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Housing market risks in the wake of the pandemic

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Housing market risks in the wake of the pandemic

Key takeaways

- *House prices rose strongly in advanced economies during the pandemic, breaking with typical post-recession patterns. These developments support domestic demand in the short term but carry risks to the outlook if they reverse.*

- *Rapid economic recovery, fiscal support and high saving rates amid negative real interest rates explain part of the strong housing demand. Pandemic-induced demand for space, structural supply constraints and increased demand from investors provide additional support for house prices.*

- *The monetary policy response to inflationary pressures will be a relevant factor when assessing housing market risks. Moderate increases in interest rates could help forestall speculative demand.*

Housing markets during Covid-19

Recent events have injected more uncertainty into the outlook for the global economy, at a time when macro-economic risks were already evident. Rising inflation and the prospect for monetary policy tightening occurred against the backdrop of elevated asset valuations, particularly house prices. In advanced economies (AEs), these soared since the pandemic's onset, in some cases by more than 20%. How the housing market evolves has important implications for macro-financial stability.

Housing market developments during the pandemic have been unusual in several respects. Over the last four decades, in past recessions, downturns were typically followed by a moderate fall in nominal house prices, lasting about four quarters (Graph 1, left-hand panel). In the pandemic period through end-2021, there was not even a temporary dip. In addition, the current recession has not been accompanied by significant changes in credit growth (centre panel), unlike past episodes, when households typically reduced their leverage after it had increased in the expansion phase. Similarly, just prior to the latest recession, the "twin boom" pattern, eg as observed before the Great Financial Crisis (GFC), was absent despite extraordinarily low borrowing costs.

At the same time, the international synchronisation of house prices has strengthened. More than 60% of house price movements can now be explained by a common global factor (Graph 1, right-hand panel). One reason for this much higher synchronisation is that the pandemic has been truly global, thus inducing similar policy reactions and flattening yield curves worldwide. In addition, in certain markets, global financial investors had become more active before Covid (Liu et al (2020), IMF (2018)).
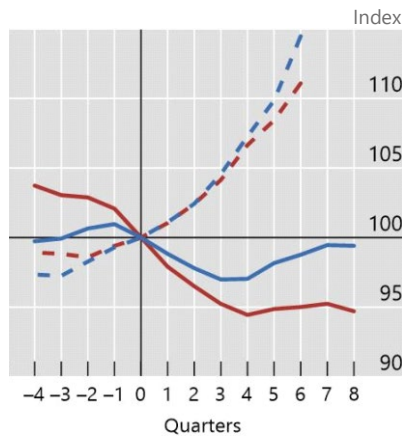
A range of factors – some specific to the pandemic – have shaped recent developments. Economic activity has recovered much faster than expected from the pandemic slowdown, with higher saving rates boosting financial wealth and fiscal support raising household income in many AEs. And monetary policy has been highly accommodative. At the same time, shifts in preferences have increased demand for space (Graph 2, left-hand panel) and for property away from city centres (centre panel), resulting in corresponding *relative* price increases. Supply bottlenecks have led to large, if partly reversed, increases

in lumber and steel prices. And as ever, housing supply has typically been constrained by land availability, zoning and building regulations.

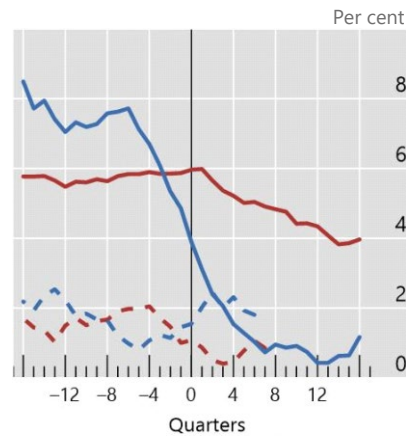Housing boomed through the pandemic, as international co-movements grew   Graph 1

