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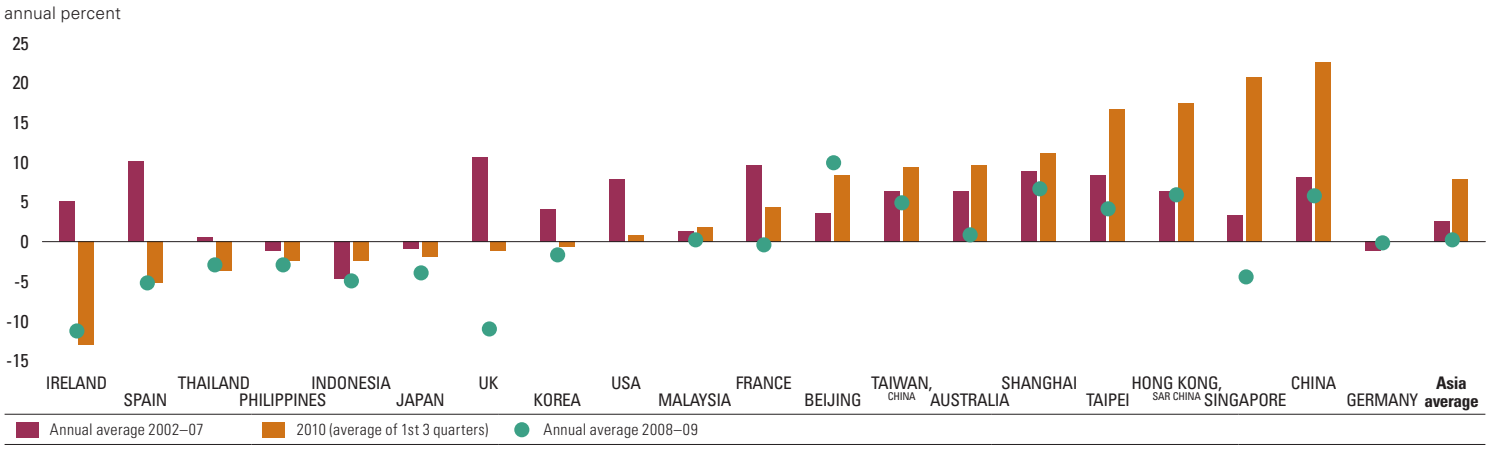
5 Asian Housing Markets: Bubble Trouble?

by Tehmina S. Khan

Continued growth in Asia, combined with slow recovery and fiscal sustainability concerns in Western economies and ample global liquidity has fuelled large capital inflows into region. This has lead to growing concerns about asset bubbles, including in housing. This note takes a closer look at whether housing markets in the region are out of line with "fundamentals" and finds that, as yet, there is no immediate threat of a housing bust. However, caution is still warranted in the short term on a number of grounds: although monetary tightening has begun, interest rates are still extremely low; some countries are showing signs of a "quantity bubble"; and large capital inflows are expected over the coming year that should further feed asset prices. Over the long term, as private mortgage finance and asset-backed security markets grow, strengthened financial supervision and risk assessment closely coordinated with monetary policy are needed to minimize risks to financial stability.

House prices in several key Asian economies recorded double digit growth in the third quarter of 2010, while rising inflation means that monetary conditions remain accommodative across the region. Meanwhile concerns about asset price bubbles have grown, fed by positive growth outlook of East Asia compared to Western economies, the start of the QE2 by the US Federal Reserve Bank and large capital inflows into the region. This note takes a closer look at housing markets in East Asia. It starts by looking at house price trends over the past decade. It then considers whether recent house prices movements are "fairly valued" or whether there is a potential risk of correction.

Figure 1. Real house price growth in East Asia compared to western economies, selected economies and cities



Sources: CEIC, Haver and Thompson Datastream.
Notes: Residential land price data for the 6 largest cities, the Halifax House Price, the Case Shiller 10 city index and residential building land price data are used for Japan, UK, US and China respectively.

At the moment house prices in East Asia are not far above values implied by fundamentals, suggesting that there is no overheating as such, at least at the national level. However, housing affordability is under pressure in several of the key emerging economies, including China, Singapore, Hong Kong, SAR China and Taiwan, China, and there are also indications of a "quantity bubble" in China. In addition, price pressures may continue to build fuelled by capital inflows into the region, low interest rates and the fact that efforts to efforts to increase housing supply may likely to take a few years to come through the

