



The Long-Awaited Housing Recovery

Nationally, Housing Recovery Finally Gains Traction

by John V. Duca

After a period of sharply declining house prices and a very slow pace of new construction at the end of the past decade, U.S. housing activity has begun to recover. Americans, who endured an unprecedented housing collapse, have reason for cautious optimism about the outlook over the next few years, following the appearance of several hopeful indicators.

From a National Housing Boom to Bust...

Housing demand rose sharply in the early to mid-2000s, fueled not only by relatively low mortgage interest rates and a recovery in personal income, but also by lowered credit standards, especially on nonprime (subprime and other nonconventional) mortgages frequently offered to riskier borrowers.

Many renters and newly formed households obtained previously unattainable mortgages. These new homeowners included some with poor credit histories and others seeking low down payments or very high mortgage payments relative to their incomes.[1] As demand increased, house prices surged, particularly in areas with a constrained supply, beginning in late 1999 and peaking in the mid-2000s. The Federal Housing Finance Agency's gauge of U.S. house prices rose 67 percent by 2007 while another index, from data provider CoreLogic, registered an even larger 101 percent gain by mid-2006 (*Chart 1*).

These price increases prompted expectations of further appreciation, which bolstered housing demand even more.[2]

On the supply side, rising house prices induced a large increase in home construction, albeit with a lag. In the late 1990s, permits for building single-family homes were slightly above the long-run, sustainable pace of construction—about 1 million units per year—consistent with population growth and replacement of uninhabitable units. By 2005, permits had risen another 50 percent above that already-high pace, pushing ahead single-family home construction (*Chart 2*).

The expansion of nonprime mortgages that contributed to this boom proved unsustainable. After price gains eased around 2006, overburdened borrowers found it increasingly difficult to sell their homes or refinance their mortgages to cover their debts. Losses on nonprime mortgages jumped; lenders tightened credit standards.

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This, in turn, reduced the pool of buyers who could qualify for mortgages, lowering housing demand. The result was a spiral of falling house prices, expectations of further price declines, decreasing demand and ultimately a residential construction collapse, rising arrears, another round of mortgage losses and a reduced supply of mortgages.[3]

Reacting to elevated house prices of the mid-2000s, homebuilding had risen significantly. So when demand fell after 2006, a severe supply-demand imbalance appeared at those mid-2000s prices. Repossessed homes and those for sale by delinquent borrowers trying to avoid foreclosure inflated supply and deepened this disparity. Activity went into reverse: House price indexes fell 20 to 31 percent from the mid-2000 peaks, and single-family construction plunged roughly 75 percent by early 2011 from 2005 highs.

...and Finally to a Sustainable Recovery

Nationally, home prices hit bottom in 2011.[4] New construction tends to strengthen when existing-home prices rise relative to the cost of building new units. Not surprisingly, single-family permits[5]—needed before building can begin—also started to turn around after prices bottomed out. Nevertheless, with single-family permits still well below 1 million units a year, the homebuilding recovery has been tepid.[6] The upturn reflected a combination of factors, most significantly where the balance between supply and demand stopped pressuring house prices lower.

Inventory Conditions Signal Recovery

One useful gauge of pressure on real (inflation-adjusted) house prices is months' supply of existing homes—the number of units for sale divided by the monthly pace of sales. Normally, the number of existing homes for sale should total about six months' supply, with price increases keeping pace with overall inflation—in other words, real house prices remain relatively constant. In Chart 3, house price inflation and the inverse of the months' supply of existing homes are plotted. Fewer months' supply suggests a tighter marketplace, which lines up closely with the year-over-year pace of house price gains adjusted for inflation.

During the mid-2000s, housing demand was high relative to the stock of homes for sale—four months' supply—and year-over-year national house price gains exceeded inflation by as much as 8 percentage points.

In the bust years, declines in demand outpaced changes in the stock of existing homes. There was more than a six-month supply of existing homes for nearly five years, from 2006 to the end of 2011, while inflation-adjusted prices fell 10-13 percent from 2008 through early 2009. The pace of declines abated when a temporary, homebuyer federal tax credit became available in early 2009, but resumed in the quarters following the program's expiration in mid-2010.

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The inventory of unsold homes largely reversed course in 2011; the months' supply of homes fell sharply. Since early 2012, this gauge has declined below the neutral six months' supply threshold, and real house prices have risen at an annualized 4-5 percent since late 2012. The pace of sales relative to the level of houses for sale suggests that the balance of supply and demand will continue supporting further price increases.

