

The Long-Awaited Housing Recovery



2013 Annual Report

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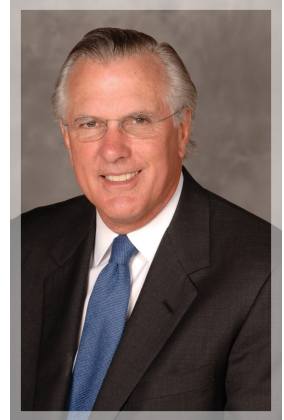
The Long-Awaited Housing Recovery

Letter from the President

Richard W. Fisher

2013 was a historic year for the Federal Reserve and for the United States economy. The Federal Reserve System commemorated the centennial of the signing of the Federal Reserve Act and 100 years of operating the third central bank in the nation's history—the other two each lasting only 20 years.

Additionally, 2013 provided strong evidence that the recovery from the severe economic downturn following the financial panic of 2007-09 was proceeding steadily—data reported during the third quarter and at year's end were particularly encouraging. Production finally exceeded prerecession levels, consumer spending increased at a better-than-forecasted pace, job creation advanced at an improved rate and inflation has leveled out at a low—but still positive—rate. In sum, 2013 proved wrong the dismal projections of what I often call the “Eeyore faction” of economists.



The driving force behind the severe economic downturn from which we are now recovering was the housing market and the financial excess that accompanied it. The most precious of any family's assets, its home, is the foundation of economic security. The Federal Reserve has endeavored to spark a recovery in the housing markets and the economy by conducting an aggressively accommodative monetary policy: It has added \$1.55 trillion of mortgage-backed and federal agency securities to its portfolio, as well as \$1.75 trillion of U.S. Treasury notes and bonds, while holding short-term interest rates near zero.

Given the importance of the health of the housing sector to our economy, our 2013 annual report essays are written by our associate director of research, Vice President John Duca. John is widely recognized as one of the nation's foremost experts on housing, and we are pleased to present three essays containing insights that John is uniquely qualified to provide.

One essay traces housing nationally and how it arrived at what appears to be a sustainable rebound. Another discusses differences across regions and major metropolitan areas, with particular emphasis on Texas. And one reviews the main, less-predictable factors that will likely shape the path of the housing sector over the next several years.

With a durable housing recovery at hand and the broader U.S. economy poised to further improve, we are confident that 2014 will bring new opportunities for the country and the Eleventh District, whose economic performance has led the nation forward from one of its toughest periods.

The Long-Awaited Housing Recovery

(Continued from Letter from the President)

In addition to recommending the reports on the housing recovery, I encourage you to read the “Year in Review” for 2013, a period of great accomplishment. I am tremendously proud of the women and men of the Federal Reserve Bank of Dallas and salute their contributions to the Federal Reserve System and the Eleventh District—an area covering 360,000 square miles in Texas, northern Louisiana and southern New Mexico that is home to 27 million hard-working people. We remain committed to keeping up with the constantly changing nature and demands of the globalized economy, while serving the ever-increasing needs of our dynamic regional economy.



Richard W. Fisher
President and CEO
Federal Reserve Bank of Dallas

The Long-Awaited Housing Recovery

About the Essays

U.S. housing markets experienced a notable boom and a painful bust during the past decade. Most recently, housing began its long-awaited recovery—the subject of the Dallas Fed’s 2013 Annual Report. In three essays, widely recognized housing expert and associate director of research John Duca shares insights on the national and regional markets and the outlook for housing.



Nationally

“Housing Recovery Finally Gains Traction” examines housing nationally, tracing its rebound and prospects for sustainability.

<http://www.dallasfed.org/microsites/fed/annual/2013/e1.cfm>



Regionally

“Housing Rebound Depends on Jobs, Local Supply Tightness” discusses differences across regions and major metropolitan areas, with particular emphasis on Texas.

<http://www.dallasfed.org/microsites/fed/annual/2013/e2.cfm>



What’s Next?

“Factors Determining the Housing Recovery’s Pace” reviews the main, less-predictable factors that may shape the future path of the housing sector.

<http://www.dallasfed.org/microsites/fed/annual/2013/e3.cfm>



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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(Continued from Nationally, Housing Recovery Finally Gains Traction)

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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(Continued from *Nationally, Housing Recovery Finally Gains Traction*)

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]

The Long-Awaited Housing Recovery

(Continued from *Nationally, Housing Recovery Finally Gains Traction*)

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

Duca is a vice president and associate director of research in the Research Department at the Federal Reserve Bank of Dallas, adjunct professor of economics at Southern Methodist University, and executive director of the International Banking, Economics, and Finance Association.

Suggested citation:

Duca, John V. (2014), “Nationally, Housing Recovery Finally Gains Traction” in “The Long-Awaited Housing Recovery,” 2013 Annual Report (Dallas: Federal Reserve Bank of Dallas, March), www.dallasfed.org/microsites/fed/annual/2013/e1.cfm.

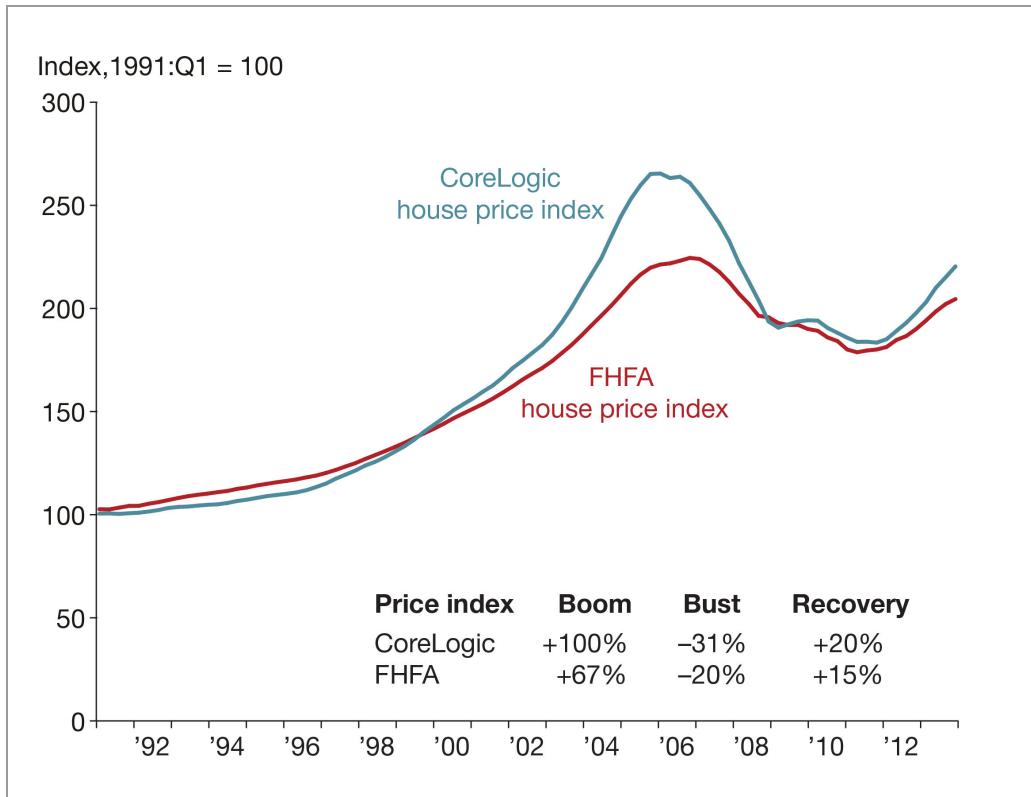
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by John V. Duca

**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.

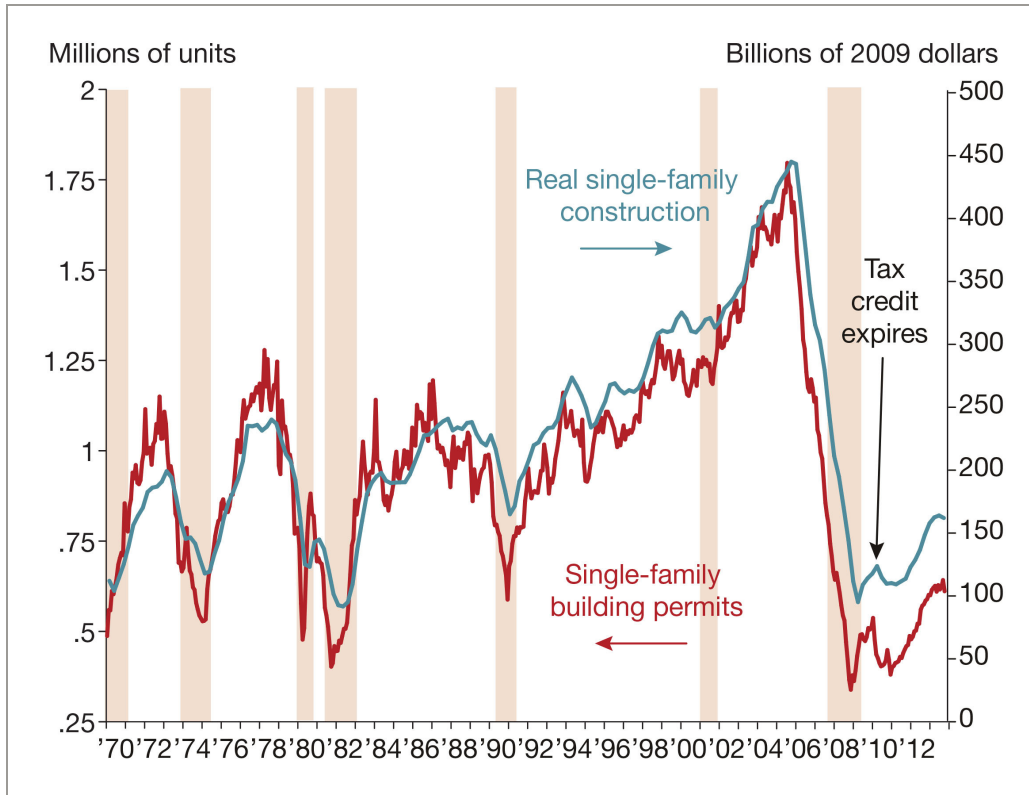
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Chart 2:
Home Construction Peaks, Plunges and Picks Up



NOTE: Shaded bars indicate recessions.

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

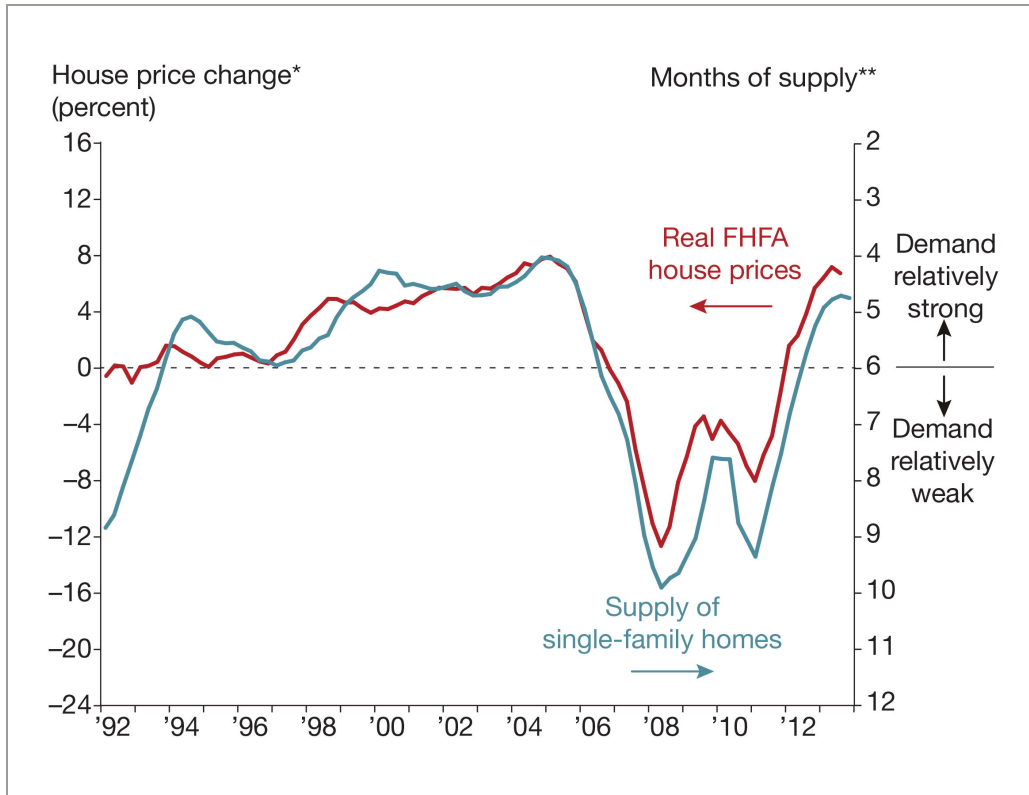
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**Chart 3:
Lower Inventories Consistent With a Sustainable Housing Recovery**



*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.