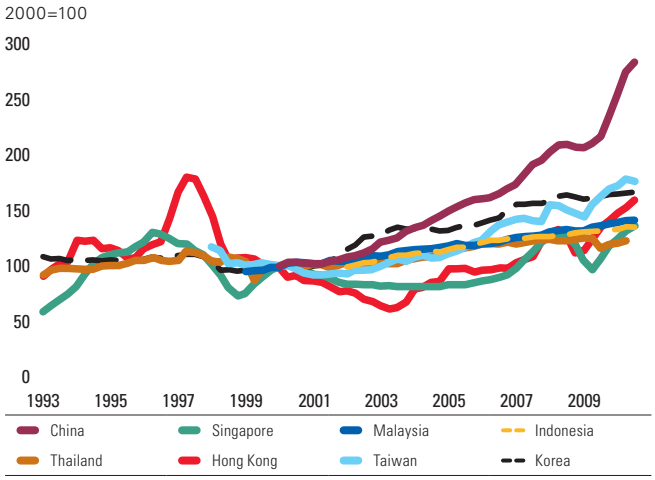
pipeline. Together these factors may counteract government efforts to restrain "speculation" and to tighten loan conditions through capital controls and regulatory measures.

Regional house price trends

Growth in real house prices in Asia has been fairly muted over the past decade in comparison to large bubbles that built up in Western economies. For instance, in real terms house prices grew at an annual average rate of less than 2% between 2002–2007 in the region (excluding advanced economies such as Japan and Australia).

In nominal terms, house prices in several East Asian economies have only now recovered to (or are not far above) peak levels witnessed at the time of the Asian Financial Crisis in 1997/98 (Figure 2). In part this is because the Asian Crisis resulted in a long period of high interest rates, rising defaults on property loans and a period of relative economic stagnation that slowed the growth of mortgage and housing markets.

Figure 2. Nominal house price indices, selected Asian economies



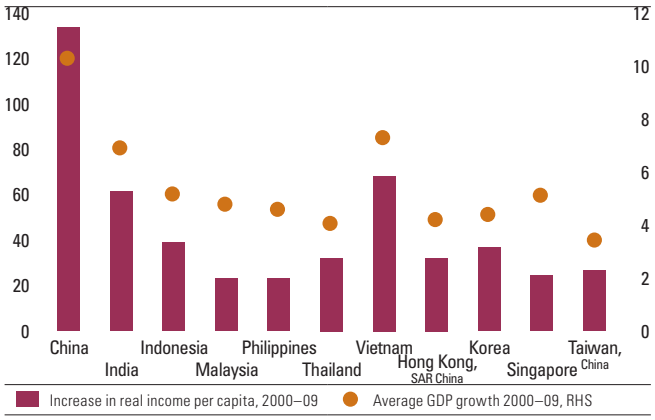
Sources: CEIC, Haver and Thompson Datastream. Residential building land price data used for China.

Economic and demographic fundamentals

This is despite the fact that the economic and demographic fundamentals of the region as a whole imply much stronger growth in house prices over the past decade than experienced. Annual average GDP growth in East Asia has been close to 5.5% since 2000 while average, real GDP per capita has risen by 45% between 2000 and 2009 (Figure 3).

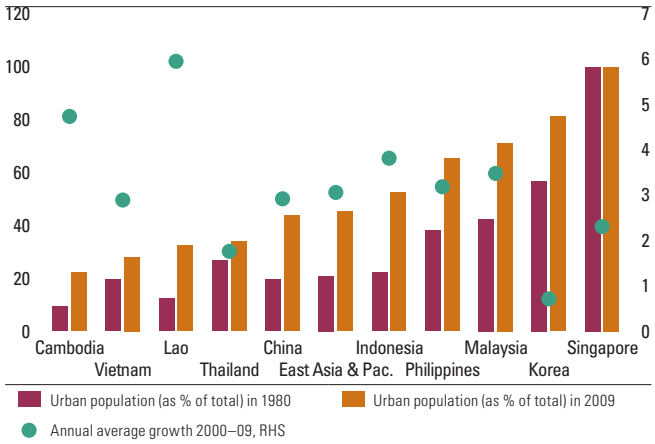
In addition, with its population estimated at around 1.9 billion people, the overall magnitude of demand for housing in East Asia (exc. Japan, Australia and New Zealand) is enormous. For instance, it is estimated that in Indonesia—the fourth most populated country in the world—some 800,000 housing units are required annually to accommodate new household formation[1]. Moreover, housing demand is also being spurred by a shift of populations from rural areas to cities as countries have developed. Urban populations in the region have grown at an annual average rate of 3% between 2000 and 2009.

Figure 3. Per capita income and GDP growth



Source: IMF.

Figure 4. Urban population characteristics



Sources: World Development Indicators, World Bank.

