



RPX HOUSING MARKET REVIEW

SPECIAL EDITION

Release Date: January 5, 2012

Housing is the largest asset class in America. It touches everyone's life. It is at the center of our economy and our economic well-being. Home building and materials have been huge elements of U.S. employment. Mortgage lending has been a major portion of our banks' financial operations, assets and risks. Lately, housing and housing finance have become a large and looming risk for taxpayers as Washington struggles to manage the cost of its portfolio of distressed housing debt and foreclosed homes while simultaneously trying to stabilize housing values and help responsible borrowers remain in their homes. Despite the prominence of the housing market in our lives, no public, liquid and transparent market has been developed that allows institutions to easily invest in and manage risks associated with housing *as an asset class*. Housing has remained untradeable and thus unlike most other economically important commodities and financial products.

Early in 2012 the CBOE Futures Exchange will initiate trading in futures based on Radar Logic's RPX Composite Price. RPX futures will allow institutions both to hedge against downturns in housing prices and to allocate portions of their investment portfolios to the housing asset class without the search, transaction and maintenance costs associated with purchasing physical properties. The RPX futures market will be characterized by publicly observable pricing, centralized and transparent clearing and contract sizes that permit participation by large and small investors alike.

Based on our experiences in the past, we expect significant activity and volume to develop quickly. In fall 2007 Radar Logic helped launch a market for privately-traded RPX housing derivatives. Trading in RPX contracts reached a cumulative value of \$4 billion in just fourteen months, leading one Wall Street bank to characterize the RPX market as "the fastest growing property derivative market in the world." Institutional investors saw real value on both the long and short side of the market.

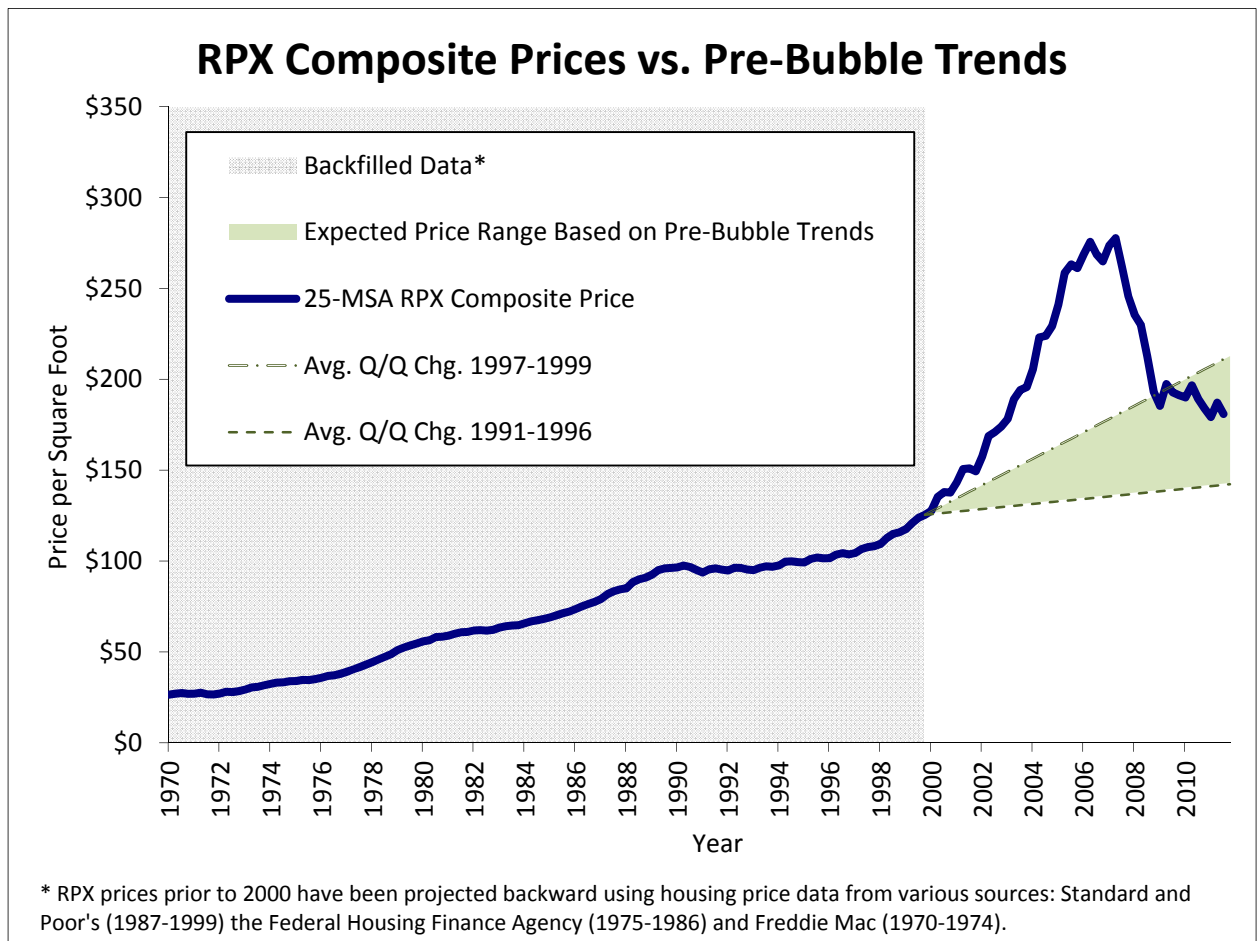
The environment for trading housing derivatives is more attractive now than it was in 2007. The housing bust has demonstrated that housing values can decline in unison on a nationwide level. As such, investors in mortgages or physical real estate are far more interested in hedging against downturns in housing values than they were in the past. Moreover, housing is a much more attractive investment in the current environment than it was in 2007. The latter point may be controversial, so we will discuss it further below. First, however, we will give an account of the current state of the housing market and place it in its historical context.