Property price developments differ from the past[1, 2]	Household credit growth and long-term interest rate are also atypical[2, 3]	Increasing role of global factor in driving house price movements[4]
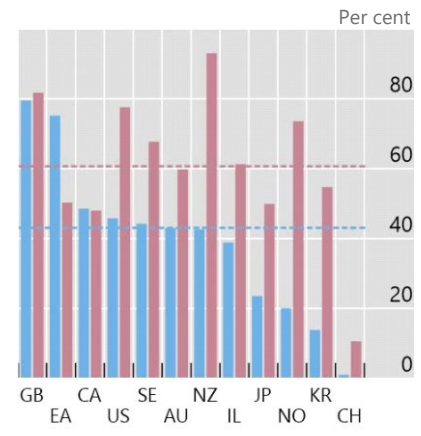
AU = Australia; CA = Canada; CH = Switzerland; EA = euro area; GB = United Kingdom; IL = Israel; JP = Japan; KR = Korea; NO = Norway; NZ = New Zealand; SE = Sweden; US = United States.

[1] Nominal and real house price movements before and after business cycle peaks (timed to quarters *t*, when house prices are scaled to 100).   [2] Business cycle peaks based on standard Bry-Boschan algorithm of the output series for CA, EA, GB and US. Lines refer to simple averages.   [3] Real year-on-year household credit growth and 10-year government bond yield before and after business cycle peaks (timed to quarters *t*).   [4] Fraction of real house price variation explained by global component (first principal component). The dashed lines show the median of the economies.

Sources: Bloomberg; Datastream; national data; BIS; BIS calculations.

Above all, exceptionally easy financing conditions have boosted demand for housing further amid the strong liquid asset positions of households and support from other factors. Households looking to be owner-occupiers can borrow at historically low nominal and real interest rates. In addition, gross rental yields are well above bond market returns in AEs, turning dwellings into attractive assets, including in the buy-to-let segment (Graph 2, right-hand panel). Besides the search for yield, the inflation-hedging properties of housing may also have played a role recently.
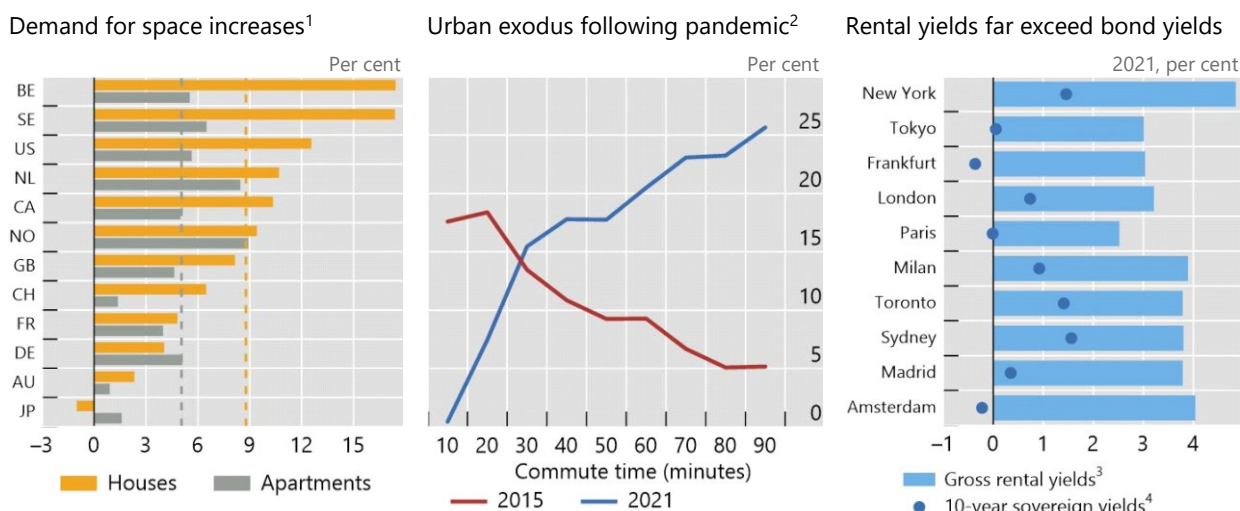
Could house prices reverse course?

