

## Seven Questions about House Price Cycles

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*House prices have fallen in many countries across the globe over the last few years. Will house prices fall more? This article provides an answer by comparing the present housing cycle with previous ones in countries in the Organization for Economic Cooperation and Development (OECD) since 1970. Drivers of house prices, including behavioral factors, are discussed along with evidence on global synchronization of house prices and the role that central bank policies have played—and ought to play—in housing cycles.*

### **Question 1: What are the broad features of house price cycles?**

Between 1970 and the mid-1990s, on average across OECD countries, the median upturn in house prices lasted four years and the median real increase in prices over the course of the upturn was 33 percent (see figures). The median downturn also lasted four years, during which time prices fell 20 percent. These figures are based on work by Igan and Loungani (forthcoming), but estimates by the IMF (2003), Girouard and others (2006), Claessens, Kose, and Terrones (2008), and André (2010) are in the ballpark. These studies also find considerable variation across countries and across time in the duration of upturns and downturns; the figures show the 25th and 75th percentile bands for the duration and amplitude of housing cycles.

### **Question 2: Are we near the trough of the present housing cycle?**

The present housing cycle started in the mid-1990s and early-2000s for most countries. The median upturn in this most recent cycle lasted over twice as long as those in the past (41 quarters compared to 16 quarters) and was more pronounced, with prices rising nearly three times as much as in the past cycles. The median ongoing downturn is approaching the halfway mark in terms of duration and amplitude of price declines, which suggests that further corrections could be in the offing. And with prices having risen much more sharply than in earlier upturns, the declines in prices might also eclipse those observed in the past.

### **Question 3: What anchors house prices in the long run?**

Economic theory asserts that house prices, rents, and incomes should move in tandem over the long run. House prices and rents should be cointegrated because buying and renting are alternate ways of meeting the need for shelter (Poterba, 1984). Likewise, in the long run, house prices cannot get too far out of line with people's ability to afford houses, that is, with

their incomes. For most countries, these long-run relationships do have some drawing power, though the rate of mean reversion is often so sluggish that the relationships do not pass formal tests of stationarity (Girouard and others, 2006). For instance, the ratio of house prices to rents in the United States has reverted to its long-run average four times between 1970 and the early 2000s. Between 2000 and 2006, the ratio of house prices to rents rose dramatically above the long-run average and has been moving back toward it since then. The United Kingdom has a similar story for the ratio of house prices to incomes. For a few countries, the long-run relationships are a very weak anchor. In Australia and Canada, there has been a trend increase in the price-to-rent ratio since the mid-1980s.

However, even in cases where long-run relationships do act as an anchor, in the short run house prices drift away from them, often quite strongly and for long periods of time (Klyuev, 2008). As the IMF (2004) demonstrates, demand momentum leads to increases in house prices, often in excess of what can be explained on the basis of the demand-side forces. For instance, over the period from 1992 to 2006, Ireland's annual real income growth was twice the rate of the preceding two decades, but annual growth in house prices was 10 times the rate of the previous two decades. Hilbers and others (2008) find that for some European countries house prices have been more sensitive to output per capita than in others; specifically, they find that a 1 percent increase in output per capita raised house prices by about 2½ percent in Belgium, France, Ireland, the Netherlands, Spain and the United Kingdom.

#### **Question 4: What factors amplify the response of house prices to fundamentals?**

A number of explanations have been advanced: (1) supply constraints; (2) interactions between housing and other financial markets; and (3) slow recognition of changes in fundamentals.