Current Home Prices in Historical Perspective

Home prices have fallen back within the range we would have expected to see had the boom and bust of the last decade never occurred. To get a sense of what home prices might be like today had it not been for the boom and the bust, we developed optimistic and pessimistic scenarios based on the price trends during the 1990s. RPX data date back to January 2000, so in order to put these data in context we projected RPX prices back to 1970 (Figure 1) using quarter-over-quarter changes in housing data from Standard & Poor's (1985-1999), the Federal Housing Finance Agency (1975-1984), and Freddie Mac (1970-1974). From 1991 through 1996, U.S. housing markets were in their worst slump in 20 years. Though aggregate values continued to increase, they did so at a very slow pace. On average, RPX Composite prices increased just 35 cents per quarter during this period, compared to 83 cents per quarter on average from 1970

through 1999. We used this anemic growth rate to calculate our pessimistic scenario for home prices from 2000 to 2011. If the RPX Composite price had grown at the average quarterly rate during the 1991 through 1996 period from 2000 to Q3 2011, it would have been approximately \$142 as of September 30, 2011, or 27 percent lower than its actual value. For our optimistic scenario, we used the average quarter-on-quarter growth rate from 1997 through 1999, when economic strength driven by the tech bubble roused housing values from the stagnation of the preceding six years. Starting in 1997 and continuing through 1999, the RPX Composite price grew at an average quarterly rate of \$1.82. If the RPX Composite price had continued to grow at this rate from 2000 through Q3 2011, it would have reached \$213 per square foot by September 30, 2011, 18 percent above its actual value. Back in early 2000, most housing market observers would have expected housing values to grow at somewhere between the rates in these scenarios. Home values, as measured by the RPX Composite price, are now within this range.

Figure 1



An Account of the Boom and the Bust

As of January 31, 2000, the 28-day RPX Composite price was \$121.96 per square foot. By December 31, 2005, it had increased to \$261.21 per square foot, reflecting a 13 percent average annual growth rate from 2000 through 2003 and a 16 percent average annual growth rate from 2004 through 2005 (Figure 2). The 28-day RPX Composite price peaked at \$278.32 on June 8, 2007, 109% greater than its value seven years prior. In other words, housing values doubled in less than seven years.