1 UN Habitat (2008).

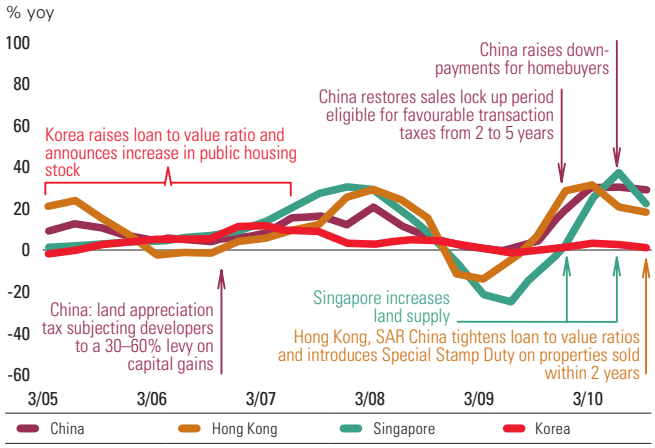
Omnipresent governments

Furthermore, government intervention has also been a ubiquitous feature of Asian housing markets. Governments have regularly undertaken measures such as altering loan to value ratios, imposing taxes and increasing the supply of public housing to avoid sharp and potentially destabilizing swings in house prices, and to increase housing affordability. This has helped to restrain house price growth in several economies, but has resulted in a stop-go cycle in others.

For instance, between 2005 and 2007, Korea introduced 5 policy packages[2] to dampen "excessive" house price growth in Seoul and to prevent it from spreading to other cities. On the supply side, measures included the construction of an additional 2.6 million housing units for rent by 2017 to boost public rental housing from 6% of the country's total housing stock to 20%. On the demand side, tighter loan-to-value ratios and debt service-to-income ratios were introduced. Consequently, nominal house price growth in Korea slowed from 11.6% in 2006 to just 3.1% In Q4 2007 and has averaged 2.2% since then. In Malaysia on the other hand, government attempts to increase homeownership for ethnic Malays has reputedly led to an oversupply in some property segments such a condominiums, helping to restrain price increases.[3]

In China the authorities have also maintained a close eye on housing markets, intervening regularly to dampen speculation. For example in 2010, it raised down-payment requirements by 10% for first- and second home buyers to 30% and 50% respectively. Similar measures to restrain house price increases have been adopted in Singapore, Hong Kong, SAR China and Taiwan, China as well (Figure 5). Nevertheless, despite these interventions, residential house prices in Singapore, and Hong Kong, SAR China and land prices in China were some 20% higher in real terms in the first three quarters of 2010 compared to prices in 2009 and nearly 10% higher in Taiwan, China.

Figure 5. Recent government interventions in property markets and nominal house price growth



Source: World Bank.

Asian housing markets: "fairly valued" or overheating?

The question that arises then is to whether house prices in the region are currently "fairly valued" or not. Two key rules of thumb are house price to disposable income ratios and gross rental yields, although their main shortcoming is that they ignore changes in underlying fundamentals such as borrowing costs and demographic changes. They are also likely to be affected by the institutional arrangements. For example, both the Philippines and Taiwan, China maintain rent controls.

House prices to income/wage ratios provide an indication of affordability or roughly the number of years that it would take a median/average household to pay off its loan. Since such data (on either actual median incomes or median house prices) is generally lacking[4], housing affordability can be assessed indirectly by looking at the trend in house price to wage/income ratios. As Figure 6 shows, since 2001 prices had been rising at a slower pace than incomes in China until 2009 when affordability seems to have declined. There are also marked declines in affordability in Hong Kong, SAR China and Taiwan, China while Singapore too has experienced a deterioration over the past year.

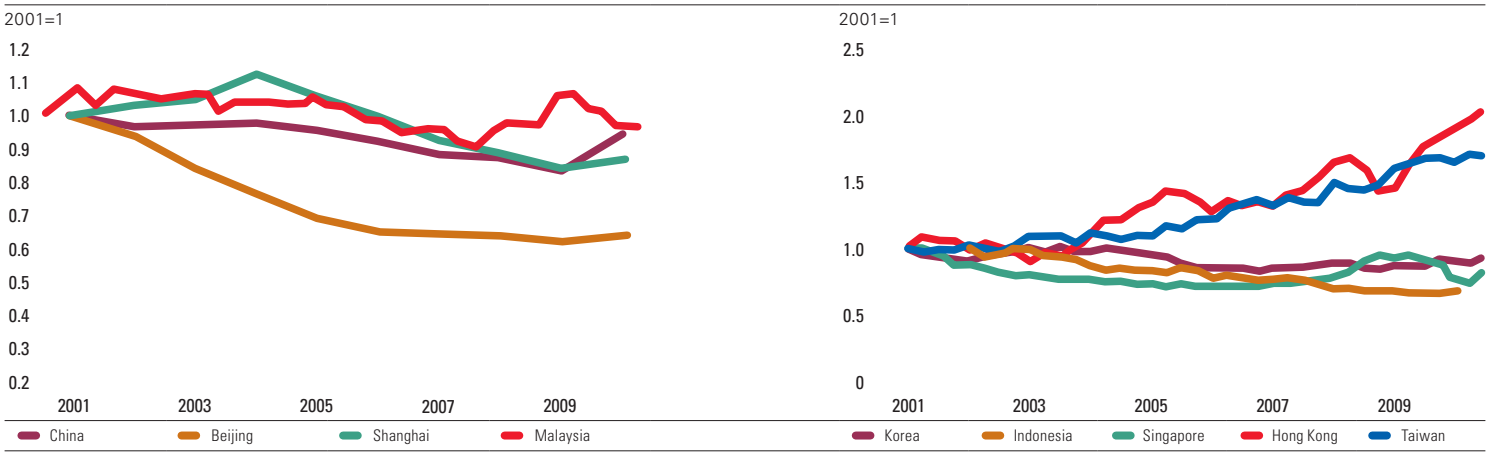
An alternative metric is gross rental yields, which is similar to a price to earnings multiple for stocks and reflects the relative cost of owning versus renting. In a fairly valued market, there should be little difference between renting and buying, since if