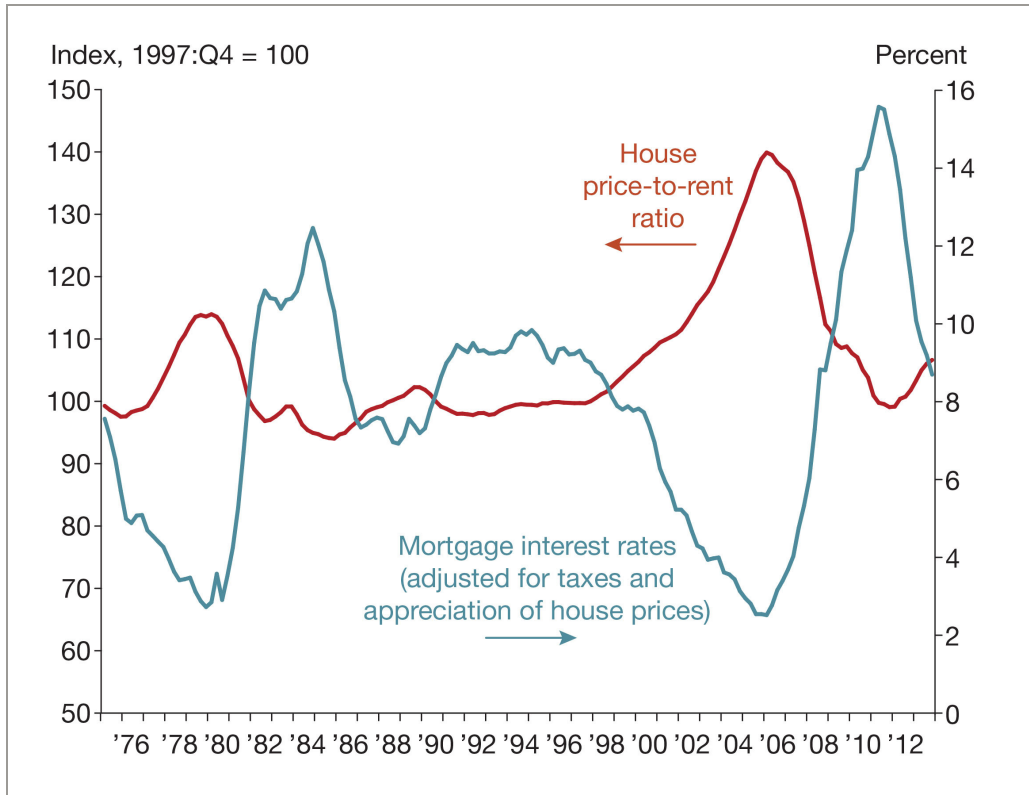
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Chart 4:
House Price-to-Rent Ratio in Line With Mortgage Interest Rates



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

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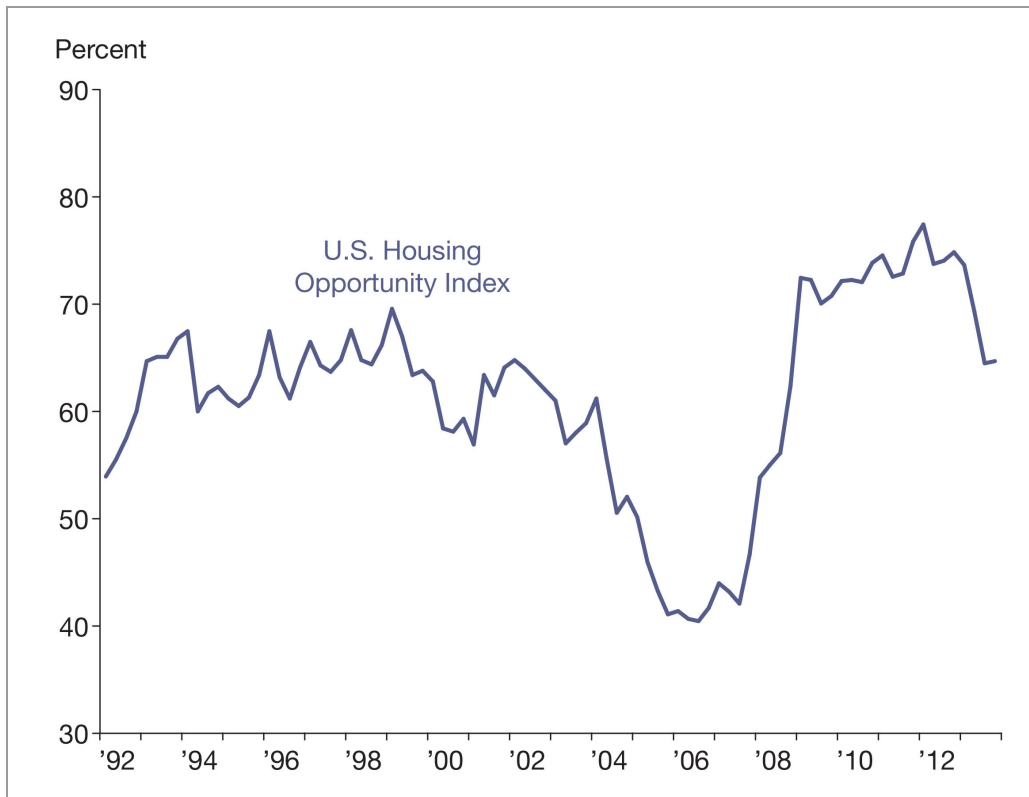
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Chart 5:

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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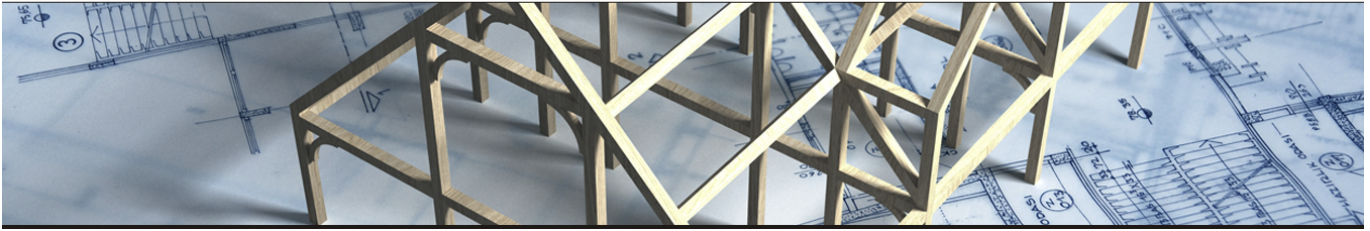
by John V. Duca

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>



The Long-Awaited Housing Recovery

Regionally, Housing Rebound Depends on Jobs, Local Supply Tightness

by John V. Duca

After swinging from exuberant boom to epic bust over a decade, many local U.S. housing markets began a long-awaited housing recovery in 2012. The pace of house price change varied across metropolitan areas, mainly reflecting how local builders reacted to increased demand.

In areas with a readily available supply of land on which to construct new homes—either because of geography or few land-use restrictions—builders have been sensitive to increases in local demand and existing-home prices. When existing houses rise in price relative to the cost of new homes, prospective buyers are willing and able to buy new units.

Supply conditions determine how house price and construction react to shifting demand. When housing demand rises—perhaps due to rising incomes, lower mortgage interest rates or easier credit standards—the outward shift in demand produces sharply higher house prices with a small increase in the supply of newly built units in areas with less-plentiful land. By comparison, when there is a more-plentiful land supply, the amount of housing is more supply sensitive and a rise in demand results in a less-pronounced rise in house prices and a greater increase of newly constructed homes. As a result, house prices rise less in these supply-sensitive areas during booms and they fall less in downturns.[1] Similarly, prices swing more and homebuilding varies less in regions with less-sensitive housing supply.

Variation Across Four Primary Regions

Regional patterns of housing activity illustrate this. Among the four census divisions, single-family building permits move more over time in the South (*Chart 1*), where land for building homes is more plentiful, with the exception of some coastal areas in the South Atlantic region.[2] By comparison, homebuilding barely budes in the Northeast, where population density is much higher and land supply is more constrained by geography, building codes and zoning laws. Median existing-house prices have more-pronounced swings in the less-supply-sensitive Northeast and West than in the more-supply-sensitive South and Midwest census divisions (*Chart 2*).

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(Continued from Regionally, Housing Rebound Depends on Jobs, Local Supply Tightness)

Patterns Across Major Metro Areas

Variation in house prices may also suggest differences in supply. Major metro areas' supply sensitivity can be categorized as low, medium or high using data categories that researcher Albert Saiz proposed.[3] The analysis here focuses on 17 of the 19 largest metro areas for which the Bureau of Labor Statistics has long time-series apartment-rent data used to assemble the Consumer Price Index.[4] These rent data are used to calculate and plot house price-to-rent ratios. Of these 17 cities, seven have low supply sensitivity and 10 have medium to high sensitivities. Simple averages of inflation-adjusted house prices reveal that prices swing much more in major cities where supplies have low price sensitivity (*Chart 3*).[5]

Indeed, between year-end 1997 and the housing peak in third quarter 2006, inflation-adjusted house prices rose by twice as much in areas with low sensitivity of supply as in areas with medium to high sensitivity. In the past year or so, house prices have risen faster in low-supply-sensitive areas, aided mainly by low mortgage interest rates and a modest labor income recovery.

Why the Housing Recovery Appears Sustainable in Texas

Dallas house prices were elevated during the energy boom of the late 1970s and early 1980s when strong income growth boosted demand. Prices fell for many years following the energy collapse in 1986 and did not bottom out until late 1997, when the months' supply of existing homes had finally narrowed to six months, generally considered a point of market balance. Since then, overall prices have mirrored the pattern of other cities with medium to high sensitivity of supply, as shown in *Chart 3*. Dallas house prices did not rise quite as much as those of its peer grouping during the mid-2000s, partly because it is a city with a very high sensitivity of housing supply—even among medium- to high-sensitivity cities. Nonetheless, Dallas house prices have been stronger than this benchmark since 2010.

Dallas has likely benefited from a mini-energy boom associated with the expansion of natural gas production from area shale formations. This interpretation is consistent with Houston house prices (*Chart 4*). Because Houston is a center of energy extraction equipment and services, it has benefited even more than Dallas from the shale energy revolution, experiencing stronger growth in both income and house prices. Comparisons with cities having similar sensitivities of supply suggest that pricing in Dallas and Houston is not notably out of line with fundamentals.

But is the price rise sustainable for the two cities and others with similar supply sensitivity? Contrasting house price-to-rent ratios with real (inflation-adjusted) after-tax mortgage interest rates suggests that it likely is. Interestingly, indexes of the price-to-rent ratios for Dallas-Fort Worth and the medium to high supply-sensitive category are not far apart and are not at notably high levels (*Chart 5*). Mirroring the relative patterns of inflation-adjusted house prices in *Chart 3*, the price-to-rent ratio in Dallas is slightly above that of medium to high supply-sensitive cities, with Houston's ratio exceeding that of Dallas.

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(Continued from Regionally, Housing Rebound Depends on Jobs, Local Supply Tightness)

Comparing the rate of appreciation in inflation-adjusted house prices and the months' supply of existing homes provides additional confirmation that prices are sustainable (*Chart 6*). Even after Dallas house prices recently rose nearly 8 percent faster than inflation, the months' supply for sale remained extremely low—at three months—suggesting that house prices could rise at an even faster rate if inventories remain so low. The same can be concluded about Houston from data plotted in *Chart 7*.

Affordability Across Metropolitan Areas

Finally, despite low inventories and relatively high price-to-rent ratios, do income and mortgage interest rate data tell a different story about local markets? Put another way, are house payments sustainable in terms of household income?

The Housing Opportunity Index from the National Association of Home Builders and Wells Fargo is available for metro areas as well as for states and the nation. During the boom years, this measure of the percentage of homes sold in an area that are affordable to a median-income family fell sharply in coastal cities but declined little in southern, non-Atlantic cities such as Dallas, Houston and Atlanta (*Table 1*). Housing affordability rose in all listed cities after late 2006. Lower mortgage rates aided affordable inland cities, while falling house prices also helped in coastal cities and some struggling inland ones.

For the U.S. and all these cities, the affordability index readings were generally higher in 2012 and early 2013 than in second quarter 2013, when mortgage interest rates rose by about 1 percentage point and affordability dipped. Even with the second-quarter fallback, affordability generally remains in the high and sustainable range seen in the mid- and late-1990s for the U.S. and most inland cities. Among coastal cities, the recent fallback poses more concern given the low percentages of homes affordable to the median-income family in those metros.

Job and economic growth are also important. For example, house prices are above late-2006 levels in Dallas and Houston, where affordability has not declined much because the energy boom has raised incomes. The two cities also experienced less of the recession and more of the recovery in recent years than many inland areas. By comparison, Atlanta house prices have fallen since 2006 even though affordability was high, according to the Housing Opportunity Index. The difference likely is attributable to weaker current labor market conditions, with a notably higher unemployment rate than in Dallas or Houston during fall 2013. Relatively high unemployment in Chicago is also likely a factor in the large decline in house prices there since 2006.