This rapid growth in home values was the result of a number of factors arising from an extended period of very low U.S. interest rates early in the decade. The low rates were part of Federal Reserve Chairman Alan Greenspan's efforts to spur economic recovery following the 2001 recession. While good for borrowers, the low rates were bad for fixed-income

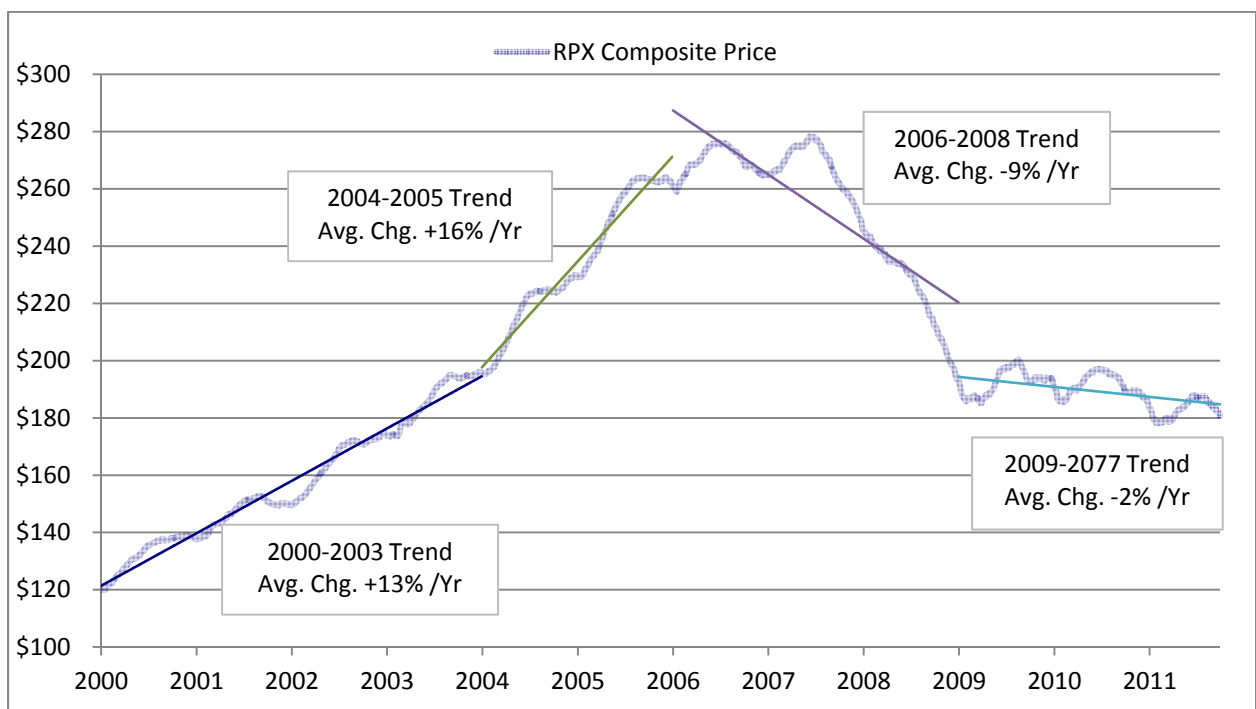
investors from around the world who had trillions of dollars invested in Treasuries. When Greenspan announced that yields on Treasuries would remain low for an extended period, these investors went searching for new investments that would provide a better return. The product they chose more than any other was U.S. residential mortgage debt in the form of mortgage-backed securities.

To feed the growing demand for mortgage-backed securities, investment banks bought more and more loans from originators, thereby providing capital and incentive to originate more and more loans. This made it easier for homebuyers to finance the purchase of a home, stimulating housing demand and pushing up housing values. Eventually there were too few reliable borrowers to feed investor demand for mortgage debt, so banks started to buy riskier loans. As long as home values continued to increase, these risky loans looked like sound investments. After all, borrowers could easily refinance at low interest rates so the risk of default was low, and even if they defaulted on their mortgages investors could be made whole via the liquidation of the collateral in a foreclosure sale. So banks continued to purchase risky loans and package them into MBS for sale to investors, and originators continued to make risky loans. As a result, purchasing a home became easier than ever before and demand for homes skyrocketed. Home values followed suit.

As home prices reached ever greater heights, demand for homes started to weaken. Existing home sales, as measured by the National Association of Realtors, started to decline on a seasonally-adjusted basis in 2005. Banks started cutting back on lending in 2006, further reducing demand, as loans written under the assumption that housing values would continue to rise at historical rates started falling delinquent in large numbers. With the withdrawal of demand the housing market became vastly oversupplied and home prices began to decline rapidly in late 2007.

Housing prices stabilized in the first quarter of 2009. Rather than reflecting the return of demand from traditional home buyers, the price stability reflected the fact that prices had fallen so far that homes became attractive to investors. These investors saw the opportunity to make a significant return from buying houses cheaply, holding them until prices improved and in many cases offering them as rentals. The entry of investors to the market created a (temporary) price floor.