2 OECD (2007).

3 Developers in Malaysia are required to reserve 30% (and up to 50% in some states) of apartments in new housing schemes for bumiputra or ethnic Malays. Although these apartments are also eligible for additional government subsides, the ethnic Malay tend to be reluctant to purchase them because of resale restrictions (they can only be sold to other bumiputra). With developers finding it hard to sell the reserved amount, this has resulted in downward pressure on the prices of new apartments. Also see: http://www.asiabuilders.com/asiabuilders/NewsSingle.aspx?rec_code=19802&ind_ctry_code=conMY , and http://www.penangwatch.net/node/2406

4 In Taiwan, China however, house prices at the end of the second quarter of 2010 stood at 7.7 times income, and were 11 times higher in Taipei.

Figure 6. House price to wage/income ratios



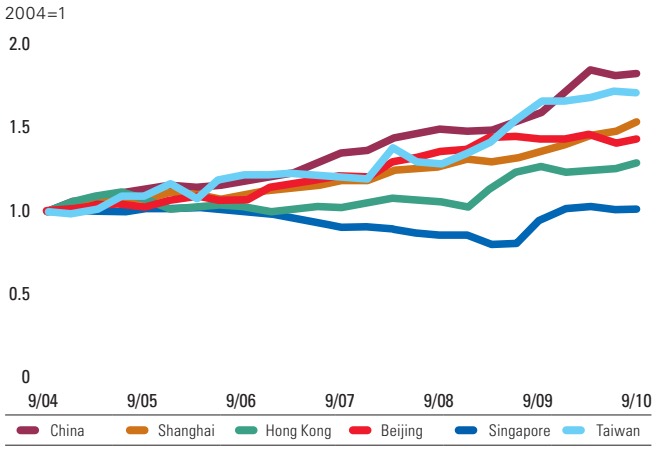
Sources: Datastream, Haver, CEIC,World Bank. With the exception of Singapore for which median household income is used, average monthly income is used for the remaining countries.

prices are too high then potential homebuyers will choose to rent, exerting downward pressure on house prices. If however price to rent ratios remain high for a prolonged period of time, then this suggests that prices are being held up by expectations of future price gains, suggesting the presence of a "bubble."[5] As Figure 7 shows, this appears to be the case for Hong Kong, SAR China and Taiwan, China and to a lesser extent for Singapore and Shanghai.

Finally, to better account for underlying economic fundamentals, an econometric model is estimated[6]. The log of real house prices is modelled as a function of log of real income per capita, population and housing supply as measured by housing construction completed or coming on stream. Frictions in housing markets such as supply lags, are accounted for by including lagged real house prices as an explanatory variable and the real cost of borrowing through the use of real mortgage interest rates or commercial bank lending rates[7].

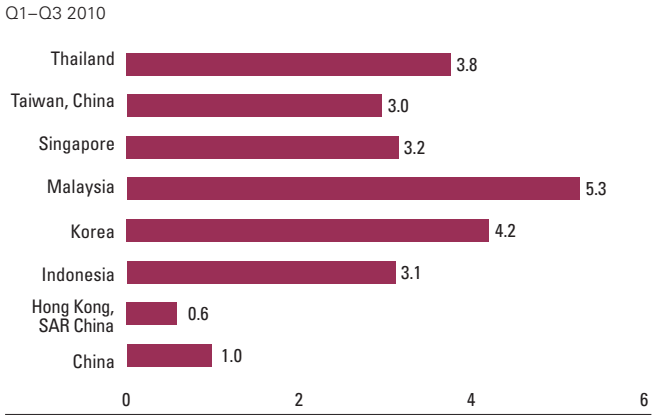
The gap between actual prices in 2010 and those predicted by the model is shown in Figure 8. While this can reflect omitted variables, such as ease of obtaining housing credit, it can also be interpreted as a measure of the degree to which prices deviate from macroeconomic fundamentals. The figure shows that house prices in East Asia are currently not far above predicted values based on fundamentals, suggesting that there is no substantial overheating as such, at least at the national level. The largest degree of "overvaluation" is in Malaysia (albeit of around 5%), where prices have been steadily increasing over the past decade despite a doubling of the housing stock since 2000.