These patterns of local prices underscore the importance not only of whether homes are affordable to median-income families, but also of the risk of becoming unemployed. The combination of modest price-to-rent ratios, low inventory ratios, high affordability and lower-than-average unemployment rates suggests that the housing recovery is sustainable and will continue for some time in Texas' two largest cities. Indicators are similarly positive for Austin and for the state as a whole.

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(Continued from Regionally, Housing Rebound Depends on Jobs, Local Supply Tightness)

Although prospects for a continued housing construction recovery are strong in Texas and good for the U.S. in general, homebuilding may continue to be constrained in areas where the outlook for economic growth is very weak or where the inventory of distressed homes for sale remains high and many homeowners still owe more than their homes are worth (negative net equity or “underwater” homeownership).[6]

In these sluggish areas, further price increases may be needed to reduce the share of underwater homeowners and the inventory of distressed homes to levels that would support increased rates of construction. In contrast, Houston and Dallas had the lowest share of homeowners with negative net equity (3.8 percent and 4.7 percent, respectively) among the 25 largest metro areas in December 2013.

At the national level, the combination of measures to resolve bad mortgages, the enhanced ability to refinance existing mortgages, ongoing household deleveraging and the turnaround in house prices has lowered estimates of U.S. homeowners with negative net equity to 13.3 percent in December 2013 from 25.2 percent in December 2011, according to data from analytics firm CoreLogic. As a result, the share of underwater homeowners in late 2013 exceeded 20 percent in just three states: Nevada, Florida and Arizona. Continued declines in the national share of underwater mortgages seem likely and will help reinforce the housing recovery in many areas of the country.

Notes

1. In each type of area, the long-run supply curves are also more elastic than the short-run supply curves, except in extreme cases.
2. Construction shifted a good deal in the West, but much of this occurred inland from the Pacific Coast (for example, California’s “Inland Empire” and Nevada and Arizona) and was induced by larger house-price swings than were generally seen in most of the South (outside of the South Atlantic, where housing supply became tight). Although homebuilding varied less in the Midwest than in the West, there was relatively less variation in house prices in the Midwest than in the West. Construction can vary in areas of low sensitivity of supply if prices shift enough, while smaller house-price changes accompany a given swing in homebuilding in areas with a high sensitivity of supply (“Supply Restrictions, Subprime Lending and Regional U.S. Housing Prices,” by André Kallåk Anundsen and Christian Heebøll, paper presented at “Housing, Stability and the Macroeconomy: International Perspectives,” a conference sponsored by the Federal Reserve Bank of Dallas, the International Monetary Fund and the *Journal of Money, Credit, and Banking*, Dallas, Nov. 14-15, 2013).
3. “The Geographic Determinants of Housing Supply,” by Albert Saiz, *Quarterly Journal of Economics*, vol. 125, no. 3, 2010, pp. 1253-96. Metro areas with a Saiz supply elasticity index of at least 1 are classified as having a high or medium sensitivity of housing supply, and areas with values below 1 as having a low sensitivity of supply. The former include Atlanta (omitted for missing rent data), Cincinnati, Cleveland, Dallas, Detroit, Houston, Kansas City, Milwaukee, Minneapolis, Philadelphia, Pittsburgh, Portland and St. Louis. The low-sensitivity group includes Boston, Chicago, Los Angeles, Miami, New York, San Diego, San Francisco and Seattle (omitted for missing rent data). For the importance of housing supply, also see “Housing Supply and Housing Bubbles,” by Edward L. Glaeser, Joseph Gyourko and Albert Saiz, *Journal of Urban Economics*, vol. 64, no. 2, 2008, pp. 198-217; and “Where Are the Speculative Bubbles in U.S. Housing Markets?” by Allen C. Goodman and Thomas G. Thibodeau, *Journal of Housing Economics*, vol. 17, no. 2, 2008, pp. 117-37.

The Long-Awaited Housing Recovery

(Continued from Regionally, Housing Rebound Depends on Jobs, Local Supply Tightness)

4. Likely owing to major redefinitions of metro areas and data limitations, the Bureau of Labor Statistics does not have data on rents for Atlanta and Seattle, which were excluded from the calculations shown in Charts 2 and 3.
5. House prices were deflated by the national chain price deflator for personal consumption expenditures. Real house prices are indexed to equal 100 in fourth quarter 1997, a year-end quarter in which the months' supply of existing homes was near the "neutral threshold" of six months for the U.S. and Dallas. This avoids distorting the data plotted by indexing to a date when the supply and demand conditions in the housing market were balanced at prevailing prices.
6. Distressed homes for sale include listed repossessed homes, homes in the process of being foreclosed, or homes being sold by troubled mortgage borrowers (including short sales) to avoid foreclosure. For example, CoreLogic estimates a high share (over 20 percent) of negative net equity homeowners in some large metro areas (core based statistical areas), such as Chicago-Joliet-Naperville, Tampa-St. Petersburg-Clearwater and Orlando-Kissimmee-Sanford, where there was also a high months' supply of distressed homes for sale (above nine months) in early fall 2013 (*The Market Pulse*, CoreLogic, vol. 2, no. 11, November 2013).

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Suggested citation:

Duca, John V. (2014), "Regionally, Housing Rebound Depends on Jobs, Local Supply Tightness," in "The Long-Awaited Housing Recovery," 2013 Annual Report (Dallas: Federal Reserve Bank of Dallas, March), www.dallasfed.org/microsites/fed/annual/2013/e2.cfm.

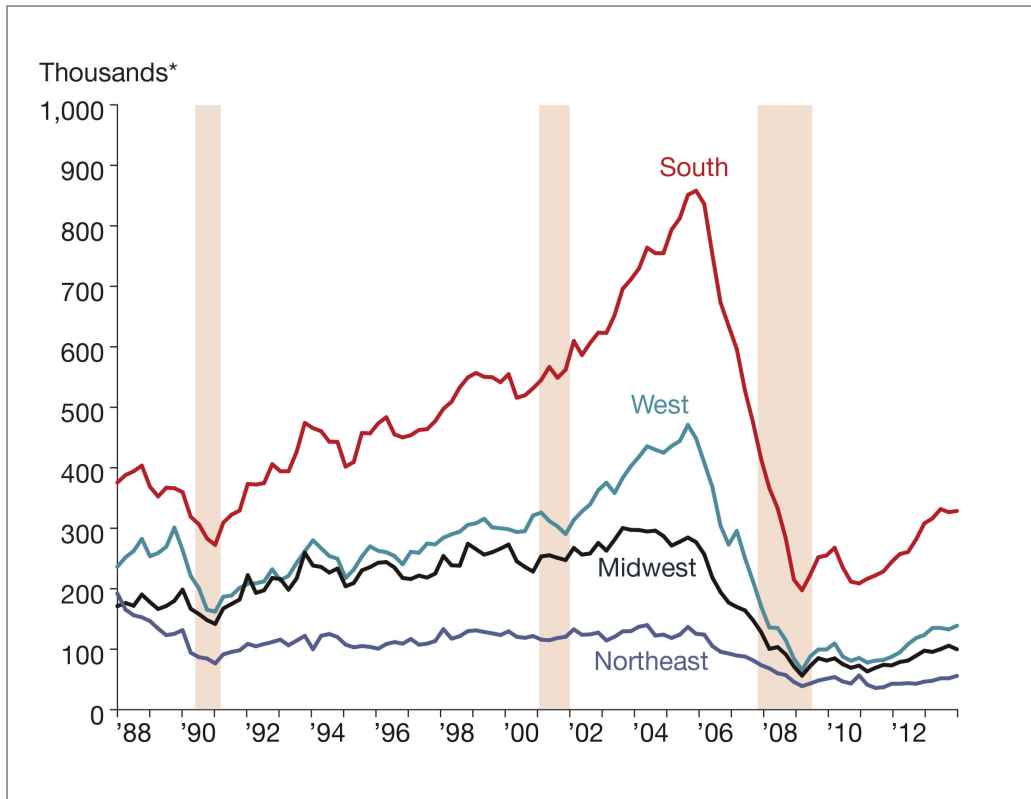
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The Long-Awaited Housing Recovery

Regionally, Housing Rebound Depends on Jobs, Local Supply Tightness

by John V. Duca

Chart 1:
Single-Family Permits More Changeable in Land-Plentiful South Than in Northeast



*Seasonally adjusted, annualized rate

NOTE: Shaded bars indicate recessions.

SOURCE: Census Bureau, with Haver seasonal adjustments.

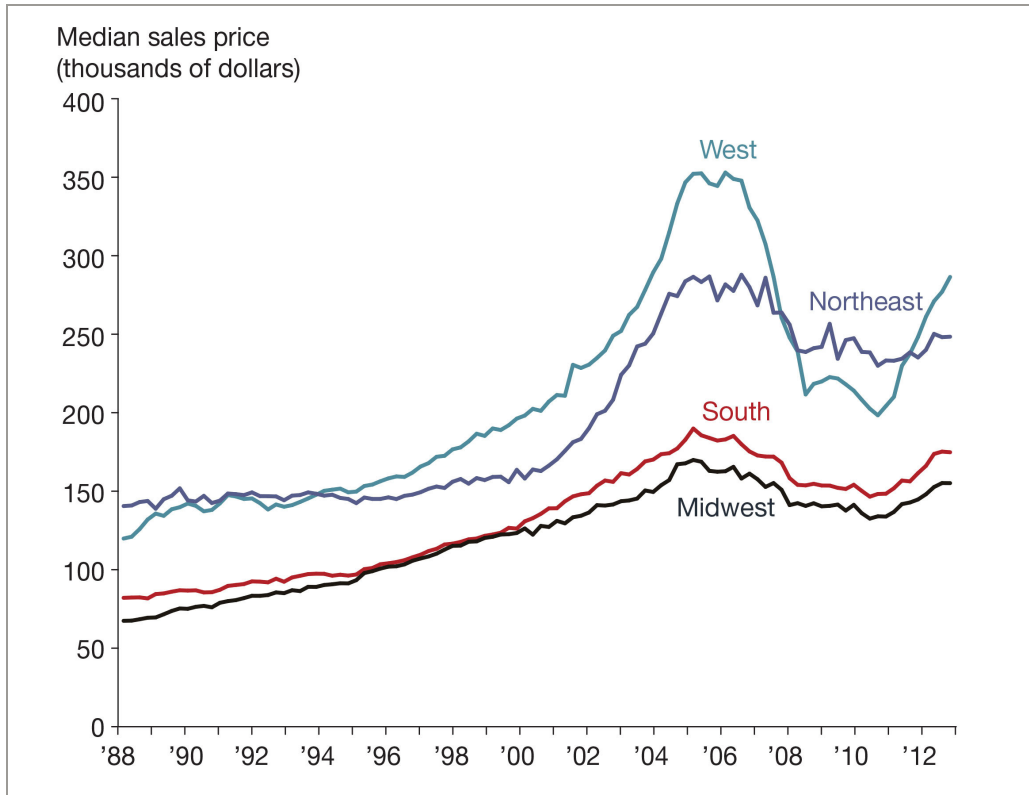
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by John V. Duca

Chart 2:
Sales Price for Single-Family Home More Volatile in Coastal Regions



SOURCE: National Association of Realtors, with Haver seasonal adjustments.

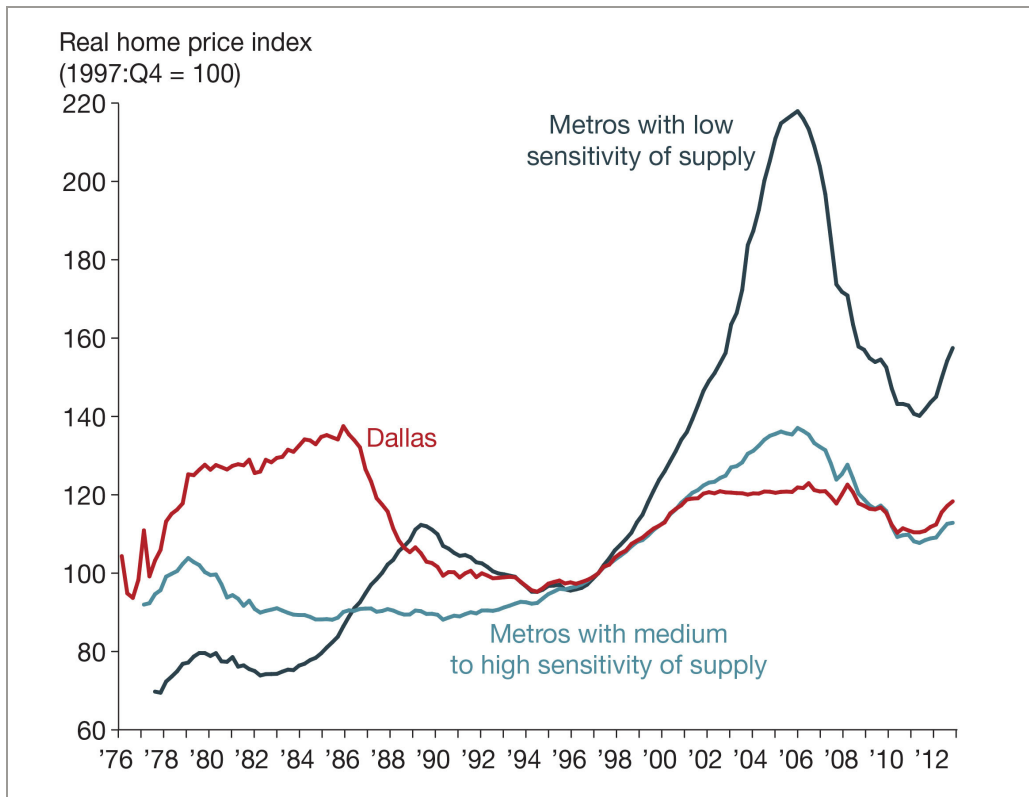
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The Long-Awaited Housing Recovery

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by John V. Duca

Chart 3:
Dallas House Prices in Line With Those of Metros Showing High Sensitivity of Housing Supply



SOURCES: Federal Housing Finance Agency; Bureau of Economic Analysis; “The Geographic Determinants of Housing Supply,” by Albert Saiz, *Quarterly Journal of Economics*, vol. 125, no. 3, 2010, pp. 1253-96; author’s calculations.

