022. Although

Another round of "urban village" renovation (i.e., quality upgrade) in 21 mega and super cities, likely with the capital support from policy banks via the pledged supplementary lending facility, is also plausible. Like the so-called "shanty town" renovation in 2015, this initiative would boost real estate investment, construction activities, and the upstream and downstream sectors of the related supply chain, though the impact is likely to be smaller compared to it was in 2015, given the smaller scale in this episode.

Beijing could also impose strict restrictions on second-hand home listings and set a floor price for newly listed homes on the market¹⁹ – artificially supporting the market. We believe this would be Beijing's last resort, as it contradicts its intention to "return the commodity attributes to commodity housing" – aiming at minimum market intervention and liberalisation of the housing market.

Exhibit 9: Housing prices are still on the decline



Economic spillovers

Another major reason that places the current property downturn centre-stage is its importance to the economy and the potential damage it could cause to overall economic performance. China's real estate sector and related activities once accounted for 25% to 30% of national GDP. As real estate investment and property sales continue to decline despite recent policy adjustments, the sector acts as a drag on the overall economy. According to our estimation, assuming that there is limited production substitution in the economy to fill the void caused by the real estate sector, China's could face a reduction of around 10% of GDP cumulatively from 2021 to 2026 (Exhibit 10).

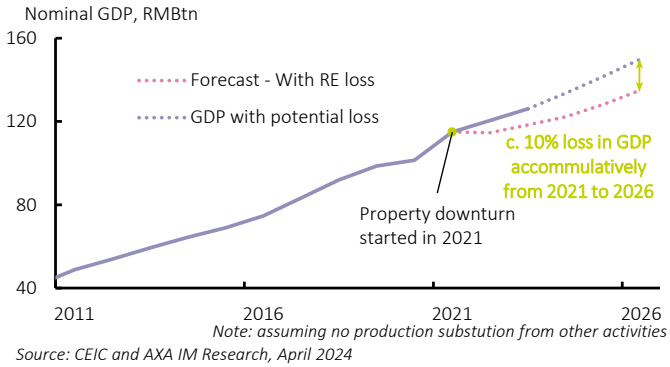
In the short-term Beijing looks to be addressing this drag through the familiar tool of boosting infrastructure projects. It is also enjoying a revival of export growth as global trade appears to be recovering. As we will argue separately both

such control has been more relaxed in 2023 as the price declines have spread widely nationwide, developers are still refraining from aggressive price cuts. So far there is no reported price controls in the secondary market.

avenues face limits – the former through diminishing returns from this policy and the risk of increased resource misallocation, the latter through increased resistance in the international community.

Exhibit 10: Property slowdown will drag on GDP by circa 10%

China - Potential losses to GDP from real estate related activities



The outlook for the Chinese property sector is highly uncertain. Based on the current outlook we envisage a correction that continues over the coming years and could be set to deliver a material adjustment to property values. The pace of such an adjustment is likely to be greatly dependent on investment behaviour, especially against a backdrop where the traditional organic drivers of demand are slowing. That said, over the longer-term the broader pace of household income growth and the replacement and upgrade demand for housing is also likely to support property development. However, even a soft landing in the property market would create a persistent headwind for broader economic activity given the sector’s importance for the economy. Chinese authorities are already enacting strategies to boost activity in other sectors, including infrastructure projects and export growth. But both avenues may have less space to alleviate headwinds than in the past.

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