Figure 7. House price to rent ratios



Sources: Datastream, Haver, CEIC, World Bank.

Figure 8. Gap between actual house prices and those implied by fundamentals



Source: World Bank.

5 Himmelberg, Hummel and Sinai (2005).

6 Typically, two approaches are followed. In the first case, price rent ratios are compared with time varying discount factors that are determined by the user cost of owning a house, which take into account mortgage rates and interest rate deductibility, property taxes, maintenance costs (e.g Himmelberg, Hummel and Sinai, 2005). However such data is not available for most Asian countries, so we resort to the second method which compares actual house prices with those that would be predicted by underlying macroeconomic and demographic fundamentals, as for example in Abraham and Hendershott (1996) and Glindro et.al (2008).

7 The Within-Groups estimator is used, which takes into account unobserved heterogeneity across sample countries. The consistency of the estimator depends on a large T and Monte Carlo studies (Judson and Owen, 1999; Bruno, 2005) show that when N is small relative to T, the within estimator outperforms IV-GMM type estimators in terms of bias and root mean square error. This is because the asymptotic properties of IV-GMM type estimators rely on large N when T is fixed so that their use can yield highly biased and imprecise point estimates in small samples. N equals 8 countries while T equals quarterly data from 2000 onwards till 2010 Q3 (or 43) in our sample. Note that in our model the calculations on the gaps for 2010 are conditioned on the real house price level in 2009; this might lead to some underestimation—in absolute value—of these price gaps.

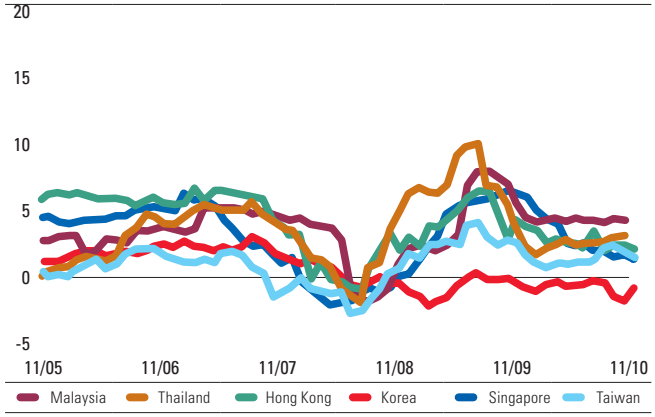
Sources of risk

Generally the results suggest that there is no immediate risk of a housing bust or financial instability, although there are signs that house price increases are starting to outpace income growth in several major economies and that price to rent ratios are also too high Caution is warranted on a number of grounds, including the fact that interest rates in the region are currently being raised from extremely low levels, that some countries are exhibiting signs of a "quantity" bubble, and that large capital inflows are expected over the coming year which should feed into asset prices. These factors are considered below

a) Loose monetary policies for now, what next

The recovery in real estate markets in East Asia has been driven by a number of factors. First, with central banks cutting policy rates sharply, mortgage or borrowing costs fell to extremely low rates. Although base rates have been raised gradually over the past year as the region's economies have recovered and output gaps closed, real borrowing costs have stayed low as inflation has climbed (Figure 9).

Figure 9. Real borrowing costs (%), selected economies



Sources: Haver, CEIC, Datastream, World Bank. Base policy rates used for Malaysia and Korea, commercial bank rates for Thailand and Hong Kong, and mortgage or housing loan rates for Singapore and Taiwan.

In Hong Kong, SAR China, interest rates have remained at rock bottom due to its peg with the US dollar. Singapore on the other hand targets its exchange rate against a basket of currencies. Although in October it increased the pace of currency appreciation to limit imported inflation, domestic interest rates have remained relatively flat: 15 year mortgage rates are currently at their lowest levels in roughly 20 years. Meanwhile, in China increased bank lending was a key part of the massive monetary stimulus introduced in 2009 to mitigate the impact of the external slowdown. Mortgage lending rose by more than 40% in 2009, to 14% of GDP from 11% the previous year, while the share of new bank lending to households, notably mortgages increased from 14% to 26%[8].