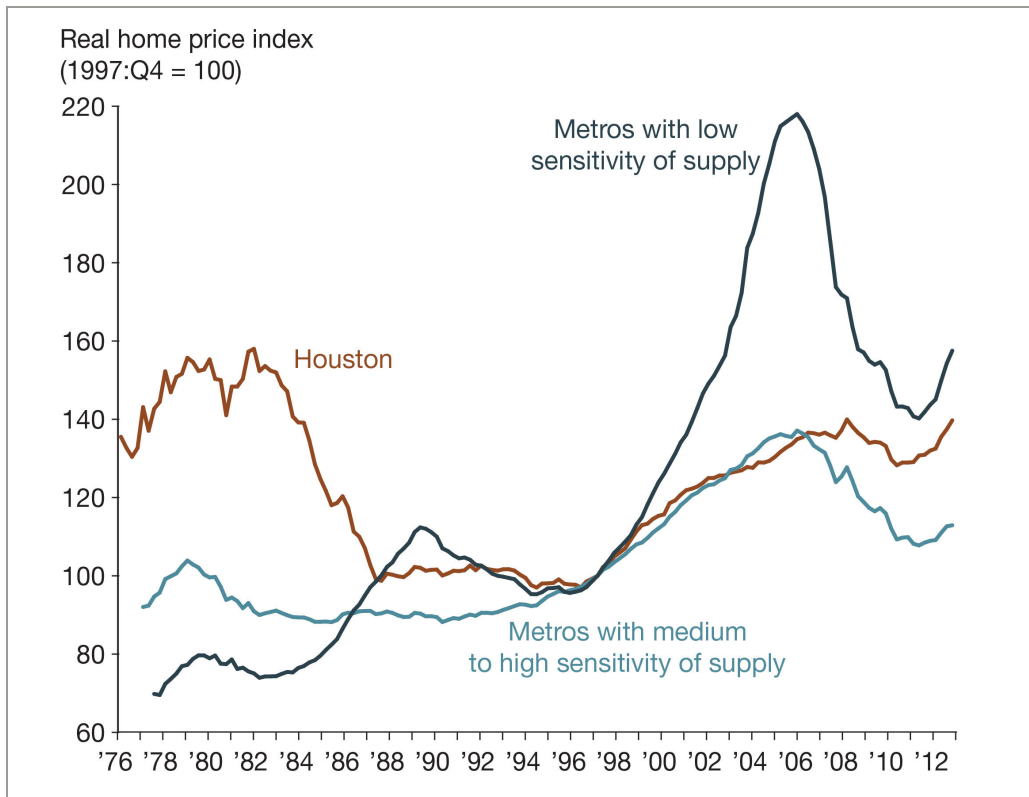
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by John V. Duca

Chart 4:
House Prices in Energy-Driven Houston Outpace Those of Metros Displaying High Sensitivity of Housing Supply



SOURCES: Federal Housing Finance Agency; Bureau of Economic Analysis; “The Geographic Determinants of Housing Supply,” by Albert Saiz, *Quarterly Journal of Economics*, vol. 125, no. 3, 2010, pp. 1253-96; author’s calculations.

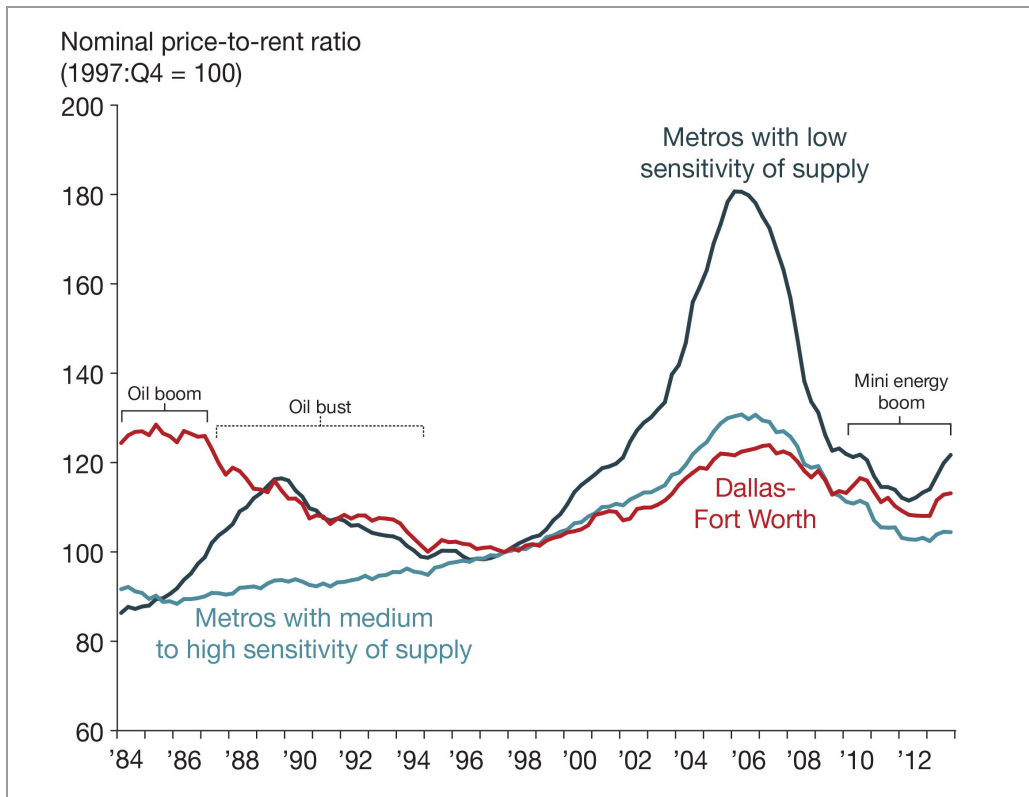
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Regionally, Housing Rebound Depends on Jobs, Local Supply Tightness

by John V. Duca

Chart 5:
Price-to-Rent Ratios in Dallas Now Near Those of Major Metros With Medium to High Sensitivity of Supply



SOURCES: Federal Housing Finance Agency; Bureau of Labor Statistics; “The Geographic Determinants of Housing Supply,” by Albert Saiz, *Quarterly Journal of Economics*, vol. 125, no. 3, 2010, pp. 1253-96; author’s calculations.

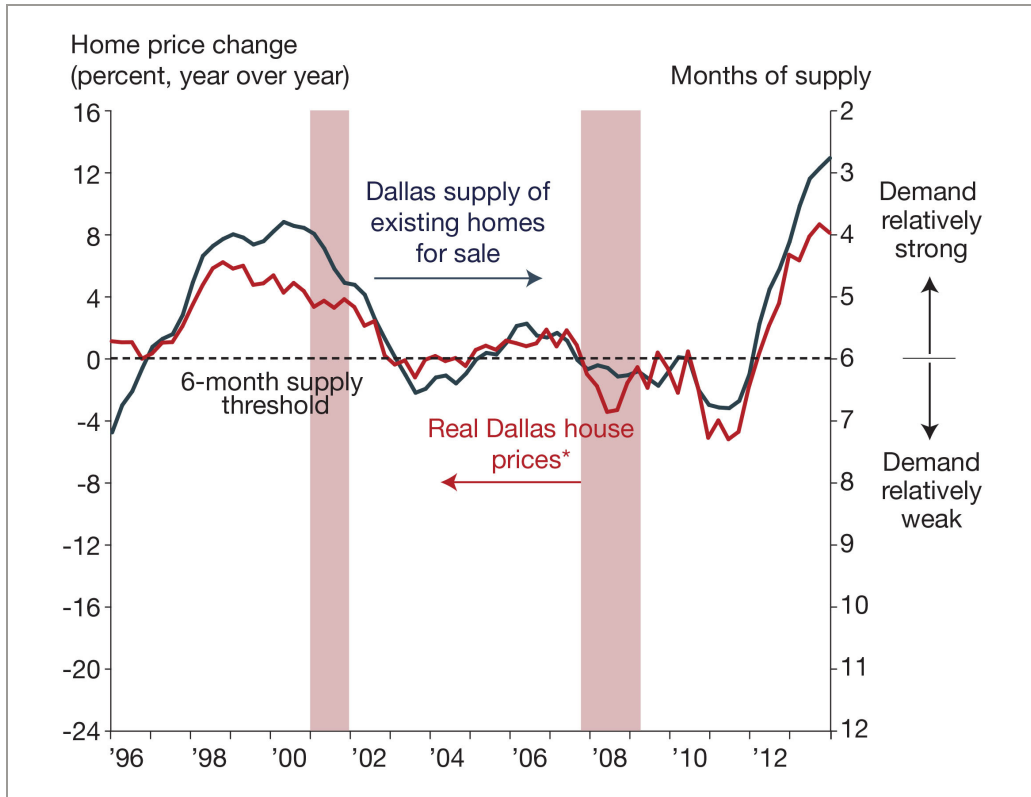
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The Long-Awaited Housing Recovery

Regionally, Housing Rebound Depends on Jobs, Local Supply Tightness

by John V. Duca

**Chart 6:
Low Inventories Consistent With Rising Inflation-Adjusted House Prices in Dallas**



*Seasonally adjusted

NOTE: Shaded bars indicate recessions.

SOURCES: Federal Housing Finance Agency; Bureau of Economic Analysis; Texas A&M Real Estate Center; author's calculations.

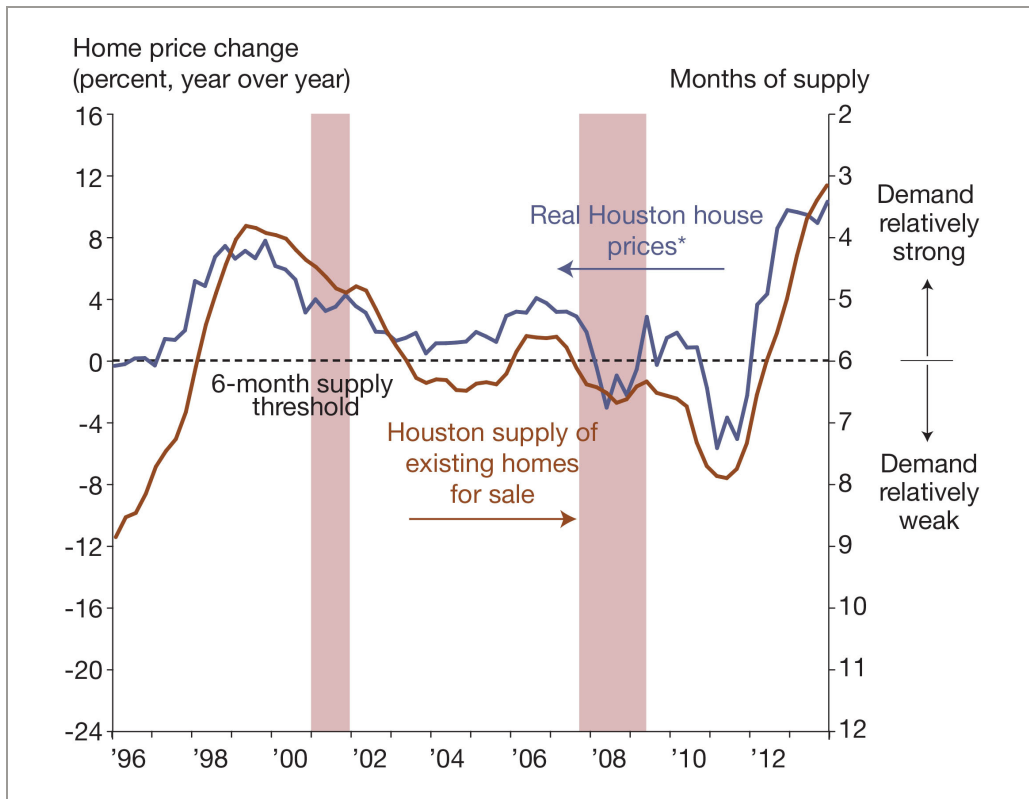
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The Long-Awaited Housing Recovery

Regionally, Housing Rebound Depends on Jobs, Local Supply Tightness

by John V. Duca

**Chart 7:
Low Inventories Consistent With Rising Inflation-Adjusted House Prices in Houston**



*Seasonally adjusted

NOTE: Shaded bars indicate recessions.