Rapid increases in house prices pose risks for long-run sustainability. Prices have soared relative to incomes and are historically high, even controlling for lower interest rates, notably in small open economies (Graph 3, left-hand panel). Sharp house price corrections can weigh substantially on aggregate demand by subtracting from households' net wealth and pledgeable collateral. A protracted supply overhang in the construction sector could also ensue, as excess capacity takes time to be reabsorbed. In view of these risks, we delve deeper into the likelihood of a sharp house price correction and how sensitive it would be to factors such as interest rate increases, by engaging in two complementary exercises.

The first exercise examines the relationship between house prices and their main determinants. This is done using a purely data-driven machine learning technique (random forest, with 1,000 regression trees) that can accommodate non-linear relationships between the variables. Explanatory variables include CPI inflation, GDP growth, short- and long-term domestic interest rates, the equity market volatility index, the

short-term interest rate in the United States and nominal household credit growth, all lagged by one year. We use an annual sample of 14 AEs between 1980-2020.

Pandemic has induced behavioural shifts underlying housing demand

Graph 2

Demand for space increases[1]

Urban exodus following pandemic[2]

Rental yields far exceed bond yields

AU = Australia; BE = Belgium; CA = Canada; CH = Switzerland; DE = Germany; FR = France; GB = United Kingdom; NL = Netherlands; NO = Norway; JP = Japan; SE = Sweden; US = United States.

[1] Property price increases since Q1 2020. Dashed lines correspond to the median values.   [2] House price increases by commute time to the city centre. Simple average of Boston, Chicago, New York and Washington, based on year-on-year median.   [3] Gross rental yields for a 100 square metre, three-room apartment in city centre. Only cities are reported for which a minimum number of 200 respondents reported prices. Randomness of the sample cannot be assured.   [4] Ten-year government bond yield for the respective country.

Sources: Bloomberg; Numbeo.com; Zillow; national data; BIS calculations.

All else equal, *short-term* declines in nominal house prices usually occur when GDP growth is negative and annual credit growth is below a 5–10% threshold (Graph 3, centre panel). But under most circumstances, there is substantial downward rigidity, as evidenced by the flattening of the surface of predicted price increases around zero.[1] This may be due to sellers' reluctance to accept losses. The analysis also reveals that higher interest rates on their own need not trigger immediate house price declines, provided that they are accompanied by rising growth and incomes. This may signal that homeowners' debt service capacity matters: house prices can remain stable when incomes are growing to offset the increased debt burden from higher interest rates.

The second exercise turns to the potential role of speculative demand, which could make house price adjustments particularly non-linear. To study how this demand could interact with higher interest rates, we use an asset pricing framework that links the house price-to-rent ratio to the user cost, which in turn depends on extrapolative expectations of capital gains and the mortgage interest rate.[2] Extrapolative expectations capture speculative demand based on past price gains, which may be a particularly relevant driver of house prices when interest rates have been low for a prolonged period.

Estimating the model based on US data, we use it to project nominal house prices under alternative interest rate paths. With constant interest rates, the model predicts a further appreciation in nominal house prices by about 20% between 2022 and the peak in 2025, before reversing sharply towards the level consistent with user costs (Graph 3, right-hand panel). As the user cost depends on extrapolative expectations, a price fall lowers the expected capital gain, which further reduces housing demand, exacerbating the price correction. If interest rates instead increase by 100–200 basis points, due to a

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[1]   Historically, drops in *nominal* prices above 10% per year are rare (on average, they occur once every 35 years), and they have typically occurred in connection with broader macroeconomic and financial stress (eg in Japan in 1988, in Sweden in 1992, in Hong Kong SAR in 1998, and in the United States and several other countries in 2008).