Figure 2



The Rise of Distressed Sales and Institutional Investors

Starting in 2008, sales at foreclosure auctions and sales of real estate owned (REO) by financial institutions started to increase at a dramatic rate. By January 2009 these sales, which we collectively call “motivated sales,” accounted for up to 38 percent of all transactions (Figure 3). Homes changing hands in motivated sales during this period sold at a 33 to 43 percent discount to homes changing hands in other transactions, so the increase in motivated sales as a percentage of total sales hastened the rapid decline in the RPX Composite price during 2007 and 2008 (Figure 4). Since the beginning of 2009, motivated sales have remained a significant percentage of sales, between 20 and 38 percent, depending on the time of year.

Attracted by heavily discounted properties, institutional investors stepped into the market to absorb the increasing supply of distressed properties for sale. Despite the considerable headwinds facing the housing market in the post-2008 period, these investors clearly believe that distressed residential real estate is cheap enough to offer attractive returns over the near term.

Figure 3

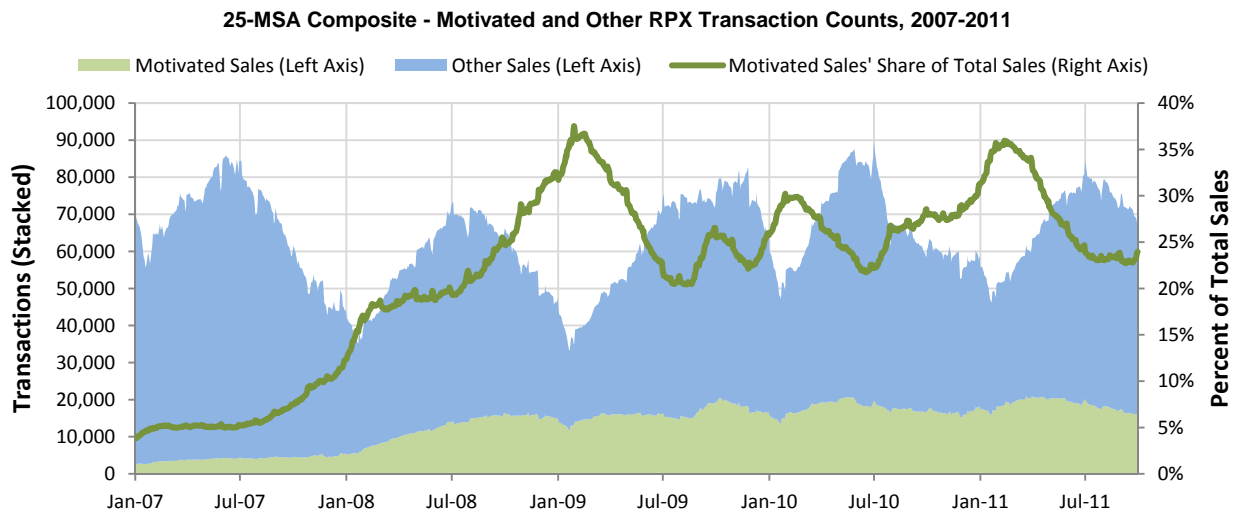
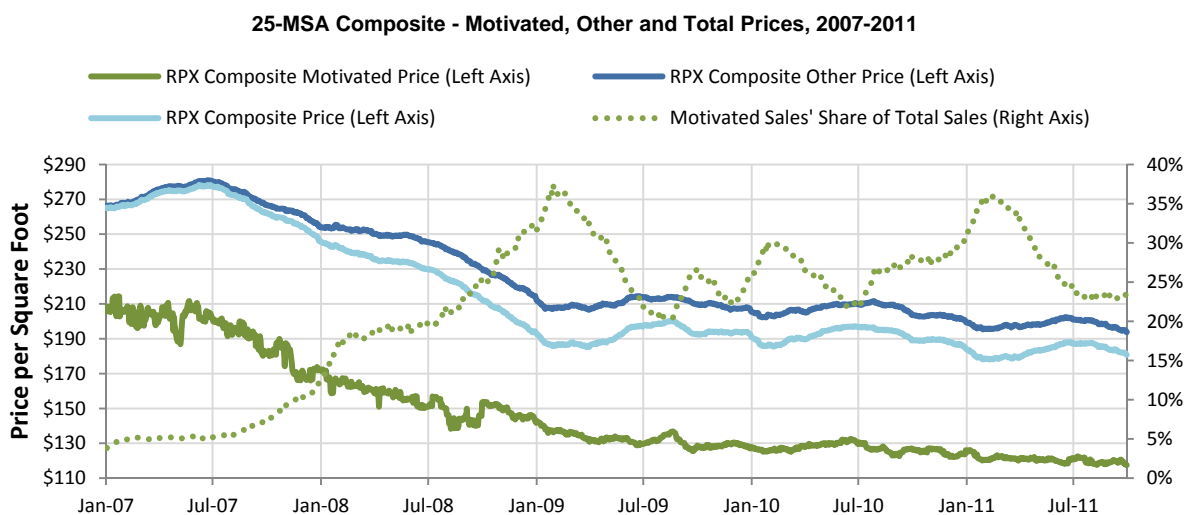