*Supply constraints.* The difficulties of adjusting the supply of housing to keep pace with demand forces provides one explanation for the amplified response of house prices to fundamentals. Strong economic growth is often concentrated in particular sectors, regions or cities. Thus there are geographical constraints on increasing the supply of housing to keep pace with the increased economic activity in these areas. Due to such constraints, even fairly predictable and slow-moving demand-side changes, such as demographic changes, often end up having an amplified effect on house prices. In the case of Spain, Aspachs-Bracons and Rabanal (2009) argue that some of the demographic changes such as the coming of age of a baby-boom generation were predictable, but that others were less so. These include the extent of immigration and changes in the rate of household formation—the latter are dependent on social factors such as divorce rates and the growth of single-parent families, which can be difficult to predict. These authors also show that frictions in labor reallocation between construction activity and other sectors can also act to amplify the effects of demand changes on house prices.

*Interactions with other financial markets.* Another reason for the amplification effect lies in the interaction between housing markets and other financial markets. Igan and others (2009) document the overlap of housing and credit cycles. An increase in house prices, whether driven by demand momentum or the effects of government policies or institutional changes, can have a collateral feedback effect: once collateral values increase, lenders are

willing to lend even more to households, feeding the house price boom (Kiyotaki and Moore, 1997; Iacoviello, 2005). Dell’Ariccia, Igan, and Laeven (2008) find that in the United States, relaxation in lending standards was higher in areas with faster rates of house price appreciation, which suggests that lenders were gambling that higher house prices would enable borrowers in default to liquidate the collateral and repay the loan. Several other papers, including Mian and Sufi (2009), also provide empirical illustrations of such an amplification.

*Misperceptions of fundamentals.* Kahn’s (2008, 2009) work suggests that house prices can be driven by expectations of fundamentals that may turn out to be incorrect, giving the impression *ex post* that house prices were responding in an amplified manner to the true fundamentals. Kahn argues that the surge in home prices from the mid-1990s to 2007 was based on the belief that productivity growth would lead to continued growth in incomes. The dynamic reversed in 2007 when productivity growth was perceived to have slowed, thereby stifling the housing boom and the viability of mortgages predicated on a sustained increase in house prices. Though U.S. productivity growth had begun to decelerate in 2004, the perception of that deceleration only caught up with reality in 2007, according to Kahn.

#### **Question 5: What role do behavioral factors play in driving house price cycles?**

Case and Shiller (2003) illustrate how house prices could be driven by psychological and sociological factors, and that these factors can also amplify the response of house prices to fundamentals. They argue that expectations of house prices are often formed by incorrect social perceptions of reality—such as the perception that house prices never fall—and by excessive confidence in positive outcomes.

Baker (2002) noted presciently that the housing boom would come to an end because it was being driven to a large degree simply by the expectation of higher prices in the future. Indeed, Piazzesi and Schneider (2009) do find—using data from the Michigan Survey of Consumers—that there is always a small cluster of households who believe it is a good time to buy a house because house prices will rise further. The size of this “momentum” cluster doubled towards the end of the recent U.S. housing boom. In a search model, the authors show that even a small number of such optimistic investors can have a large effect on house prices, even when such investors do not end up buying a large share of the housing stock.

#### **Question 6: Are house price cycles correlated across countries?**

Housing is often considered the quintessential nontradable good, which generates a presumption that housing cycles ought not to be very correlated across countries. Nevertheless, the IMF (2004) and Girouard and others (2006) found high synchronization in housing cycles across countries. The conventional wisdom is that this does not reflect direct real estate market linkages, as in the case of equity markets, but rather the synchronization of monetary policy and financial deregulation across countries. It could also reflect general business-cycle linkages; globalization and financial innovation appear to have strengthened the degree of synchronization in macroeconomic and financial cycles, at least among OECD countries.