SOURCES: Federal Housing Finance Agency; Bureau of Economic Analysis; Texas A&M Real Estate Center; author's calculations.

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The Long-Awaited Housing Recovery

Regionally, Housing Rebound Depends on Jobs, Local Supply Tightness

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Table 1:
Metro House Price Changes Since 2006 Reflect Affordability, Unemployment

	Housing Opportunity Index*			Home price change 2006:Q4-2013:Q4 (percent)	Unemployment rate December 2013 (percent, seasonally adjusted)
	2000:Q1	2006:Q4	2013:Q4		
U.S.	63	42	65	-8	6.7
Pacific and Atlantic coastal metros					
Los Angeles	40	2	21	-21	9.2
New York	42	5	23	-14	7.8
San Francisco	10	8	14	+17	5.0
Miami	59	10	52	-32	7.5
Chicago	62	47	66	-21	8.6
Non-Atlantic southern metros					
Atlanta	75	68	77	-8	7.1
Dallas	65	62	60	+18	5.9
Houston	66	56	60	+33	5.9

*The Housing Opportunity Index is the percentage of homes sold in an area that are defined as affordable to families earning the median income of that area, assuming they finance home purchases using 30-year conventional mortgages with a 10 percent down payment and that the resulting mortgage payments are no higher than 28 percent of median income.

SOURCES: National Association of Home Builders/Wells Fargo Housing Opportunity Index; Federal Housing Finance Agency purchase-only, seasonally adjusted home price index; Bureau of Labor Statistics.

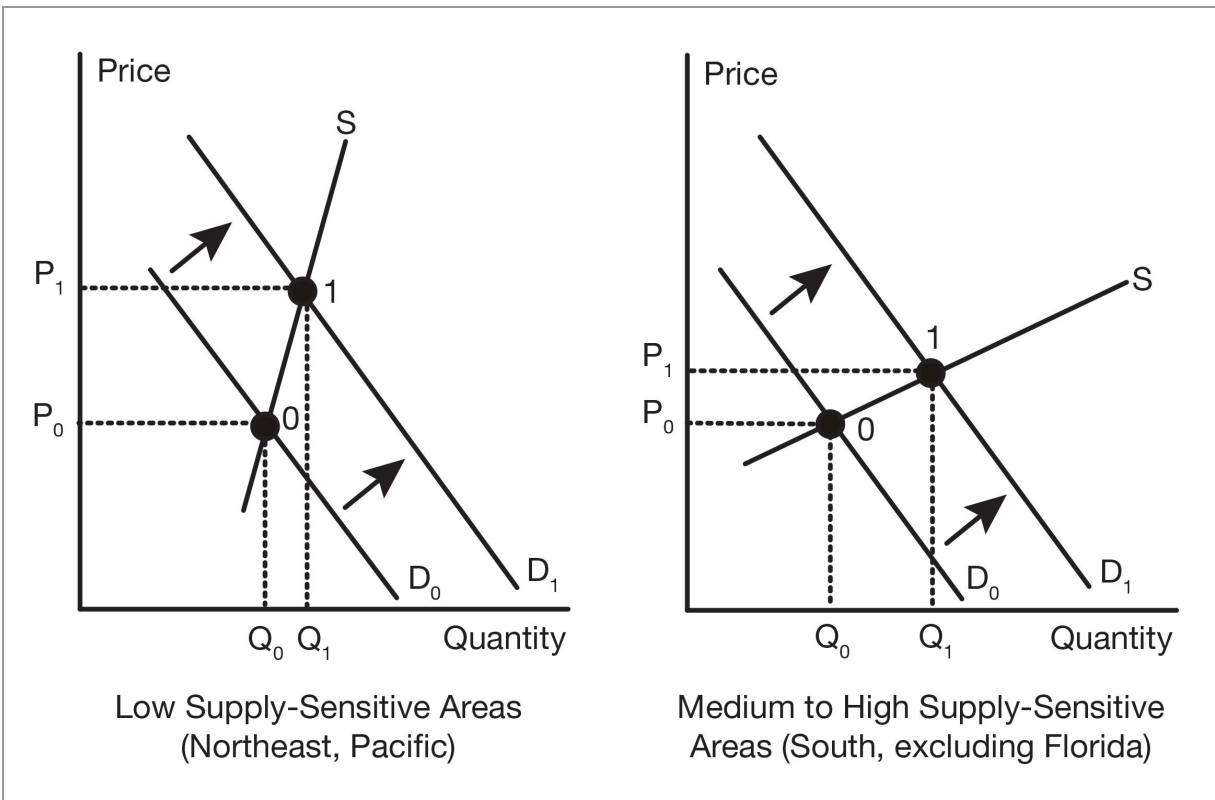
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Supply Conditions Affect House Price Response to Higher Demand



The left-hand panel shows a relatively steep supply curve for areas where land is less plentiful, and the right-hand panel shows a relatively flat supply curve for areas where supply is highly sensitive to prices.

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The Long-Awaited Housing Recovery

Regionally, Housing Rebound Depends on Jobs, Local Supply Tightness

by John V. Duca

Video: Region's Economic Prospects Propel New Demand



The region's strong economy attracts job seekers and enhances housing demand. A planned national consolidation of State Farm Insurance operations to the Dallas suburb of Richardson, Texas, exemplifies the impacts.

Related article, *Regionally, Housing Rebound Depends on Jobs, Local Supply Tightness*.
<http://www.dallasfed.org/microsites/fed/annual/2013/e2.cfm>



The Long-Awaited Housing Recovery

What's Next? Factors Determining the Housing Recovery's Pace

by John V. Duca

The current balance between the number of owner-occupied homes and rental units demanded, along with existing housing supply, favors a continued recovery in house prices and construction even after temporary delays attributable to severe winter weather in 2013-14. Still, the future pace of the housing recovery will reflect important supply and demand influences—the impact of new homes on supply, market developments affecting housing prices and the alternative costs of renting.

Uncertainty arises from hard-to-predict factors influencing the supply of new building lots, lending standards and future mortgage interest rates, as well as circumstances impacting overall household formation and the mix of families that own or rent.

Future Supply of Housing

New housing supply is a function of the need to replace unfit properties, the availability of building lots, the ease with which construction financing is obtained and the incentive to build new homes that mainly arises from any positive gap between existing-house prices and the cost of constructing new units.

Typical geographic and zoning restrictions aren't the only limits on the supply of developed lots for housing. Supply has been unusually affected in recent years by large cuts to local government budgets and community pressure to revive house prices. Additionally, local shortages of skilled workers have constrained construction.

The availability of commercial real estate finance has also played a role. Banks are the primary external credit source for developers of home lots and for financing construction. The housing and financial crisis and subsequent regulatory response have constrained the supply of such credit.

The Federal Reserve's survey of banks illustrates the depth of the constriction of commercial real estate financing. Each quarter, the Fed asks senior loan officers how their institutions have changed their credit standards over the preceding three months. The percentage of banks reporting tightening standards minus those reporting easing for several loan categories is shown in Table 1 (positive numbers denote tightening and negative numbers indicate loosening). Real estate loans include prime mortgages and nonprime mortgages used by homebuyers.[1] The commercial real estate category spans mortgage financing for existing office buildings, factories, retail space and warehouses, as well as for construction and land development to build residential and nonresidential structures.

The Long-Awaited Housing Recovery

(Continued from What's Next? Factors Determining the Housing Recovery's Pace)

Just before the start of the Great Recession, in October 2007, credit standards were tightened on all categories of loans, especially for real estate, where the risk of future loan losses was concentrated. A year later, a large percentage of banks reported increasingly stringent standards for all categories of loans, particularly those involving commercial real estate.

A combination of factors was at play, including fear of a deep national recession—triggered in part by the collapse of Lehman Brothers—and large losses on loans (notably real estate) and on securities (especially mortgage-backed securities and preferred stock in housing finance firms Fannie Mae and Freddie Mac). These losses reduced banks' equity capital, which regulators require be held above certain levels to fund loans and other investments.[2]

The net percentage of banks tightening credit standards progressively abated after late 2008 (*Table 1*). This occurred amid temporary government infusions of capital into weakened institutions, the rebuilding of banks' cash cushions and the economic recovery. For some types of loans, such as consumer, commercial and industrial credits, banks have eased standards in the past two years.

Overall, the survey data demonstrate only a partial reversal of the earlier tightening. Banks remain cautious about relaxing commercial real estate lending standards because of recent negative experience and large declines in the value of real estate loan collateral during the Great Recession (commercial real estate prices fell much more than house prices).

A regulatory response to the financial crisis has been only slowly implemented. For example, it took nearly five years after the subprime-mortgage-related collapse of Lehman before new capital requirements were established. Credit standards for commercial real estate, in particular, were tightened much more than for most other types of loans. Additionally, large bank holding companies are now required to reduce risky investments and hold more capital if regulatory stress tests indicate that potentially adverse economic scenarios unduly threaten an institution's survival or the stability of the nation's financial system.[3] Finally, most of the specific provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank) were not issued until early 2013, and many of these rules are so complicated that it may take a while before banks are comfortable making some types of loans.

Anecdotal reports of shortages of building lots in some areas illustrate that banks remain reluctant to make construction and land development loans. Consequently, the recovery in home construction (and employment) has been delayed, allowing increased demand to upwardly pressure house prices. Assessing the extent of lot shortages and how quickly they may abate is difficult. One positive sign is that a small net percentage of banks reported easing credit standards on construction and land development loans in the Fed's July and October 2013 surveys of senior loan officers.

Future Demand for Housing

Short-term demand for housing is affected by the path of mortgage interest rates, unemployment rates and income over the next couple of years. Longer-term demand is driven by the size of units demanded, the mix of rental and owner-occupied properties and the pace of overall household formation.

The Long-Awaited Housing Recovery

(Continued from *What's Next? Factors Determining the Housing Recovery's Pace*)

The Cost and Availability of Mortgages

At least two major factors will affect mortgage interest rates over the next few years. As part of the Fed's quantitative easing efforts to keep interest rates low and spur the housing sector, the central bank has purchased mortgage-backed securities. Interest rates will likely react to eventual Fed modification of its purchases and normalization of monetary policy. A second factor is potential reform of government-sponsored enterprises Fannie Mae and Freddie Mac and the effect on the types and costs of mortgage financing. Because the mortgage-backed securities created by these two entities fund about half of existing U.S. home mortgages, changes could significantly influence the price and size of new prime mortgages.

Household Formation and Homeownership

Household formation and the decision whether to own or rent a home help determine demand for owner-occupied and rental housing units. Apart from mortgage-interest-rate changes, unusual shifts in availability of mortgage financing and labor market conditions have also affected household formation and choice of dwelling type.

Variation in the total number of households is a function of not only population growth but also the rate at which people form households—the frequency trended up in the 1970s and 1980s as baby boomers entered adulthood and families became smaller (*Chart 1*). After flattening out between the late 1980s and early 1990s, the rate of household formation rose slightly from the late 1990s to mid-2000s, partly from demographic shifts because of increased longevity and the older age composition of the adult population.

Household formation among the young also rose. Their decision to start a new household is based on whether they earn enough to afford the cost of renting or owning a house if they move out of their parents' homes, and if they have enough savings for a mortgage down payment or a rental deposit.

The formation rates for the 25- to 34-year-old group increased significantly in the 1970s, when housing (owned or rented) was relatively more affordable partly owing to unusually low inflation-adjusted mortgage interest rates that reduced financing costs. Still, much of that period's strong growth among the young was likely met by a surge in apartment construction. The overall homeownership rate was stable.

The most recent decade differed from the 1970s. For example, when low-down-payment, nonprime mortgages were available in the early and mid-2000s, young people did not have to wait long to save for down payments to buy homes.[4] Household formation among the young firmed to levels just short of those in the 1970s. However, in contrast to that earlier decade, homeownership rose notably, especially among the young (*Chart 2*). The 25- to 34-year-old age group has traditionally been the key homebuying group. Borrowing constraints have historically been more binding on this demographic than on others.[5]

The Long-Awaited Housing Recovery

(Continued from What's Next? Factors Determining the Housing Recovery's Pace)

Homeownership and household formation trends reversed markedly in 2008-11 after credit tightened and recession-era job losses mounted in 2008 and 2009.

Future Mortgage Lending

Looking ahead, it is unclear how mortgage lending will evolve during the next few years. Long and consistently measured historical data on down payments for first-time buyers—a proxy for mortgage lending standards—are only available through mid-2011.[6]

On the one hand, a strengthening economy and the improving health of banks suggest that standards may be relaxed a little and the supply of mortgage credit may rise. Moreover, regulators have drafted and will soon finalize new guidelines regarding the types of mortgages lenders can make that can be securitized (bundled into larger debt instruments) and that limit lender exposure to lawsuits. Reducing regulatory uncertainty regarding such “qualified” mortgages under Dodd-Frank may spur an increase in mortgage lending.