Figure 4



The Market Today

Which way housing values go from here depends on three things: recovery of homebuyer demand, stability and/or decrease in supply and a return to a more normalized availability of mortgage finance. Demand seems to be returning. Inventory seems to be declining. We expect this may set the stage for a recovery. However, widespread difficulty in obtaining mortgages is placing a significant constraint on housing prices, as many buyers who want to own a home still cannot get enough credit to make the purchase.

Inventories Are Decreasing...

Inventories of homes for sale, as reported by the National Association of Realtors, have been trending gradually down after setting a record of 4.58 million in July 2008. The NAR inventory figure for October 2011, 3.33 million, was 2.2 percent lower than the figure for September and 13.8 percent lower than the inventory reported for October 2010. Distressed inventories, defined as homes with delinquent mortgages and homes in the foreclosure process, are still enormous in historical perspective, but they are decreasing. According to the Mortgage Bankers Association, 12.42 percent of mortgage loans were either one payment delinquent or in the foreclosure process in Q3 2011 (delinquencies seasonally adjusted)¹. This is down from 12.87 percent in Q2 2011 and 13.52 percent in Q3 2010. However, the decline in national inventories masks two different trends. For states with judicial foreclosures, the number of in-foreclosure properties continues to increase and is up to 6.8 percent of all properties with a mortgage. For non-judicial states, the number of in-foreclosure properties is falling and is down to 2.9 percent.