[2]   Other factors are taxes, depreciation and risk premium. See Duca et al (2021) for a review of this rent-arbitrage class of models.

gradual tightening of monetary policy, the procyclical effects of speculative demand on house prices would be more muted, averting a boom-bust-style house price adjustment.[3]
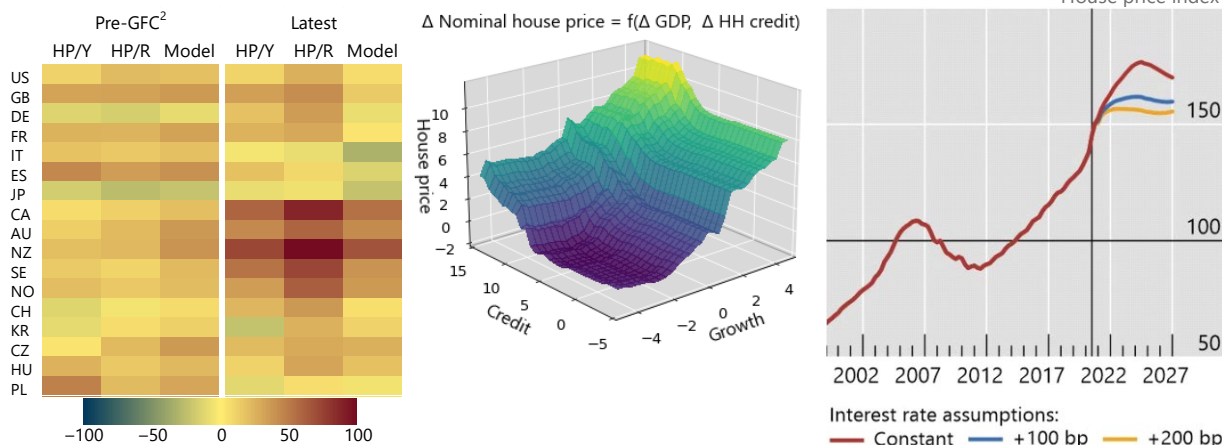

Simulated house price dynamics shed light on vulnerabilities

Graph 3

House price valuations stretched by historical standards[1]

It usually takes large shocks for house prices to fall[3]

Moderate increases in interest rates could forestall speculative demand[4]

AU = Australia; CA = Canada; CH = Switzerland; CZ = Czech Republic; DE = Germany; ES = Spain; FR = France; GB = United Kingdom; HU = Hungary; IT = Italy; JP = Japan; KR = Korea; NO = Norway NZ = New Zealand; PL = Poland; SE = Sweden; US = United States.

[1] HP/Y = house price to income; HP/R = house price to rent: deviations from individual countries' historical means. Model = HP/R controlled for interest rate: deviations from predicted values based on a fixed effect panel regression with the 10-year yield as an explanatory variable. [2] As of Q4 2007. For CZ, Q1 2008. [3] Predicted values based on a random forest with 1,000 regression trees, holding all other covariates of the model constant at their means. Economies included are BE, CA, CH, DE, DK, GB, HK, JP, KR, NL, NO, NZ, SE, US (574 economy-year observations). [4] Projections based on an error-correction representation of an asset pricing model that links the house prices-to-rent ratio to the user cost. The latter includes the mortgage rate, extrapolative expectations of capital gain and the risk premium. US data.

Sources: Federal Reserve Bank of St Louis, FRED; OECD; Bloomberg; national data; BIS; BIS calculations.