On the other hand, some of the new regulations are quite long—one totals 505 pages—and complex, possibly inhibiting notable easing of mortgage credit standards in the near term.[7] Additionally, potential congressional reform of Fannie Mae and Freddie Mac may reduce the availability and increase the price of prime mortgages. Recent increases in fees and tighter credit standards for Federal Housing Administration mortgages may make them harder for lower-income, first-time homebuyers to obtain.

Labor Market

The job market collapse, particularly for younger people during the Great Recession, delayed household formation, which has since only partially rebounded.[8] Unemployment rates rose relatively more for teenagers and other young adults than for those age 25 and older during the downturn (*Chart 3*). However, prospects for further labor market improvement imply that household formation will likely continue to rise.

There are concerns, however, that many of the new jobs created as the labor market improves will be low paying.[9] That would induce many newly formed households to rent rather than own. Higher levels of college debt and greater college attendance may also favor renting over homeownership.[10]

Rental housing usually entails less construction per unit than detached housing, which will restrain how much U.S. gross domestic product recovers as the number of housing units constructed rebounds. Additionally, while the share of young people in their own households may return to prerecession levels, the share may still remain below the highs of the 1970s (*Chart 4*). Low pay may be a factor. There has been an increase in the share of adults living with their parents due to rising trends in poverty and income inequality, not just because of temporary, cyclical factors.[11] Nevertheless, between a demographic aging of the population and a likely labor market recovery, overall household formation should eventually recover all of its Great Recession declines and drift higher.[12] The question is when.

The Long-Awaited Housing Recovery

(Continued from *What's Next? Factors Determining the Housing Recovery's Pace*)

Whither the U.S. Housing Recovery?

Thus, while the U.S. housing recovery will probably continue for some time, its pace and composition will be affected by the nature of the labor market recovery, the movement of mortgage interest rates and the difficult-to-predict evolution of credit availability to prospective homebuyers and to homebuilders and developers.

Notes

1. Prime mortgages refer to those loans that meet the down-payment, debt-burden and other credit standards of “conventional” mortgages, which can be packaged by Fannie Mae and Freddie Mac into regular mortgage-backed securities. Nonprime mortgages refer to either loans whose size exceeds those guidelines or to subprime and other loans that do not conform to those standards.
2. Capital requirements give banks an incentive to limit risk because capital absorbs the first losses on investments. Preferred stock in Fannie Mae and Freddie Mac had been counted as bank capital until these government-sponsored enterprises were taken over by the federal government.
3. Banks can increase their capital by issuing new stock or retaining more profits, sometimes by cutting dividends.
4. 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; 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.
5. See “Borrowing Constraints and Access to Owner-Occupied Housing,” by John V. Duca and Stuart S. Rosenthal, *Regional Science and Urban Economics*, vol. 24, no 3, 1994, pp. 301-22.
6. See “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.
7. See “Eased Mortgage-Risk Rule to Be Proposed by U.S. Agencies,” by Clea Benson, Bloomberg News, Aug. 28, 2013, www.bloomberg.com/news/2013-08-28/eased-mortgage-risk-rule-to-be-proposed-by-u-s-agencies-today.html.
8. See “Household Formation and the Great Recession,” by Timothy Dunne, *Economic Commentary*, Federal Reserve Bank of Cleveland, Aug. 23, 2012, www.clevelandfed.org/research/commentary/2012/2012-12.cfm; and “The Long and the Short of Household Formation,” by Andrew Paciorek, Federal Reserve Board, Finance and Economics Discussion Series Working Paper no. 2013-26, April 2013, www.federalreserve.gov/pubs/feds/2013/201326/201326abs.html.
9. See “U.S. Job Worries Include Quality,” by Andrew Davis, Moody’s Analytics, Sept. 10, 2013, www.economy.com/dismal/pro/article.asp?cid=242507.
10. See “Young Student Loan Borrowers Retreat From Housing and Auto Markets,” by Meta Brown and Sydnee Caldwell, Federal Reserve Bank of New York, *Liberty Street Economics* (blog), April 17, 2013, <http://libertystreeteconomics.newyorkfed.org/2013/04/young-student-loan-borrowers-retreat-from-housing-and-auto-markets.html>.

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(Continued from What's Next? Factors Determining the Housing Recovery's Pace)

11. See “Will the Kids Move Out?” by John V. Duca, Federal Reserve Bank of Dallas, unpublished paper, 2013; and “The State of the Nation’s Housing 2013,” by the Joint Center for Housing Studies of Harvard University, 2013, p. 15.
12. See “The Long and the Short of Household Formation,” by Andrew Paciorek, Federal Reserve Board, Finance and Economics Discussion Series Working Paper no. 2013-26, April 2013, www.federalreserve.gov/pubs/feds/2013/201326/201326abs.html.

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Suggested citation:

Duca, John V. (2014), “What’s Next? Factors Determining the Housing Recovery’s Pace,” in “The Long-Awaited Housing Recovery,” 2013 Annual Report (Dallas: Federal Reserve Bank of Dallas, March), www.dallasfed.org/microsites/fed/annual/2013/e3.cfm.

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The Long-Awaited Housing Recovery

What's Next? Factors Determining the Housing Recovery's Pace

by John V. Duca

Table 1:
After Tightening Credit Standards, Banks Begin Easing
 (Net Percentage Tightening Credit Standards Over Previous 3 Months)

Type of loan	Oct. 2007	Oct. 2008	Oct. 2010	Oct. 2012	Oct. 2013
Real estate					
Prime mortgages	41	70	9	-2	-9
Subprime mortgages	56	100	n/a	0	n/a
Commercial real estate	50	87	4	-9	-7
					(nonresidential)
Business loans					
Large/medium firms	19	84	-11	-8	-8
Small firms	10	75	-7	-8	-7
Consumer loans					
Non-credit card	26	64	-6	-10	-12
					(only auto)

NOTE: Positive numbers (red) denote net tightening and negative numbers (green) denote loosening of lending standards.

SOURCE: Federal Reserve Senior Loan Officer Survey.

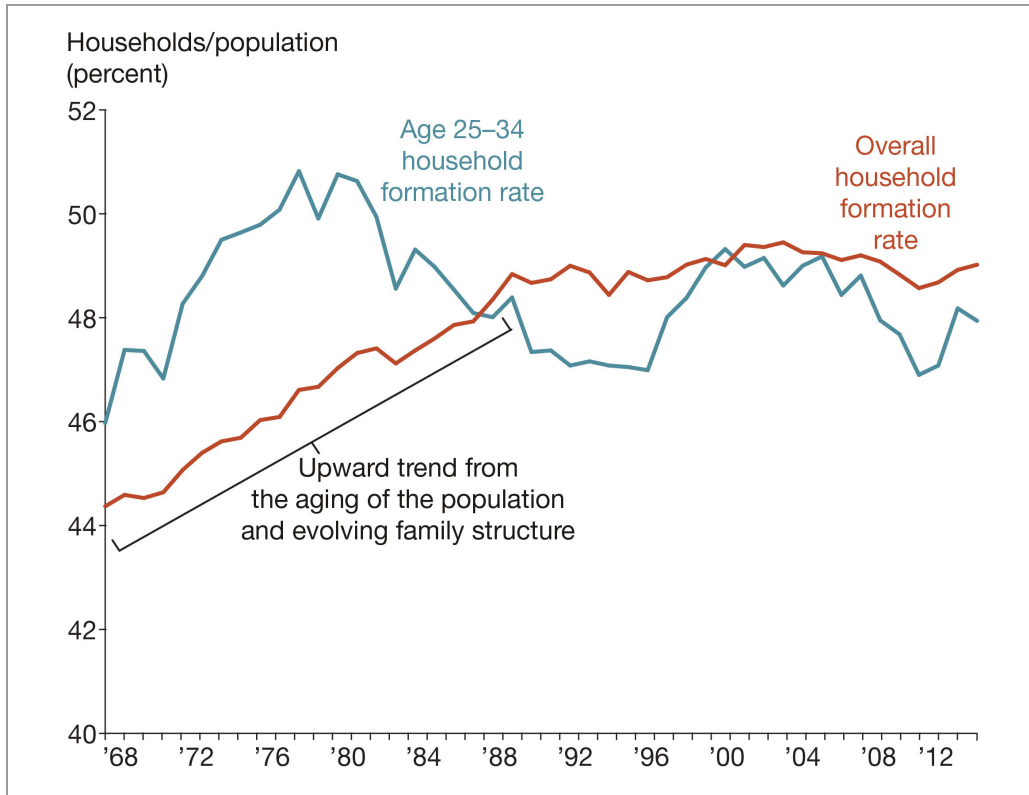
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Chart 1:
Overall Household Formation Sags During the Great Recession



SOURCES: Author's calculations using the IPUM-CPS (Integrated Public Use Microdata Series-Current Population Survey) data set.

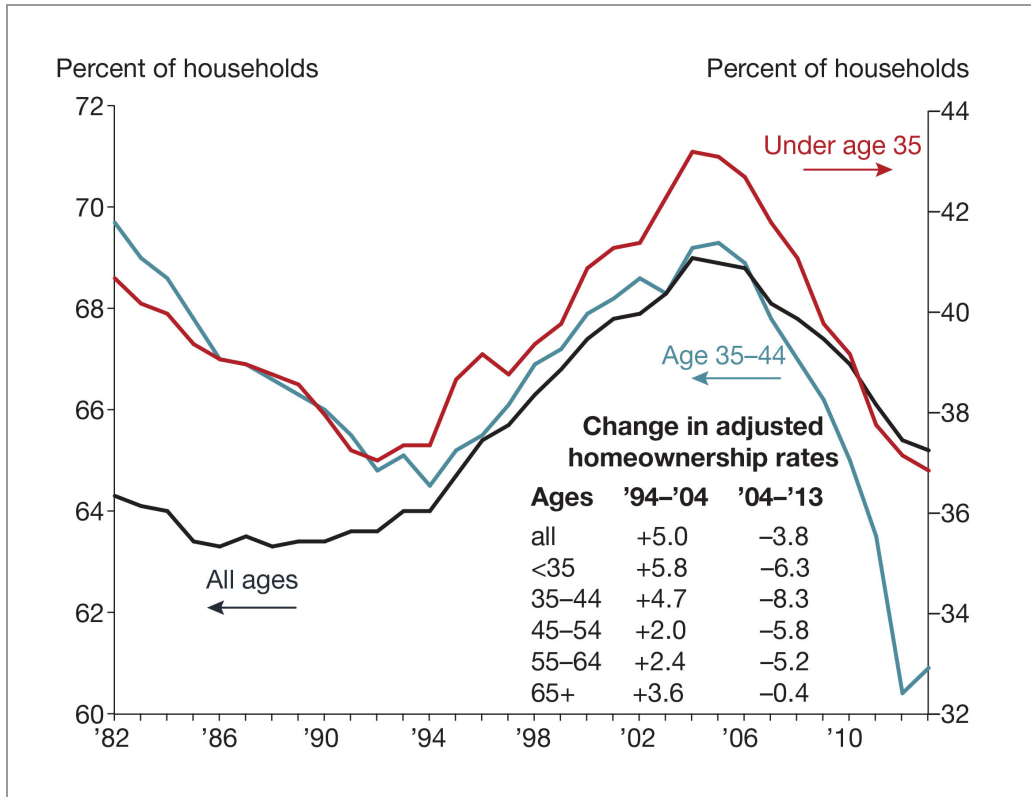
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What's Next? Factors Determining the Housing Recovery's Pace

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**Chart 2:
The Rise and Fall of Homeownership Rates Very Pronounced Among Younger Families**



SOURCES: Census Bureau and author's calculations of adjustments for changes in decennial census-related survey procedures to make data more consistent over time.