To the extent that central banks are laggards in raising policy rates in line with inflation (in Hong Kong, SAR China's case, this is not even an option), then the extremely low real cost of borrowing should continue to counteract government efforts to restrain "speculation" and to tighten loan conditions through capital controls and regulatory measures. On the other hand, there is the risk that policy makers raise rates too quickly in the face of a weakening/still weak economic environment in Western economies. Widening interest rate differentials between emerging market economies and advanced countries (where rates are likely to remain low for some time to come) could also exacerbate volatile capital flows into the region.

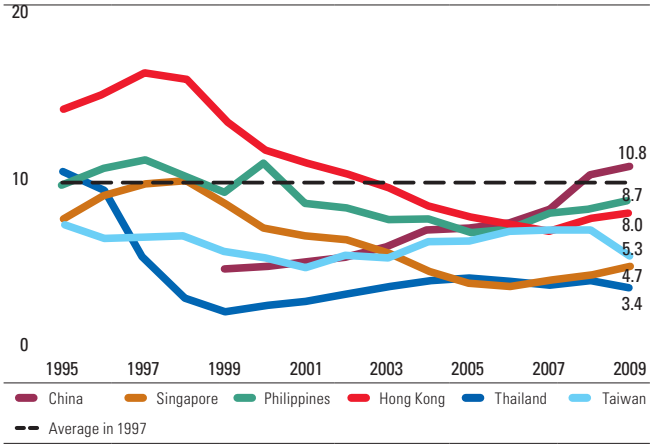
b) Not just prices but quantities matter too

Another area of concern is that, notwithstanding the positive outlook for income and urban population growth rates, a construction bubble may be building up. This is worrisome because when housing markets turn, housing oversupply can keep prices depressed for a long time and help delay a recovery in bank and consumer balance sheets. Vacancy rates in newly built properties are one indicator of oversupply, but such data are hard to come by in East Asia. Alternative benchmarks include residential investment to GDP ratios as well as other indirect measures such as electricity meter usage.

In the case of China, the residential investment to GDP ratio has grown steadily since the start of the decade (Figure 10). The upward trend is not worrying per se, given the intense urbanization pressures in China. Rather it is the rate of increase which matters: between 2000-06 the ratio climbed by 2.7 percentage points (pp) to 7.3 in 2006. By 2009, however it had reached 10.8, an increase of 3.5 points (Figure 11). This is not much lower than the 4.7 pp increase in Ireland in the four years prior to when its housing investment to GDP ratio peaked (in 2005) but much higher than in other countries that suffered large housing price and construction busts such as Spain, the USA and Japan.

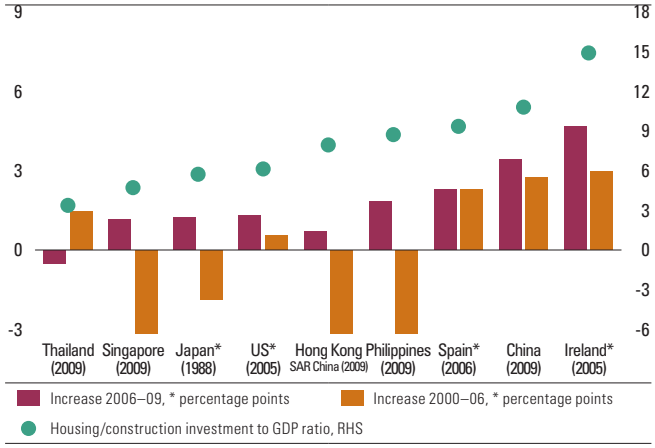
8 Schroders (2010).

Figure 10. Investment in construction/housing to GDP ratios, selected economies



Sources: Datastream, Haver, World Bank. Investment in construction to GDP shares used for the Philippines and Taiwan, investment in residential construction for China and Singapore, construction including real estate development for Hong Kong, and construction for private buildings for Thailand.

Figure 11. Investment in construction/housing to GDP ratios, selected economies



Sources: Datastream, Haver, World Bank. Investment in construction to GDP shares used for the Philippines and Taiwan, investment in residential construction for China, Singapore, USA, Japan, Ireland and Spain, construction including real estate development for Hong Kong, and construction for private buildings for Thailand.
Notes: The dates in parentheses indicate the year for which residential/construction investment ratios data is shown in the chart. This is 2009 for East Asian economies or the year in which these ratios peaked in the other economies. For countries marked with an asterisk, the 2006–09 increase is for the 4 years up to the date at which the ratio peaked (e.g. from 2002–05 for the USA) while the 2000–06 increase is for the seven years prior to that (1996-2002 for the US).

Meanwhile, media reports suggest that some 64.5 million urban electricity meters are reported to have registered zero consumption over a six-month period in China. In the absence of data on vacancy rates, this provides an upper limit on the amount of new residential property that lies empty and may have been purchased for speculative purposes.[9] While growing housing needs are one possible driver, these trends suggest that expectations of further price appreciation are also driving housing markets.

c) Rising tide of global liquidity lifting asset prices...