Macroeconomic consequences

How house prices evolve could have material implications for real activity. For the median economy, a 10% increase in house prices typically boosts consumption growth in the following year by 2.2 percentage points (Graph 4, left-hand panel). The effect is roughly symmetrical for upswings and downswings. Generally, it is stronger in countries with higher home ownership rates, eg in Canada and New Zealand. House price variations can also affect the residential component of fixed capital formation, by affecting banks' lending capacity as well as the expected effective returns for property developers. While increased construction eases pressure on prices over time, overheated building activity can also lead to imbalances in the construction sector and, down the road, to unwelcome overhangs due to excess capacity.[4]

These linkages suggest that high house prices can generate downside risks to growth if they are prone to reversal. A price decline could turn demand tailwinds into headwinds, all the more so when valuations have been historically high. Highly leveraged households, real estate developers and lenders may struggle

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[3] The analysis abstracts from a fully self-fulfilling prophecy, where house prices increase simply because people expect them to. In this "rational bubble" case, the boom-bust dynamics can be even more extreme and less responsive to interest rates.

[4] Besides activity, house prices also affect inflation, both indirectly through aggregate demand components, and directly through rents. The total weight of rents in the US CPI basket is 31%, and 40% for the core CPI (vs 15% for the PCE basket). In the euro area, where owner-occupied housing is excluded from the CPI, rents represent 15% of services in the CPI basket. While the short-term pass-through from house prices to rents is typically modest, the effects tend to come with some delay and could be sizeable if house price growth remains persistently strong.

under a debt overhang that persistently weighs on their activity. Indeed, many economic recessions since the 1980s have coincided with a collapse in house prices and credit following a financial boom. What's more, high house prices tend to predict a growth slowdown in the medium term.[5]
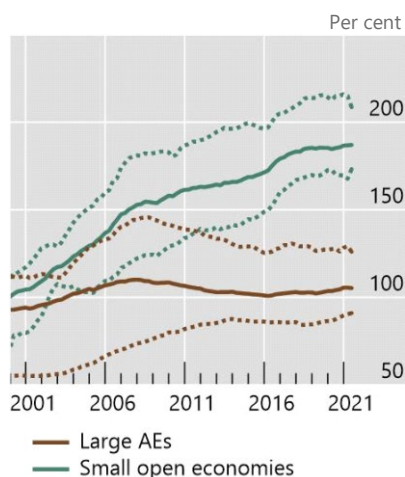

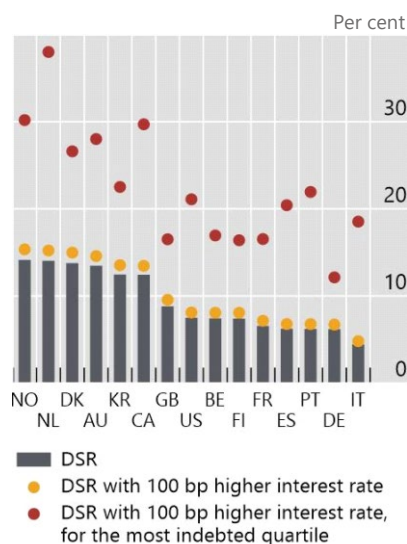Macroeconomic impact from sharp house price reversal would be significant   Graph 4

Consumption sensitive to house prices[1]
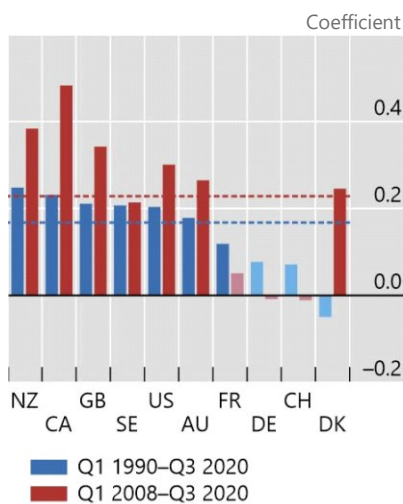
Household debt on a steady climb in many small open AEs[2]

Highly indebted households are particularly vulnerable to rate rises[3]

AU = Australia; BE = Belgium; CA = Canada; CH = Switzerland; DE = Germany; DK = Denmark; ES = Spain; FI = Finland; FR = France; GB = United Kingdom; IT = Italy; KR = Korea; NL = Netherlands; NO = Norway; NZ = New Zealand; PT = Portugal; SE = Sweden; US = United States.