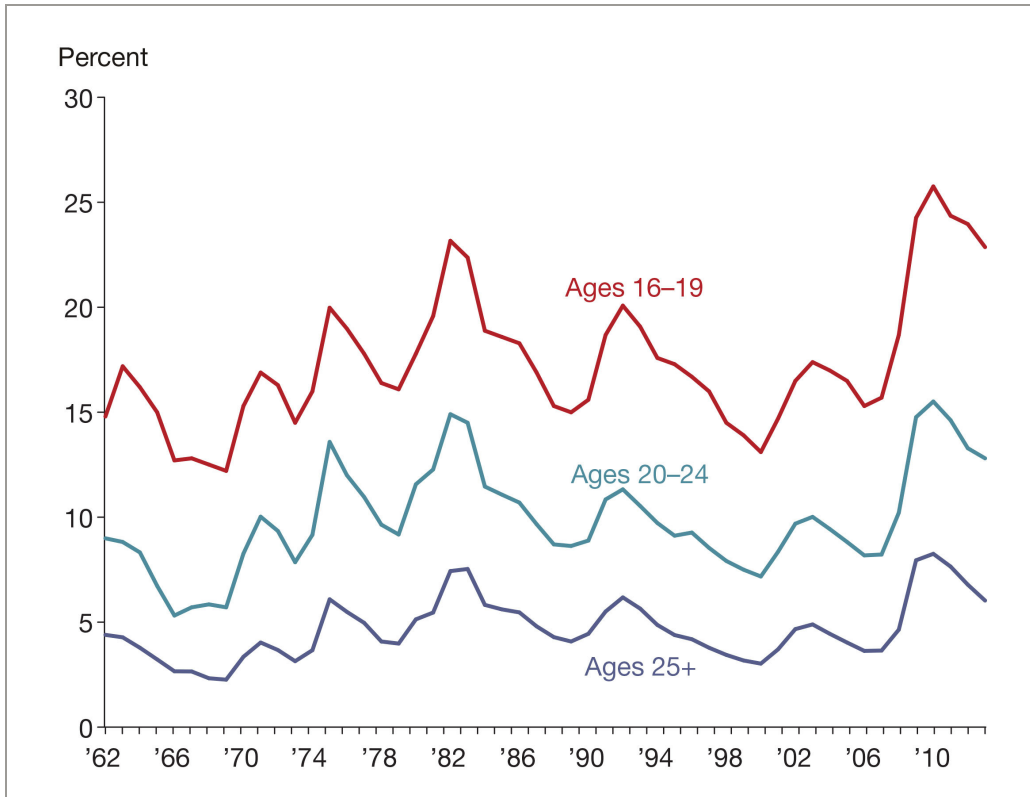
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What's Next? Factors Determining the Housing Recovery's Pace

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Chart 3:
Unemployment Rates More Elevated Among the Young



SOURCE: Bureau of Labor Statistics.

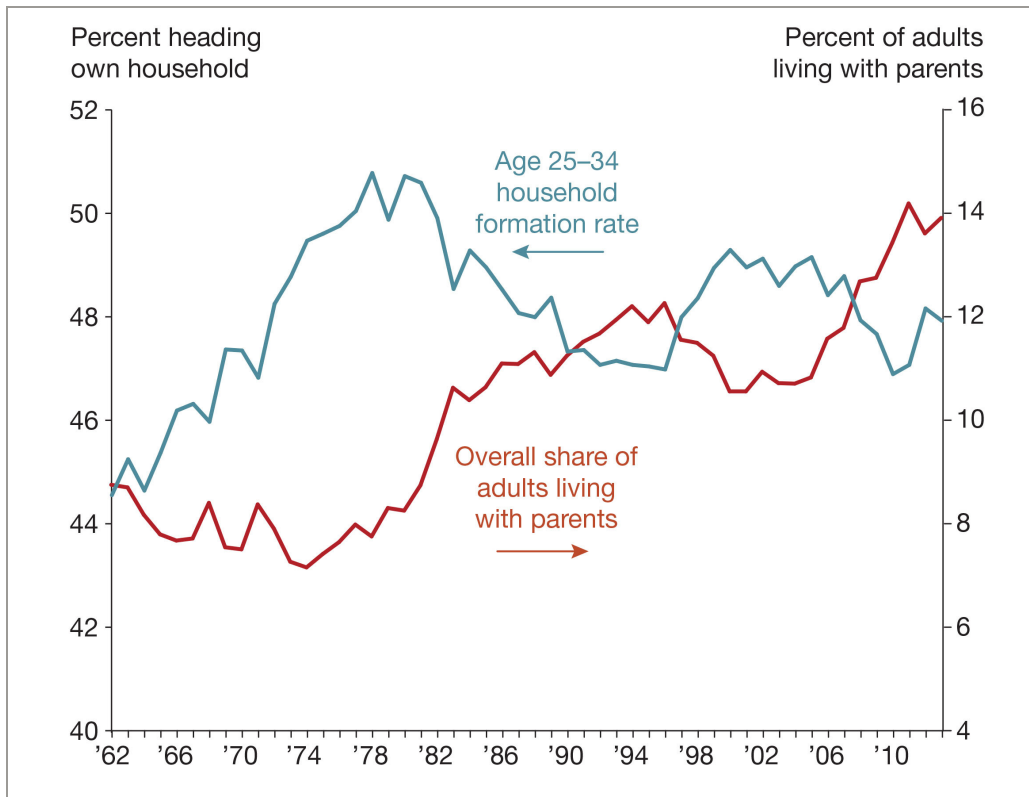
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Chart 4:
Household Formation Among Young Recovering; Share of Adults Living With Parents Up From 1970s



SOURCES: Author's calculation using the IPUM-CPS (Integrated Public Use Microdata Series-Current Population Survey) data set.

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The Long-Awaited Housing Recovery

What's Next? Factors Determining the Housing Recovery's Pace

by John V. Duca

Video: Education Debt Stalls Household Formation



College and education debt incurred during recessionary times defers household formation, keeping grads at home with parents.

Related article, *What's Next? Factors Determining the Housing Recovery's Pace*.
<http://www.dallasfed.org/microsites/fed/annual/2013/e3.cfm>

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2013 Annual Report

The Long-Awaited Housing Recovery

The Many Dimensions of the Dallas Fed Year in Review

In 2013, the Federal Reserve Bank of Dallas contributed to the mission of the Federal Reserve System, serving and supervising financial institutions in the Eleventh District, working for a stronger payments system, conducting research into important issues affecting monetary policy, and circulating and ensuring the fitness of the nation's currency.

At the same time, the Bank was active throughout the district, fostering financial education, supporting wealth building and neighborhood improvement initiatives, setting an example for environmental responsibility and supporting communities through volunteer projects.

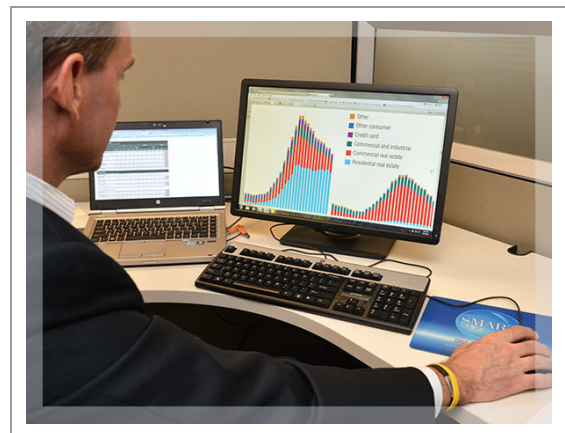
Ensuring Strong Financial Institutions

Americans expect a strong and reliable banking system. In the Eleventh District, Dallas Fed staff work hard to ensure that a growing number of financial institutions under Federal Reserve supervision—including nine new state member banks in 2013—operate safely and soundly.

In response to increased supervisory responsibility for large financial institutions in the South Texas area, the Dallas Fed began staffing its San Antonio Branch with bank examiners. Over time, the move means reduced travel costs for the Fed and more efficient communication between the Fed and local banks.

“We have some large financial institutions in San Antonio making it beneficial to have a local presence to coordinate supervisory activities,” said Ann Worthy, senior vice president responsible for the Dallas Fed’s Banking Supervision Department. “With supervisors on the ground in San Antonio, we minimize the need for constant travel and make it easier for our examiners to meet face-to-face with financial institution officials.”

In 2013, the Dallas Fed enhanced the examination process for community banks through technology solutions that included the electronic exchange of documents with banks and creation of an online collaborative workspace to generate and store examiner work products in a secure environment. “These strategies will streamline community bank exams and potentially reduce the regulatory burden for banks under Fed supervision,” Worthy said.



Dallas Fed Banking Supervision staff conduct both on-site exams and off-site monitoring of financial institutions in the Eleventh Federal Reserve District. The department began adopting new technologies in 2013 that will help streamline the supervision process for community banks in the region.

The Long-Awaited Housing Recovery

(Continued from Year in Review)

Making Payments More Efficient

The Fed plays a vital role in the nation’s continually evolving payments system, aiming to make payments more secure and efficient. In 2013, the Dallas Fed supported this goal through its work on behalf of the U.S. Treasury and its outreach to payments operators in the Eleventh District.

Since 2005, the Dallas Fed has operated the *Go Direct*[®] contact center, where call agents work to convert recipients of federal benefits—including Social Security and Veterans Administration payments—from paper check to direct deposit. Direct deposits deliver the payments more efficiently than through paper, with potential savings to the U.S. government of \$1 billion over 10 years.

In 2010, the Treasury Department mandated that recipients with benefits delivered by paper checks would have to convert to direct deposit by March 1, 2013. The March deadline meant there would be a large spike in calls at the contact center early in 2013. Anticipating the onslaught, the Bank doubled its call center’s staff, training hundreds of new agents. From January to April 2013, the center handled nearly 1.1 million calls, compared with almost 500,000 during the same period in 2012.



Agents in the Bank’s *Go Direct*[®] contact center handled more than 1.5 million calls in 2013, helping convert Americans’ federal benefits payments from check to direct deposit.

“We called that time period the ‘big wave,’” said Harvey Mitchell, the Dallas Fed senior vice president responsible for the call center. “Every seat in the center was filled, and agents were taking call after call from folks rushing to convert to direct deposit by March 1. And this high volume didn’t just affect the call center—it also required a lot of hard work from other business areas at the Bank, such as information technology, telecommunications, human resources, print services and law enforcement.”

The call center continued to see high call volumes throughout 2013. Fewer than 2 million recipients have yet to enroll in direct deposit for their benefit payments.

As the Federal Reserve System is taking a deep look into the future of payments, the Dallas Fed is working to stay informed about developments in the payments industry. Staff continued to closely monitor how individuals and companies transact business as the nation moves away from cash and paper checks to electronic payment alternatives.

The Bank drew on the expertise of the Corporate Payments Council—a group of 12 representatives from firms in the region—that it formed in 2012 to gather valuable information about how payments systems can be improved.

The Long-Awaited Housing Recovery

(Continued from Year in Review)

“The Fed is committed to increasing its view of the U.S. payments system as a whole,” said Matthew Davies, the Dallas Fed’s payments outreach officer. “The feedback we receive from the council is extremely beneficial and helps the Federal Reserve System shape the future of payments regulations and systems.”

Expanding the Reach of Research

Amid the slow recovery from the Great Recession, the Dallas Fed deepened its study of the regional economy to keep the public informed about economic developments close to home and increased its analysis of the national and international economies.

The Bank last year expanded its regional research with a series of timely online economic updates and indicators tracking employment and other trends, and shed light on important issues facing the region in its quarterly *Southwest Economy* and in other publications.

A revival of the U.S. energy industry driven by advances in shale extraction technologies has been a catalyst for the Bank to demonstrate its expertise in the field of energy economics. In 2013, researchers launched “Energy in the Eleventh District,” an online summary of oil and gas activity that covers shale production regions such as the Eagle Ford in South Texas.

The Bank focused research on immigration issues and economic linkages with Mexico. In 2013, researchers produced the special report “Gone to Texas: Immigration and the Transformation of the Texas Economy” and authored reports on the border economy. The Bank strengthened its ties with Banco de México, including holding a joint branch board meeting.

“Throughout the year, our staff conducted significant research on issues relevant to the people of our region and the nation—including the banking crisis, housing, energy and immigration—and contributed to economic research on inflation and globalization,” said Mine Yücel, senior vice president and director of research. “We were recognized nationally and internationally for our work.”



The Dallas Fed expanded its expertise in energy economics in 2013 with the online feature “Energy in the Eleventh District,” which tracks activity in major U.S. oil and gas production regions such as the Eagle Ford Shale in South Texas. Advances in extraction technology have reignited activity in the sector in the U.S.

The Long-Awaited Housing Recovery

(Continued from Year in Review)

The Dallas Fed continued to call attention to the dangers of “too big to fail” banks. Researchers examined these systemically important financial institutions through the Bank’s 2012 Annual Report, “Vanquishing Too Big to Fail,” and other works published in 2013. A *Staff Paper* placing an estimated dollar figure on the financial crisis—“How Bad Was It? The Costs and Consequences of the 2007-09 Financial Crisis”—continued to register downloads on the Bank website months after its summer release.

With its Globalization and Monetary Policy Institute, the Bank also advanced understanding of how international forces impact the economy. This group of researchers and research associates, with the support of distinguished fellows and advisory board members, produced more than 30 working papers on subjects ranging from exchange rate pass-through to sovereign debt restructuring. Notable work included development of the Database of Global Economic Indicators to standardize world economic indicators for policy analysis. Reports on China, including the *Economic Letter* “Value-Added Data Recast the U.S.-China Trade Deficit,” were widely circulated as readers sought insights into the enigmatic nation.

Staff published works in a dozen peer-reviewed journals and presented their findings at conferences worldwide. The Bank hosted four major conferences in 2013 that included “The Causes and Macroeconomic Consequences of Uncertainty.” The globalization institute cosponsored “International Capital Flows and Safe Assets” in Shanghai, China, and two other international forums.

Advancing Economic Education

A public educated in basic economic and financial principles helps strengthen the U.S. economy. Through teacher workshops, events and presentations, the Bank seeks to advance understanding of economics and improve financial literacy.