Furthermore, capital flows into the region are up sharply compared to a year ago (Figure 12). More inflows are expected in the coming year on account of the second round of quantitative easing worth US$600bn by the US Federal Reserve Bank that started in November.

Capital inflows to Hong Kong, SAR China for instance, were up sharply in Q4 which is estimated to have raised total liquidity stock in the banking system to a new record level of US$170 billion, exceeding the previous peak in late 2009[10]. With the currency pegged to the US$ and no capital controls, this has also meant that capital inflows readily translate into capital price gains.

Figure 12. Capital flows to emerging markets

	2008	2009			2010				
	Total	H1	Q3	Total	H1	Q3	Sep	Oct	YTD
Total	390	110	99	353	189	169	89	46	403
Bonds	65	36	33	115	87	59	27	21	166
Banks	257	43	34	129	46	45	16	5	96
Equity	68	32	32	109	57	65	47	20	141
Lat. America	90	37	37	137	64	65	48	11	140
Bonds	20	15	18	62	36	31	15	8	75
E. Europe*	157	22	21	72	53	34	14	15	103
Bonds	35	13	11	33	31	17	7	9	57
Asia	98	44	33	122	58	59	23	18	135
Bonds	7	6	3	16	14	8	3	3	26
Others	45	7	9	22	14	10	4	1	25

Source: World Bank. * Including Poland

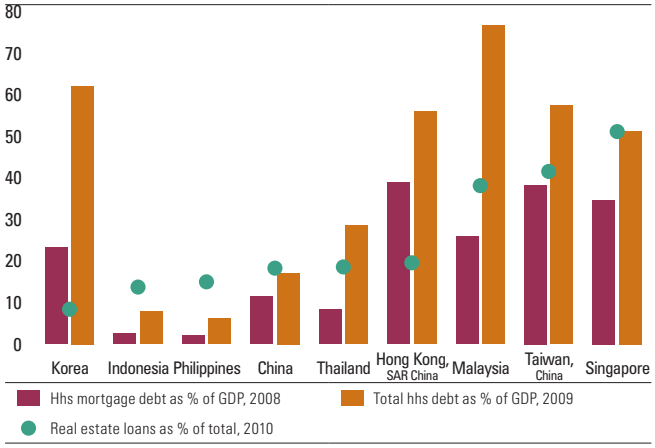
In China, although capital inflows may increase the pressure on the Renmibi to appreciate, they may be less problematic than is generally thought. This is because the amount of net financial inflows is relatively modest compared to other flows and domestic credit creation, due to relatively effective capital controls. More than 100% of the increase in foreign reserves in 2006–09 was driven by the current account surplus and net FDI while in 2009, the first year with positive net financial inflows since 2004, such net inflows were equivalent to around 4% of domestic credit creation[11].

9 Shttp://www.marketwatch.com/story/chinas-overhang-of-empty-apartments-2010-08-03?siteid=rss&rss=1.
10 Morgan Stanley (2010).
11 China November Quarterly, World Bank, 2010.

d) ...but an unwinding of capital flows could hit asset markets hard

With global financial markets remaining jittery and given the potential for a protracted slowdown in Western economies, there is the risk that investor, business and consumer sentiment could also take a hit in East Asia, with ramifications for property markets. Research suggests that housing markets in Singapore and Hong Kong, SAR China are more vulnerable to price movements in other asset markets (notably stock markets) than other economies in the region.[12]

Figure 13. Household mortgage debt and banking sector real estate loans



Sources: ADB Asian Economic Monitors, Dec 2010 and July 2009. Household debt data for Thailand is from the Bank of Thailand and is for 2009.

Moreover although bank balance sheets are generally healthy across the region, in several countries banking sector assets are heavily concentrated in real estate loans, notably in Singapore, Malaysia and Taiwan, China. Furthermore, the relatively high levels of household debt in these economies suggests that a sharp fall in house prices could deal a strong blow to consumer spending. As Figure 13 also shows, in Singapore, Taiwan, China and Hong Kong, SAR China, mortgage debt has accounted for roughly two-thirds or more of household debt in recent years. With mortgage lending in the region underpinned by variable rates (Table 2) interest rate risk is mainly borne by borrowers. There is accordingly a risk that as policy makers tighten monetary policy, then interest rate increases will affect household balance sheets, particularly in countries where household debt levels are high.