House Prices in Line With Rents and Mortgage Interest Rates

Comparing the cost of owning a home to the cost of renting provides an indication of the short-term sustainability of the housing recovery. An unusually high price-to-rent ratio implies that house prices are expensive relative to renting. The house price-to-rent ratio tends to be high when the inflation-adjusted perceived cost of owning is low (*Chart 4*). That cost—termed the “real after-tax mortgage interest rate”—is roughly the tax-adjusted mortgage interest rate minus expected house price appreciation.

When the housing market is in equilibrium and mortgage credit standards are steady, the ratio of house prices to rents should move inversely to real mortgage interest rates. The series plotted in *Chart 4* uses the one-quarter lag of a four-year annualized rate of appreciation adjusted for the costs of selling a home.

During the late 1970s and the mid-2000s, expectations of high house-price appreciation reduced the perceived financial cost of owning a home to low levels. In both periods, a fall in the cost of owning helped drive up the price-to-rent ratio, which rose by more in the mid-2000s than in the 1970s. In the more recent boom, a relaxation of mortgage credit standards increased the demand for housing and boosted prices. That dynamic wasn't present in the late 1970s.[7]

Real after-tax mortgage interest rates soared during the housing bust. Although mortgage interest rates fell, the benefits for many homeowners were outweighed by large house-price depreciation. As a result, during the bust, falling prices actually caused the asset price-adjusted, after-tax mortgage rate to rise. As house prices began to bottom and turn, expectations of future house-price movements seemingly became less pessimistic, and real mortgage interest rates declined to more normal levels. Recently, the real mortgage interest rate has fallen to levels that are consistent with a stable national house price-to-rent ratio, implying that the housing recovery is sustainable.

On a more basic level, the sustainability of house prices depends on the fundamentals of supply and demand—both current and expected—which drive real mortgage interest rates and price-to-rent ratios. House price levels can be sustained when the demand for housing (which mainly depends on personal income, real mortgage interest rates and credit standards) is in line with the housing supply. Inflation-adjusted income has started to rise on a per capita basis, and real after-tax mortgage interest rates have returned to more normal levels. Mortgage credit standards have stabilized (albeit at a fairly high level), after retrenching during the bust, according to available data. These factors, when analyzed alongside housing supply, are broadly consistent with the recovery of real house prices.[8]

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House Prices in Line With Income and Interest Rates

The alignment of house prices with mortgage interest rates and income is captured in a related measure: the National Association of Home Builders/Wells Fargo Housing Opportunity Index (*Chart 5*). The index measures the percentage of homes sold in a quarter that are affordable to a median-income family who obtain a conventional, 30-year, fixed-rate amortized mortgage with a 10 percent down payment and a maximum 28 percent of household income assigned to mortgage repayment.

During the period preceding the housing boom, 1993 to 1999, the index fluctuated between 60 and 70 percent. Although mortgage interest rates were low during the mid-2000s, the index fell to 40 percent, accompanying a sharp rise in house prices, partly the product of greater availability of nonprime mortgages—later proven unsustainable.

During the bust years, the combination of falling house prices and falling interest rates led to a recovery of the Housing Opportunity Index, which ranged between 70 and 78 percent between 2009 and 2012. Houses became very affordable, assuming a purchaser could get a mortgage and wasn't put off by the prospect of continuing price declines. Although both mortgage interest rates and house prices rose in the summer of 2013, recent index readings are near those of the preboom mid- to late-1990s, when the level of prices was sustainable.

A Recovery at Hand

A necessary condition for the home construction recovery to continue is a sustainable home-price turnaround. This condition appears to have been met, considering evidence from several key measures: whether house price changes are consistent with the supply of existing units for sale; whether the house prices are sustainable in light of rents and real mortgage interest rates; and whether mortgage payments are affordable based on median income. That said, the pace of future national house price increases seems likely to be more moderate in coming years than in 2013, partly because house prices have already notably rebounded and partly because mortgage interest rates are somewhat higher than the lows posted in 2012 and 2013.