[1] Coefficients of real house price growth on following-year private consumption growth. The specification includes controls for a proxy for permanent income, a market risk indicator and the real short-term interest rate. The lighter bars denote coefficients that are not statistically significant at the 5% confidence level. The dashed lines show the median of the economies. For NZ, until Q2 2020   [2] Total stock of debt as a percentage of the four-quarter moving sum of quarterly income. Simple averages, minimum and maximum figures of DE, FR, GB, JP and US (large AEs) and AU, CA, KR, NO and SE (small open economies).   [3] Debt service ratio (DSR) for the most indebted quartile is estimated using the average debt-to-income ratio and the share of households with debt-to-income exceeding 3 (based on data for 2019 or latest available), assuming that the household-level debt-to-income follows the generalised Pareto distribution. The distribution is fitted country by country.

Sources: OECD; Bloomberg; Datastream; national data; BIS; BIS calculations.

The severity of macroeconomic consequences hinges on the extent of housing market corrections. Consider three scenarios.

In the first scenario, house prices level off or decline only gradually and to a limited extent, correcting any previous overvaluation in an orderly way. This could happen if income caught up with house prices, or if inflationary pressures subsided owing to easing bottlenecks and interest rates rose only moderately, helping to keep debt burdens manageable. The impact on real activity would be largely benign.

The second scenario envisages a continuation of the housing boom. This would imply a further build-up of debt and lending. It would also probably see an expansion of supply as the short-term pandemic-related constraints on construction are lifted. This scenario is more likely to materialise should inflation return to hover below target, inducing central banks to keep interest rates low and allowing speculative demand to persist. Robust and prolonged construction activity would boost the economy as it proceeds. But it could also generate potentially greater resource misallocations in the medium term, given the labour-intensive and low-productivity nature of construction.[6]

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[5]   Kohlscheen et al (2020), BIS (2021).

[6]   See Borio et al (2015) and Dell'Ariccia et al (2020) for an in-depth discussion of why financial booms sap productivity and why construction booms tend to be followed by below-trend growth.

The third scenario would be a substantial and abrupt reversal in house prices. The trigger for the drop and a recession could be a sharp monetary policy tightening warranted by strong and persistent inflationary pressures. This could cause an unusual recession by post-war standards in AEs: it would combine a significant monetary policy tightening with an unwinding of some financial excesses.

The implications for the economy could be most instantaneous and significant in this last scenario. While household debt fell noticeably in some major economies post-GFC, it continued to climb steadily in small open economies alongside house price appreciation (Graph 4, centre panel). In many cases, household debt is almost twice annual income. The distribution of debt also matters, as the service burden can be substantially larger for heavily indebted households (right-hand panel). This service burden is especially sensitive to higher rates in countries where floating-rate mortgages prevail. In some countries, highly-leveraged developers could run into difficulty in servicing their debt. That said, a key mitigating factor this time around are higher capital cushions in the banking system. Still, some hidden vulnerabilities could emerge in the links with the non-bank financial sector.

Conclusion

The unusual housing market developments since the pandemic began have important policy implications. While shifting demand patterns explain some of the house price increases, there are also signs of overheating that pose downside risks. Gradual increases in interest rates, beyond stabilising inflation, could help contain excesses and stem tail risks emanating from the housing market. Maintaining expansionary policies for longer could shore up demand amidst greater short-term uncertainty, but would risk increasing the vulnerabilities further.

Managing this transition is far from easy, especially when downside risks to growth are on the rise, and a sharp reversal in house prices could be damaging. Historical experiences show that housing market overhangs after excesses can last for several years. A broader approach that includes extensive use of macroprudential tools, tax policies to discourage speculation and debt-financed home ownership, as well as structural policies targeting housing supply would be valuable.

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