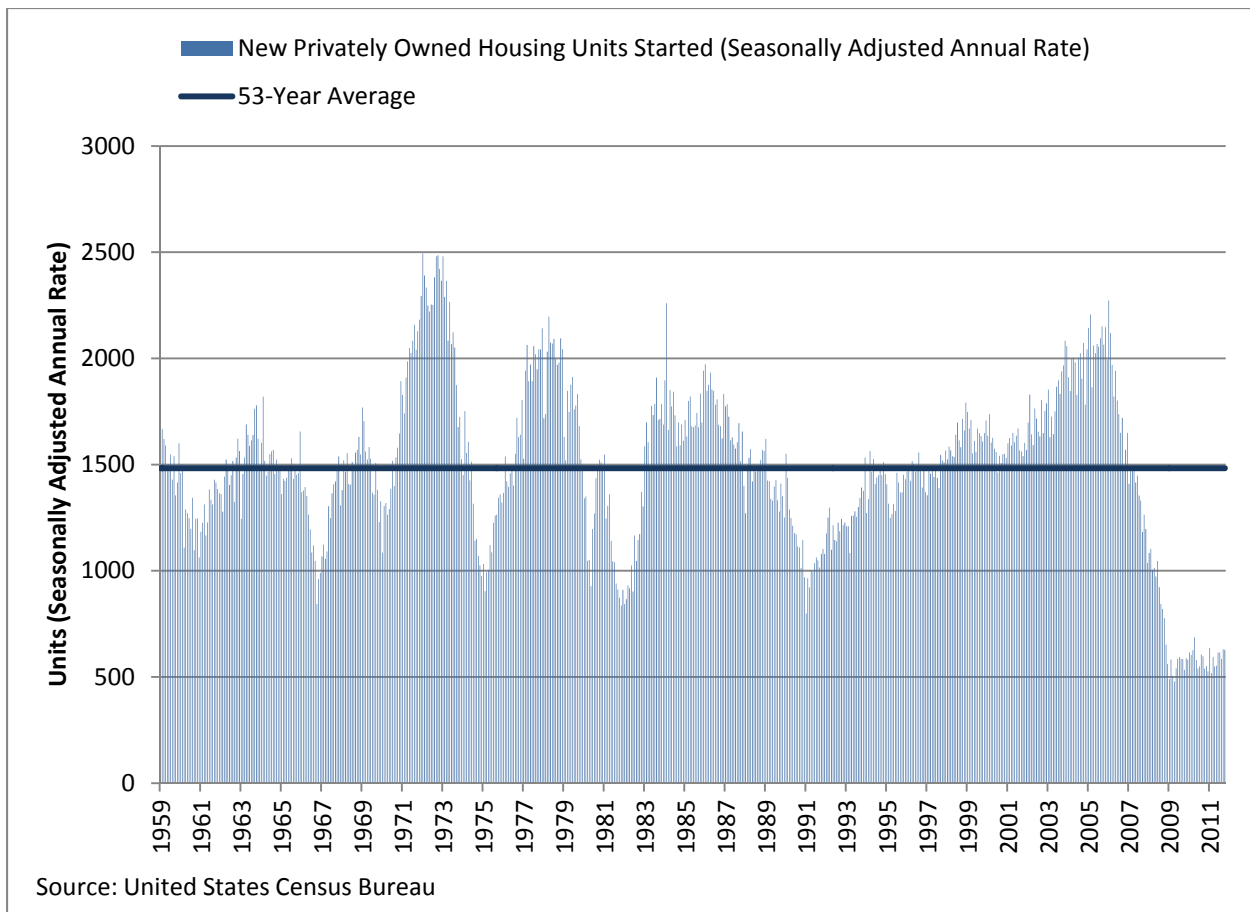
Properties in distressed inventory are progressing through the foreclosure pipeline. According to the Loan Processing Services (LPS)², the number of properties 30 or more days delinquent but not in foreclosure decreased 17 percent year over year in October, from 4.953 million in October 2010 to 4.088 million in October 2011. Meanwhile, the number of properties in foreclosure increased 6 percent year over year, from 2.09 million in October 2010 to 2.21 million in October 2011. As a result, 35 percent of the distressed inventory (properties in delinquency or foreclosure) was in the foreclosure process in October 2011, up from 30 percent in October 2010. Again, the overall U.S. trend likely masks differences in judicial and non-judicial states.

New home construction is no longer contributing to the supply of homes for sale in a meaningful way, sparing the housing market from one source of downward price pressure. Housing starts collapsed following the housing boom and have more or less been moving sideways ever since (Figure 5). According to the U.S. Census Bureau, the seasonally adjusted annual rate of privately owned housing units started reached a thirty-plus year peak of 2.27 million units in January 2006. Over the following three years, this figure declined 79 percent to 478 thousand in April 2009, the lowest level ever recorded. Since then starts have never risen above an annual rate of 700 thousand, well below the 53-year monthly average of 1.4 million starts per year.

¹ Data in this analysis were taken from the MBA's press release, "Delinquencies Decrease, Foreclosures Rise in the Latest MBA Mortgage Delinquency Survey," released November 17, 2011 (<http://www.mortgagebankers.org/NewsandMedia/PressCenter/78538.htm>).

² Data used in this analysis can be found in the LPS "First Look" Mortgage Report for October 2011, released November 18, 2011 (<http://www.lpsvcs.com/LPSCorporateInformation/NewsRoom/Pages/20111118.aspx>) and the LPS Mortgage Monitor Report for October 2010, released November 18, 2010 (http://www.lpsvcs.com/LPSCorporateInformation/ResourceCenter/PressResources/MortgageMonitor/2010%20-%202010%20Mortgage%20Monitor/LPS_Mortgage_Monitor_October2010_Final.pdf).

Figure 5



Home Prices Are Not in Free Fall Anymore...

Home price trends appear to be improving in most of the 25 metropolitan areas that comprise the RPX Composite, as illustrated by the trend table on the next page. The one-year trends are less negative than the two- and three-year trends, as indicated by the green numbers in the “364-Day Trend” column, and RPX prices for some markets have begun to register year-on-year appreciation, as indicated by the green cells.