Notes

1. See “Subprime Mortgage Crisis,” by John V. Duca, Federal Reserve History Web Gateway essay, November 2013, www.federalreservehistory.org/Events/DetailView/55; “The Rise and Fall of Subprime Mortgages,” by Danielle DiMartino and John V. Duca, Federal Reserve Bank of Dallas *Economic Letter*, vol. 2, no. 11, 2007, www.dallasfed.org/assets/documents/research/ecllett/2007/el0711.pdf; “Housing Markets and the Financial Crisis of 2007-2009: Lessons for the Future,” by John V. Duca, John Muellbauer and Anthony Murphy, *Journal of Financial Stability*, vol. 6, no. 4, 2010, pp. 203-17; and “House Prices and Credit Constraints: Making Sense of the U.S. Experience,” by John V. Duca, John Muellbauer and Anthony Murphy, *Economic Journal*, vol. 121, no. 552, 2011, pp. 533-51.
2. See “What Have They Been Thinking? Homebuying Behavior in Hot and Cold Markets,” by Karl E. Case, Robert J. Shiller and Anne K. Thompson, *Brookings Papers on Economic Activity*, Fall, 2012, pp. 265-98.

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3. The resulting house price bust was interrupted by the effects of temporary tax credits for purchases of homes from 2009 to mid-2010. By shifting sales from the future, the tax credits temporarily stopped the decline in house prices and home construction in 2009-10. Soon after the tax cut expired, however, prices declined somewhat more, and homebuilding fell back to depressed levels.
4. A bottoming of real, or inflation-adjusted, house prices occurs when house prices deflated by an overall price index are flat, so that house prices move one-for-one with overall consumer prices.
5. This gauge is less distorted by weather or volatility in multifamily housing construction.
6. See “House Prices and Credit Constraints: Making Sense of the U.S. Experience,” by John V. Duca, John Muellbauer and Anthony Murphy, *Economic Journal*, vol. 121, no. 552, 2011, pp. 533-51.
7. See “A Painfully Slow Recovery for America’s Workers: Causes, Implications, and the Federal Reserve’s Response,” speech by Janet L. Yellen at “A Trans-Atlantic Agenda for Shared Prosperity” conference in Washington, D.C., Feb. 11, 2013, www.federalreserve.gov/newsevents/speech/yellen20130211a.htm.
8. See “When Will the U.S. Housing Market Stabilize?” by John V. Duca, David Luttrell and Anthony Murphy, Federal Reserve Bank of Dallas *Economic Letter*, vol. 6, no. 8, 2011, www.dallasfed.org/assets/documents/research/ecllett/2011/el1108.pdf; and “Shifting Credit Standards and the Boom and Bust in U.S. House Prices: Time Series Evidence from the Past Three Decades,” by John V. Duca, John Muellbauer and Anthony Murphy, unpublished paper, June 2013.

About the Author

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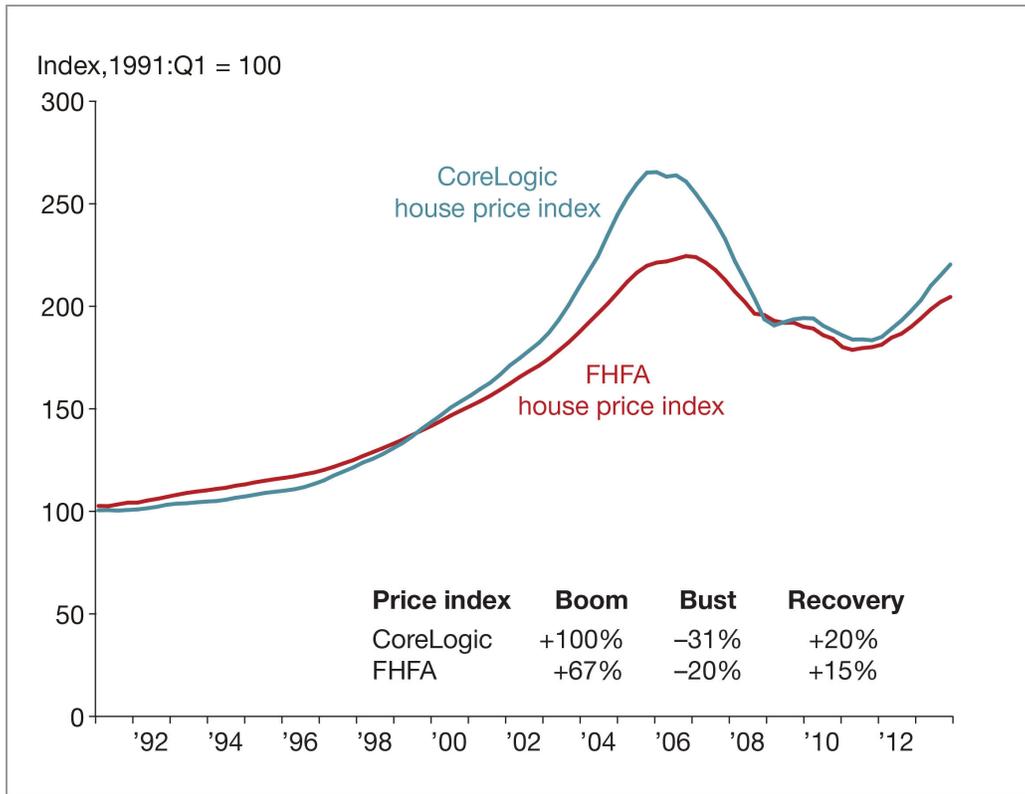
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**Chart 1:
House Prices Boom, Bust and Rebound**