Consistent with this, studies that isolate a global factor in housing markets find that the importance of this factor has increased over time. The IMF (2004) found that the global

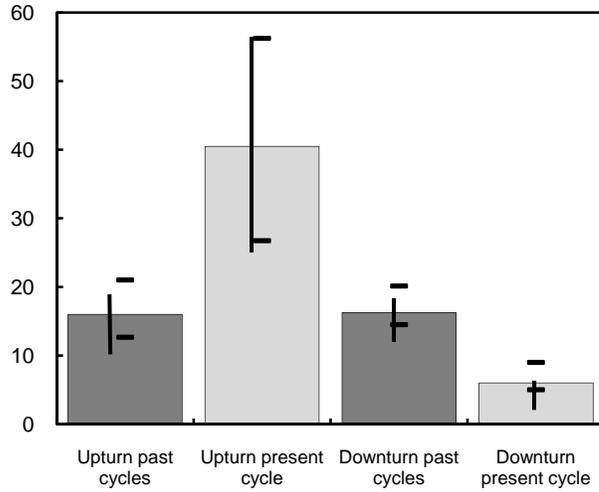
housing factor is positively correlated with the mortgage-to-GDP ratio as well as home ownership rates, reflecting the deepening of mortgage markets across industrial countries and effects of government policies. . The IMF also found that the global factor is negatively correlated with U.S. interest rates and that U.S. house prices lead the global housing factor. Based on the findings of synchronization and the lead role of the United States, the IMF (2004) predicted that any downturn in house prices would be highly synchronized across countries. The study by Igan and others (2009) also finds that, with growing financial integration, the role of common factors has increased in country cycles in house prices, credit, and real activity and that U.S. cycles tend to lead respective cycles in other countries.

### **Question 7: Should monetary policy keep house price cycles in check?**

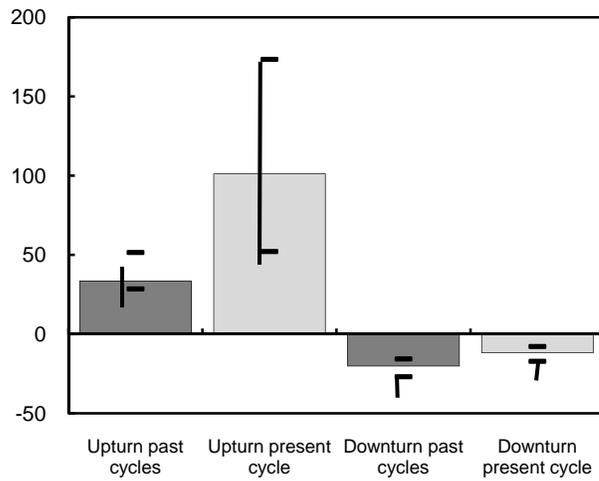
Some authors maintain that deviations from the simple rule for how monetary policy should react to output and inflation—the so-called Taylor Rule—led over the period from 2002 to 2006 to the global housing boom and the subsequent bust. It is true that house prices are sensitive to interest rates (Iossifov, Cihák, and Shanghavi, 2008) and that policy interest rates were indeed very low in most countries in recent years. However, Kannan, Rabanal, and Scott (2009a) find that there is virtually no association between the monetary policy stance and the extent of house price increases across countries. As examples, they note that Ireland and Spain had low real short-term rates and large house price rises, whereas Australia, New Zealand, and the United Kingdom had relatively high real rates and large house price rises.

A related issue is whether a simple Taylor Rule leads to an excessive focus on the variability of output and inflation at the expense of financial stability. Kannan, Rabanal, and Scott (2009b) argue that monetary policy did indeed pay too little attention to emerging signs of financial vulnerability and that by accommodating loosening credit conditions and rising debt, it allowed the risks of a bust to rise. They suggest, however, that policy interest rates are not the appropriate tool to control such risks; a macroprudential tool that works directly on lending margins would be better. Such a tool would directly tackle the emerging excesses in financial markets, limiting the need for aggressive interest rate actions. However, this makes the coordination of monetary and macroprudential policy very important. And because leading indicators of asset price busts are imperfect, one would have to live with the possibility that in trying to check asset price bubbles, central banks may on occasion raise false alarms.

**Figure 1: Duration of House Price Upturns and Downturns**  
(In quarters)



**Figure 2: Amplitude of House Price Upturns and Downturns**  
(In percent)



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