In 2013, the Dallas Fed built on efforts to use state-of-the-art technology in economics and personal finance instruction. Staff fine-tuned an interactive whiteboard curriculum, rolling it out to teachers through workshops across the district. Adding fun to an often challenging subject, the lessons incorporate a game to help students understand investments, and a Beige Book simulation in which players can evaluate economic indicators and decide how the interest-setting Federal Open Market Committee should respond.



As part of its educational mission, the Bank offers a curriculum based on interactive whiteboard technology to help make economics and personal finance concepts easier to grasp. Stephen Clayton, a Dallas Fed economic education specialist, demonstrates the whiteboard to visiting students from Weatherford (Texas) High School.

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(Continued from Year in Review)

“Students learn the basics through competition,” said Sherry Kiser, director of economic education, explaining that the investment game allows players to explore a variety of options through the layers of a cake. Ultimately, she said, students “learn that investing is a long-term endeavor.”

The Dallas Fed’s focus has been to capitalize on the “multiplier effect”—working with educators primarily in high schools and centers of higher learning so that they can relay knowledge to students. The Bank hosted continuing-education sessions for teachers and found soaring interest as educators sought to better understand, and explain to students, the economic headlines in the aftermath of the financial crisis.

The Bank’s educational programs were enhanced in 2013 through The Economy in Action multimedia exhibit in the lobby of the Dallas headquarters building. The free exhibit covers the history and functions of the Federal Reserve and features interactive displays and games to convey information about money and the economy.

The exhibit drew thousands of visitors in its first full year—more than 700 on a single day as the Bank partnered with the Bureau of Engraving and Printing for an open house that featured a sneak preview of the new \$100 note.

“Visitors came away knowing the new note is hard for counterfeiters to duplicate—but easy for the public to authenticate,” said Richard Mase, vice president in charge of the Dallas Fed’s cash operations.



The Dallas Fed invited the public to view its new exhibit, The Economy in Action, which uses interactive displays and bright graphics to familiarize visitors with the Federal Reserve and its history, monetary policy and the regional economy. In July 2013, the Bank partnered with the Bureau of Engraving and Printing for an exhibit open house that featured a look at the new \$100 bill.

Partnering with Communities

Often working behind the scenes, the Dallas Fed supports efforts to stabilize decaying neighborhoods, encourage small-business development, ensure adequate supplies of low-income housing and promote asset building among individuals and families. The Bank is a source of knowledge and empowerment for many groups involved in these pursuits.

“Small organizations only have so much horsepower,” said Alfreda Norman, the Bank’s vice president and community development officer. “We are a partner on the ground, hosting community forums, recruiting community partners or doing whatever it takes. We help raise awareness for important community initiatives.”

The Long-Awaited Housing Recovery

(Continued from Year in Review)

Carrying out the Federal Reserve’s mission to foster economic growth, the Dallas Fed convened or collaborated on programs and events promoting financial stability, healthy communities and small-business development in 2013. An example was the Bank’s work on behalf of veterans, whose numbers are large in the Eleventh District. The region is home to major military bases such as Fort Bliss and Fort Hood.

Representing a vast store of what Norman calls “human capital,” returning veterans can be important assets to their communities. At events in Dallas, Houston, San Antonio, Corpus Christi and El Paso in 2013, the Bank partnered with organizations to provide resources to veterans interested in starting or expanding small businesses.

“You hear about job fairs—hiring veterans—but not a lot of folks work with veterans around the issue of small-business development,” Norman said.

Reducing Our Environmental Footprint

The Dallas Fed is committed to environmental responsibility. In recent years, the Bank has enacted a variety of initiatives aimed at curbing water and electrical consumption, increasing recycling and reducing waste.

In 2013, that dedication resulted in new efforts to find more sustainable uses for shredded currency. When Federal Reserve notes are worn, torn or no longer fit for circulation, they are destroyed. On average, 33 million Federal Reserve notes were shredded in the Eleventh District every month in 2013.



Daron Peschel (right), vice president in charge of the Dallas Fed’s Houston Branch, welcomes a guest during the “Houston Regional Veterans Business Summit: Where Opportunity Meets Action!” As part of its community development outreach, the Bank cosponsored events in several cities in 2013 to bring resources to veterans interested in starting or expanding businesses.



The Dallas Fed shredded about 33 million Federal Reserve notes a month in 2013 at its three cash processing facilities in Dallas, Houston and El Paso. New waste-reduction efforts have found beneficial uses for hundreds of tons of shredded currency a year.

The Long-Awaited Housing Recovery

(Continued from Year in Review)

The Dallas office began sending shredded currency to a local waste company that turns the worn-out currency into fuel for a kiln at a nearby cement plant. The new process will allow 160 tons a year of shredded money to be used as a substitute for oil and other fossil fuels in the kiln.

In Houston, shredded currency is being used as an alternative daily cover—the material placed on top of landfill waste as it degrades. Federal regulations require that landfills use daily covers, which protect public health and reduce odors. In 2013, this amounted to 145 tons of shredded currency.

“Considering how much currency is shredded, it’s fortunate we can make productive use of it,” said Michelle Treviño, assistant vice president responsible for the Bank’s Houston cash operations. “It’s satisfying knowing U.S. currency has a second life after it’s removed from circulation.”

The Bank took steps to reduce the environmental impact of its facilities as well in 2013, reducing water use through an enhanced irrigation system, increasing efficiencies in air-handling and cooling tower systems, installing more LED lights throughout its buildings and even recycling old ceiling tiles.

Volunteering in the District

Dallas Fed employees worked to enrich their surrounding communities in 2013, donating time and resources to local schools and causes such as United Way, Meals on Wheels and March of Dimes.

The Bank’s connections with the schools run deep. Fed employees have cultivated special bonds with students and educators at two local elementary schools since the 1980s.

The Dallas office’s partnership with Margaret B. Henderson Elementary School reached its 28th year in 2013 and is the only original business-school partnership still intact from the Dallas Chamber of Commerce’s Adopt-A-School program. Every year, Dallas Fed employees support the school in a number of ways, including a school-supply drive and an Adopt-A-Family initiative during the winter holidays. Weekly tutoring sessions are at the heart of the partnership that began in 1985.

Each week, groups of Bank employees tutor third through fifth graders in need of extra help with math and reading. Corey Jackson, an information technology employee who has tutored at Henderson for seven years, said he enjoys helping third-grade students reach “that ‘aha’ moment” when they solve a math problem.



Joezi Xe from the Dallas Fed’s Houston Branch reads to students at Sherman Elementary School. The branch celebrated the 25-year anniversary of its partnership with Sherman in 2013—the longest business-elementary school partnership in the Houston Independent School District.

The Long-Awaited Housing Recovery

(Continued from Year in Review)

The Bank's Houston Branch in 2013 celebrated the 25th anniversary of its association with Sherman Elementary School—the longest-standing elementary school partnership in the Houston Independent School District. Employees hold weekly tutoring sessions and exchange bimonthly pen-pal letters with the children to help them develop their writing skills.

Other activities with Sherman include storytelling, an economic essay contest, encouragement cards and a holiday gift program for students in need. Sherman students cap their school year with a field trip to the Houston Branch, where they learn more about the Fed and its employees.

“The children from Sherman have touched our lives and enriched our experience at the Bank in so many ways,” said Daron Peschel, vice president in charge of the Houston Branch.

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As of December 31, 2013

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The Long-Awaited Housing Recovery

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Bank Leadership

As of December 31, 2013

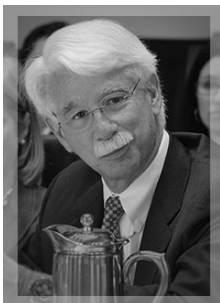
Board of Directors: Dallas



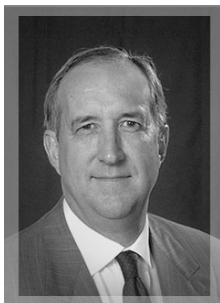
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The Long-Awaited Housing Recovery

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Bank Leadership

As of December 31, 2013

Board of Directors: El Paso



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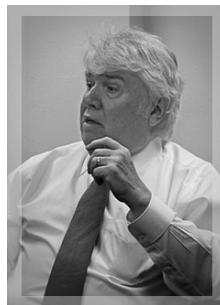
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(Continued from Bank Leadership, Board of Directors: El Paso)



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Bank Leadership

As of December 31, 2013

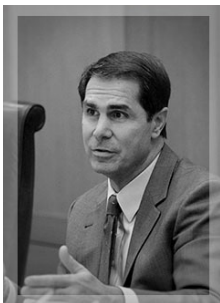
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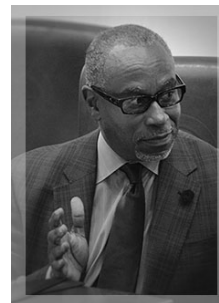
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As of December 31, 2013

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and Senior Economist

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The Long-Awaited Housing Recovery

Acknowledgments

Mine Yücel
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John V. Duca
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The author especially thanks Anthony Murphy for his comments and for many coauthored papers from which these essays draw valuable insights. Thanks also to Elizabeth Organ and D'Ann Petersen for comments and suggestions.

About the Dallas Fed

The Federal Reserve Bank of Dallas is one of 12 regional Federal Reserve Banks in the United States. Together with the Board of Governors in Washington, D.C., these organizations form the Federal Reserve System and function as the nation's central bank. The System's basic purpose is to provide a flow of money and credit that will foster orderly economic growth and a stable dollar. Federal Reserve Banks also supervise banks and bank holding companies and provide certain financial services to the banking industry, the federal government and the public. The Dallas Fed, which has branch offices in El Paso, Houston and San Antonio, has served the financial institutions of the Eleventh Federal Reserve District since 1914. The district encompasses Texas, northern Louisiana and southern New Mexico.

Federal Reserve Bank of Dallas

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El Paso, TX 79901
915-521-5200

Houston Branch
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Houston, TX 77019
713-483-3000

San Antonio Branch
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San Antonio, TX 78204
210-978-1200

Website

www.dallasfed.org

The Long-Awaited Housing Recovery

(Continued from Acknowledgments)

Citation

Entire Report

Suggested citation: Duca, John V. (2014), “The Long-Awaited Housing Recovery,” 2013 Annual Report (Dallas: Federal Reserve Bank of Dallas, March), www.dallasfed.org/microsites/fed/annual/2013/index.cfm.

Each Individual Essay

Duca, John V. (2014), “Nationally, Housing Recovery Finally Gains Traction” in “The Long-Awaited Housing Recovery,” 2013 Annual Report (Dallas: Federal Reserve Bank of Dallas, March), www.dallasfed.org/microsites/fed/annual/2013/e1.cfm.

Duca, John V. (2014), “Regionally, Housing Rebound Depends on Jobs, Local Supply Tightness,” in “The Long-Awaited Housing Recovery,” 2013 Annual Report (Dallas: Federal Reserve Bank of Dallas, March), www.dallasfed.org/microsites/fed/annual/2013/e2.cfm.

Duca, John V. (2014), “What’s Next? Factors Determining the Housing Recovery’s Pace,” in “The Long-Awaited Housing Recovery,” 2013 Annual Report (Dallas: Federal Reserve Bank of Dallas, March), www.dallasfed.org/microsites/fed/annual/2013/e3.cfm.

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Financials

Examinations of the Reserve Bank

The Reserve Banks and the consolidated limited liability company (LLC) entities are subject to several levels of audit and review. The combined financial statements of the Reserve Banks as well as the annual financial statements of each of the 12 Banks and the consolidated LLC entities are audited annually by an independent auditing firm retained by the Board of Governors. In addition, the Reserve Banks, including the consolidated LLC entities, are subject to oversight by the Board of Governors, which performs its own reviews. The Reserve Banks use the framework established by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) to assess their internal controls over financial reporting, including the safeguarding of assets. Within this framework, the management of each Reserve Bank annually provides an assertion letter to its board of directors that confirms adherence to COSO standards.

The Board of Governors engaged Deloitte & Touche LLP (D&T) to audit the 2013 combined and individual financial statements of the Reserve Banks and those of the consolidated LLC entities[1]. In 2013, D&T also conducted audits of internal controls over financial reporting for each of the Reserve Banks. Fees for D&T's services totaled \$7 million, of which \$1 million was for the audits of the consolidated LLC entities. To ensure auditor independence, the Board requires that D&T be independent in all matters relating to the audits. Specifically, D&T may not perform services for the Reserve Banks or others that would place it in a position of auditing its own work, making management decisions on behalf of the Reserve Banks, or in any other way impairing its audit independence. In 2013, the Bank did not engage D&T for any non-audit services.

The Federal Reserve Bank of Dallas' financial statements as of and for the years ended December 31, 2013 and 2012 and the independent auditors' report can be found at the following link:

<http://www.federalreserve.gov/monetarypolicy/files/BSTDallasfinstmt2013.pdf>

Notes

1. In addition, D&T audited the Office of Employee Benefits of the Federal Reserve System (OEB), the Retirement Plan for Employees of the Federal Reserve System (System Plan), and the Thrift Plan for Employees of the Federal Reserve System (Thrift Plan). The System Plan and the Thrift Plan provide retirement benefits to employees of the Board, the Federal Reserve Banks, and the OEB.