SOURCES: Author’s calculations using Federal Housing Finance Agency data and Haver seasonal adjustments of CoreLogic data.

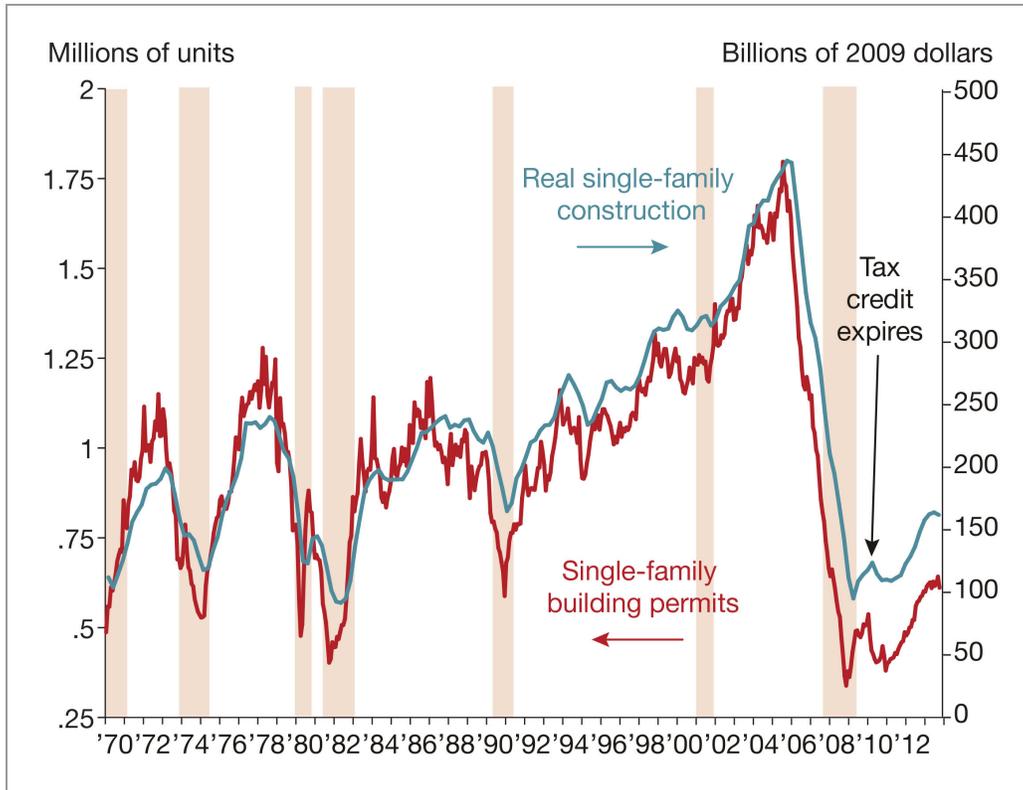
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Chart 2:
Home Construction Peaks, Plunges and Picks Up



NOTE: Shaded bars indicate recessions.

SOURCES: Bureau of Economic Analysis and U.S. Census Bureau, with Haver seasonal adjustments.