Table 1. Real house price growth in East Asia compared to western economies, selected economies and cities, annual %

Country	Mortgage Debt as % of GDP*	Mortgage Type (Mostly Fixed or Variable?)	Average Length of Mortgage Contract (Years)	Average (Maximum) Loan to Value Ratio*
China	11.6	Variable	15-Oct	...('80)
Indonesia	2.5	Variable	15	75–80 (80)
Thailand	8.529	Variable	20-Oct	70–80 (100)
Korea	23.4	Variable	3–5 (private lenders), 30 (Korean Housing Fin. Corp set up in 2004)	56 (70)
Malaysia	26	Variable	30 (Maximum)	…(80)
Philippines	2.1	Variable	30 (Maximum)	70–80 (…)
Taiwan	38.4	Variable	20	60–70 (80)
Hong Kong	38.8	Variable	20	50–60 (60)
Singapore	34.8	Variable	…	…(70)
US**	69	Fixed/ Variable	30	75–85 (100+)
UK**	75.4	Fixed/ Variable	25	80 (100+)
Australia**	74	Fixed/ Variable	15–20	90–100
Canada**	43	Fixed/ Variable	25	70–80
Ireland***	65	Variable	20	90–95 (100+)

Sources: Various media, ADB, BIS, V. C. Warnock and F. Warnock (2008), H Zhu (2006), IMF (2010), Ahearne et. al (2005). **Data for 2004, *** Data for 2007 from The Economist and Cardarelli et. al (2009).

Added to this there has also been an influx of buyers within the region which is helping to push up property prices in Hong Kong, SAR China and Singapore. In the latter, sales of new private residential units in 2009 to foreigners were more than 300% higher on 2008 levels. These have continued to rise since then, with residential unit sales to foreigners in the first 3 quarters of 2010 exceeding total 2009 sales by some 12% and accounting for some 20% of sales year to date.

12 H. Zhu (2006) "The structure of housing finance markets and house prices in Asia." BIS Quarterly Review.

One silver lining here is that Singapore already has some experience of this. At the time of the Asian Crisis, many investors in the region, in particular Chinese-Indonesian families viewed Singapore as a "safe haven" thereby boosting private property demand. Consequently, if any intra-regional capital flight were to occur, then Singapore may likely remain attractive as a destination for regional property investors (possibly due to its relatively transparent regulatory regime and strong property rights protection).

Finally, mortgage markets in both Singapore and Hong Kong, SAR China are very different to, for instance, US and UK mortgage markets which were characterised by the use of under-regulated and opaque asset backed security lending to sub-prime borrowers and extremely high loan to value ratios. Mortgage-backed securitisation is still in its infancy in Hong Kong, SAR China and Singapore, maximum loan-to-value ratios range between 70 to 80% (see Table 1 overleaf) and "teaser-rate" mortgages, whereby mortgage rates increase dramatically a year or two after a loan is taken out, and which were used to reel in sub-prime borrowers in the US, are unheard of.

Looking ahead

At the moment Asian housing markets do not seem overvalued, although there are considerable risks that price pressures may build over the coming year. On the flipside, with policymakers alert to the risks of asset price bubbles including in housing markets, they may also be successful in containing house price increases, although efforts to increase housing supply are likely to take a few years to come through the pipeline. Policy is likely to be further tightened over the coming year as well and growth is expected to soften in the region and this may lead consumers to postpone the purchase of big-ticket items such as housing.

Over a longer-term horizon, rising prosperity and urbanisation imply a considerably favourable outlook for Asian housing markets with the region expected to remain on a high growth trajectory. In addition, rising populations and high urbanisation rates in the relatively less developed economies of the region (where on average less than 50% of the population lives in cities) suggests that demand for urban housing and related infrastructure is set to increase dramatically over the next decade. Indeed, in some countries, urbanisation still has a long way to go: in Vietnam and China, urban residents comprise only 29% and 40% of their total populations respectively, compared with 67% in Malaysia and 80% in Korea.

Furthermore, the role of private financial institutions in the provision of mortgage finance (which has traditionally been the remit of government supported housing agencies) should also grow. Although housing markets have been gradually liberalised since the Asian Financial Crisis, housing finance systems are considerably smaller than in other developed economies (again with the exception of Hong Kong, SAR China and Singapore) and the range of mortgage products more limited suggesting considerable scope for growth in mortgage finance[13]. Indeed, the first mortgage backed securities in China, Hong Kong, SAR China and Thailand were only issued after 2004. However governments across the region are actively encouraging the development of asset-backed security markets primarily in order to deepen capital markets.

But this suggests that as private mortgage finance and asset-backed security markets grow, the need for strengthened financial supervision and risk assessment closely coordinated with monetary policy will also increase. Otherwise the absence of long-established credit histories in the region and relatively poor financial and regulatory supervision (with the exception of Hong Kong, SAR China and Singapore) will pose a growing risk to financial sector stability.

13 Lee and Park (2009) and Arner, Lejott and Zibell (2008).

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