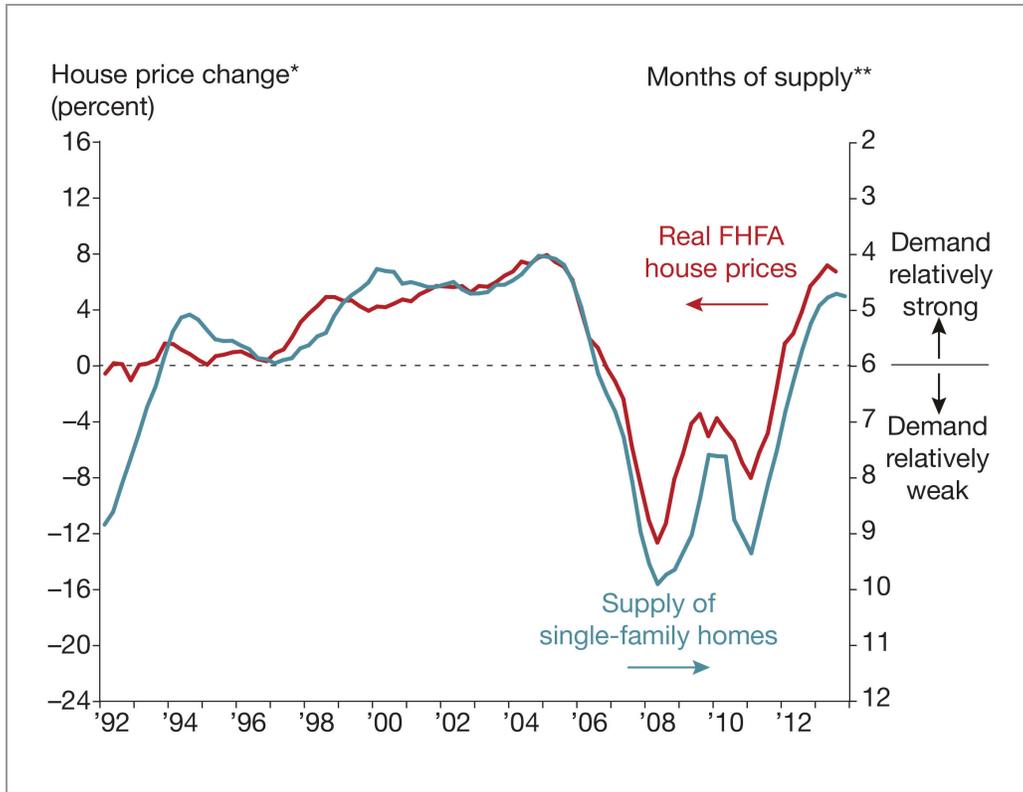
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**Chart 3:
Lower Inventories Consistent With a Sustainable Housing Recovery**



*Year-over-year rate of change, lagged one quarter

**Three-quarter moving average

NOTE: The inflation-adjusted house price appreciation series is lagged by one quarter to more clearly align the two series.

SOURCES: Federal Housing Finance Agency; Freddie Mac; Bureau of Economic Analysis; National Association of Realtors; and author’s calculations.

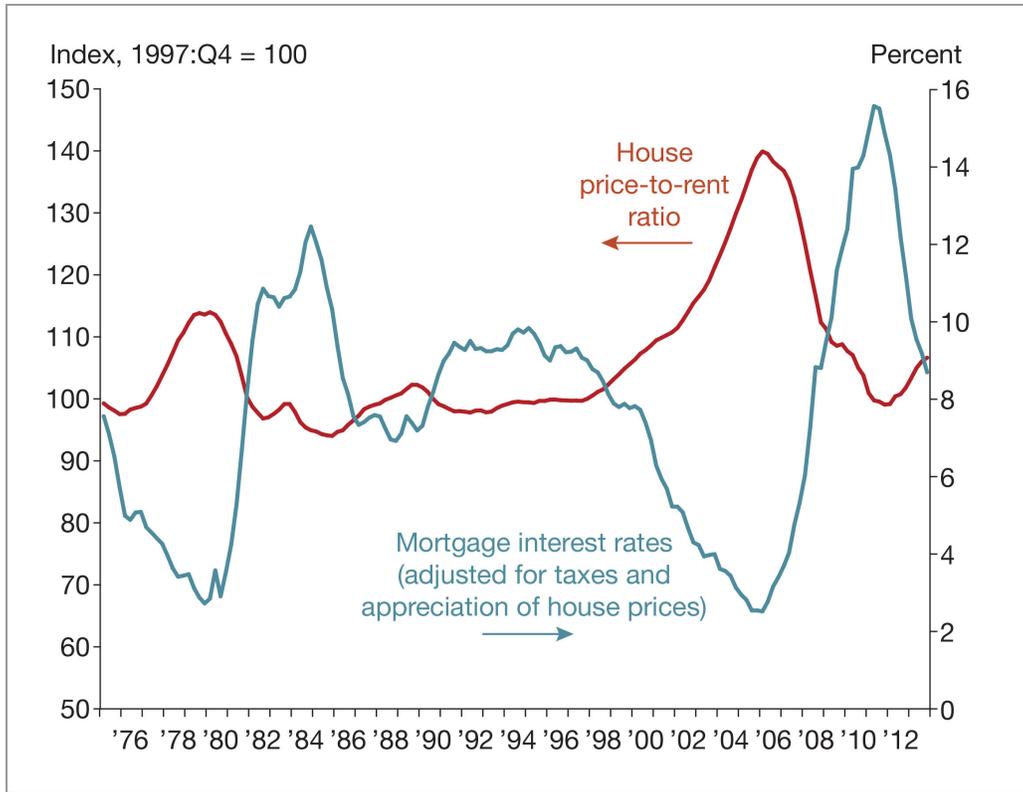
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Chart 4:
House Price-to-Rent Ratio in Line With Mortgage Interest Rates



SOURCES: Federal Housing Finance Agency; Federal Reserve Board; Bureau of Labor Statistics; and author's calculations.

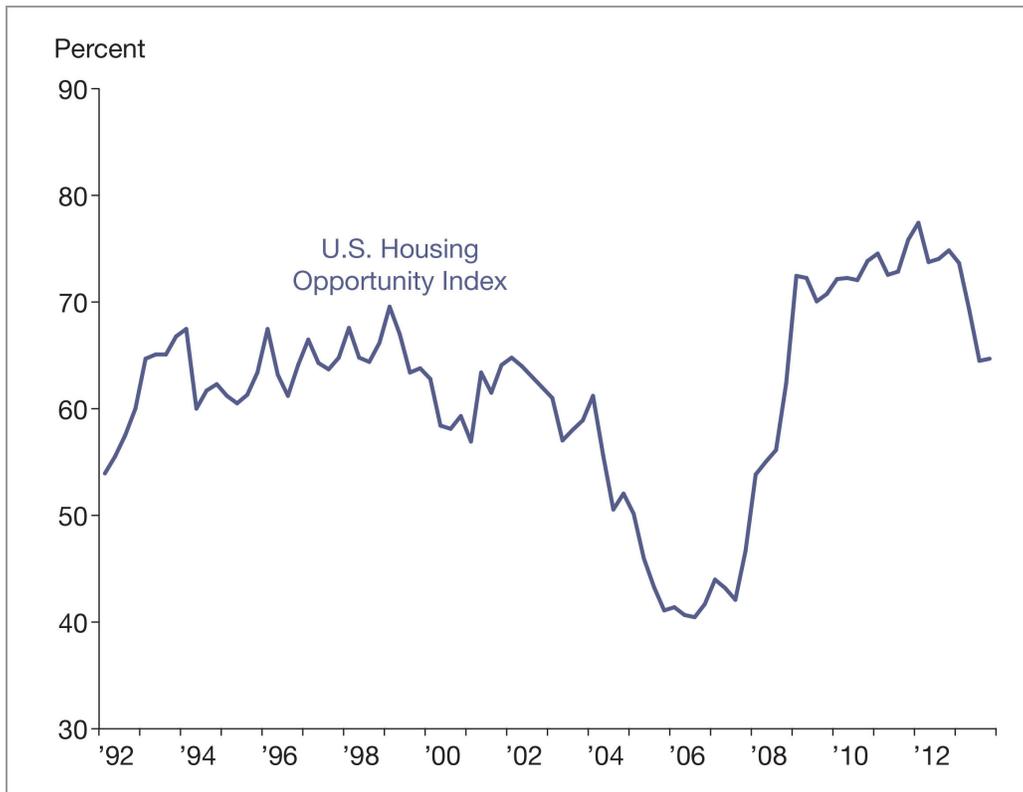
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Chart 5:
Housing Affordability Returns to Normal
(Share of Homes Sold That Are Affordable to Median-Income Family)



NOTE: The Housing Opportunity Index assumes that the family spends 28 percent of its gross income on a 30-year, fixed-rate mortgage with a 10 percent down payment.

SOURCES: National Association of Home Builders and Wells Fargo.

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Video: Once-Quiet Housing Market Comes Alive



The return of bidding wars suddenly hit the housing market just as a Dallas couple searched for their first home.

Related article, *Nationally, Housing Recovery Finally Gains Traction*.
<http://www.dallasfed.org/microsites/fed/annual/2013/e1.cfm>