...But Financing is Still Hard to Get

Banks continue to take a conservative approach to mortgage lending in order to protect themselves against future downturns in housing values. This conservatism makes it harder for would-be home buyers to afford a home and thus effectively reduces demand. Demand is also suppressed by the fact that the high rate of foreclosures and severe delinquencies during the last several years has left millions of potential homebuyers ineligible for new mortgages. According to research by Amherst Securities Group, 19 percent of borrowers in 2007 have fallen more than 90 days past due, which drives down their credit scores and makes it virtually impossible for them to get new mortgages. This is nearly a fifth of the “churn” market (i.e., current homeowners purchasing a new home) disqualified. Moreover, about a quarter of homeowners with mortgages currently owe more on their loans than their homes are worth, which in most cases prevents them from selling their current home and buying another.

RPX Trends (28-Day Adjusted)

Transaction Date: 09/30/2011

Publication Date: 12/02/2011

	Price Trend Slopes (% Change Over 28 Days)						
	1092-Day Trend	728-Day Trend	364-Day Trend	182-Day Trend	91-Day Trend	63-Day Trend	28-Day Trend
Composite	-0.2%	-0.2%	-0.1%	0.1%	-1.1%	-1.5%	-1.5%
Midwest	-0.5%	-0.5%	-0.1%	0.1%	-1.9%	-1.8%	-2.1%
Northeast	-0.1%	-0.1%	0.0%	0.6%	-1.1%	-1.9%	-2.9%
West	-0.3%	-0.3%	-0.2%	-0.5%	-1.1%	-1.1%	-0.4%
South	-0.3%	-0.3%	0.4%	0.8%	-0.8%	-1.1%	-0.9%
Boston	-0.1%	-0.1%	1.3%	4.6%	-1.9%	-2.5%	-7.0%
New York	-0.1%	-0.1%	-0.2%	0.1%	-0.9%	-1.8%	-2.4%
Philadelphia	-0.4%	-0.4%	-0.3%	0.6%	-1.3%	-2.1%	-1.7%
Washington, DC	0.0%	0.0%	0.6%	1.4%	0.4%	-0.5%	-0.6%
Charlotte	-0.1%	-0.1%	0.5%	0.0%	-2.1%	-1.7%	-1.9%
Atlanta	-0.4%	-0.4%	0.9%	0.0%	-2.6%	-3.2%	-2.9%
Jacksonville	-0.5%	-0.6%	0.0%	0.5%	-2.3%	-4.1%	-4.8%
Tampa	-0.6%	-0.6%	-0.3%	0.5%	-0.9%	-0.2%	-2.0%
Miami	-0.5%	-0.6%	0.1%	0.3%	-1.9%	-1.4%	0.3%
Minneapolis	-0.6%	-0.6%	-0.1%	0.0%	-1.3%	-2.2%	-1.1%
Milwaukee	-0.7%	-0.7%	-0.4%	-1.8%	-3.3%	-1.2%	1.4%
Chicago	-0.5%	-0.5%	-0.3%	-0.3%	-2.6%	-2.9%	-3.1%
Detroit	-0.3%	-0.3%	0.8%	3.4%	1.4%	2.0%	-1.0%
Cleveland	-0.5%	-0.6%	-0.1%	0.7%	-1.0%	0.4%	-2.5%
Columbus	-0.2%	-0.2%	0.2%	-0.2%	-2.7%	-2.1%	-4.5%
St. Louis	-0.4%	-0.4%	0.0%	0.4%	-0.8%	0.2%	-0.2%
Seattle	-0.8%	-0.8%	-0.6%	-0.6%	-0.5%	-0.7%	-3.4%
Denver	-0.3%	-0.2%	0.3%	0.8%	-0.5%	-1.0%	-1.4%
Sacramento	-0.5%	-0.5%	-0.4%	0.1%	-0.2%	0.7%	-1.4%
San Francisco	-0.3%	-0.3%	-0.3%	-0.8%	-1.3%	-1.6%	-1.5%
San Jose	-0.1%	-0.1%	0.1%	-0.3%	-2.2%	-2.4%	-0.9%
Las Vegas	-0.6%	-0.7%	-0.9%	-1.1%	-0.5%	-0.3%	-0.2%
Los Angeles	-0.3%	-0.3%	-0.3%	-0.6%	-1.2%	-1.1%	0.6%
Phoenix	-0.6%	-0.6%	-0.3%	-0.3%	0.3%	0.6%	2.6%
San Diego	-0.2%	-0.2%	-0.3%	-0.5%	-0.2%	0.7%	-0.1%

Green fill Green fill indicates an increase in price.

Red fill Red fill indicates a decrease in price.

Green text Green text indicates the figure is greater than the figure in the cell to the left.

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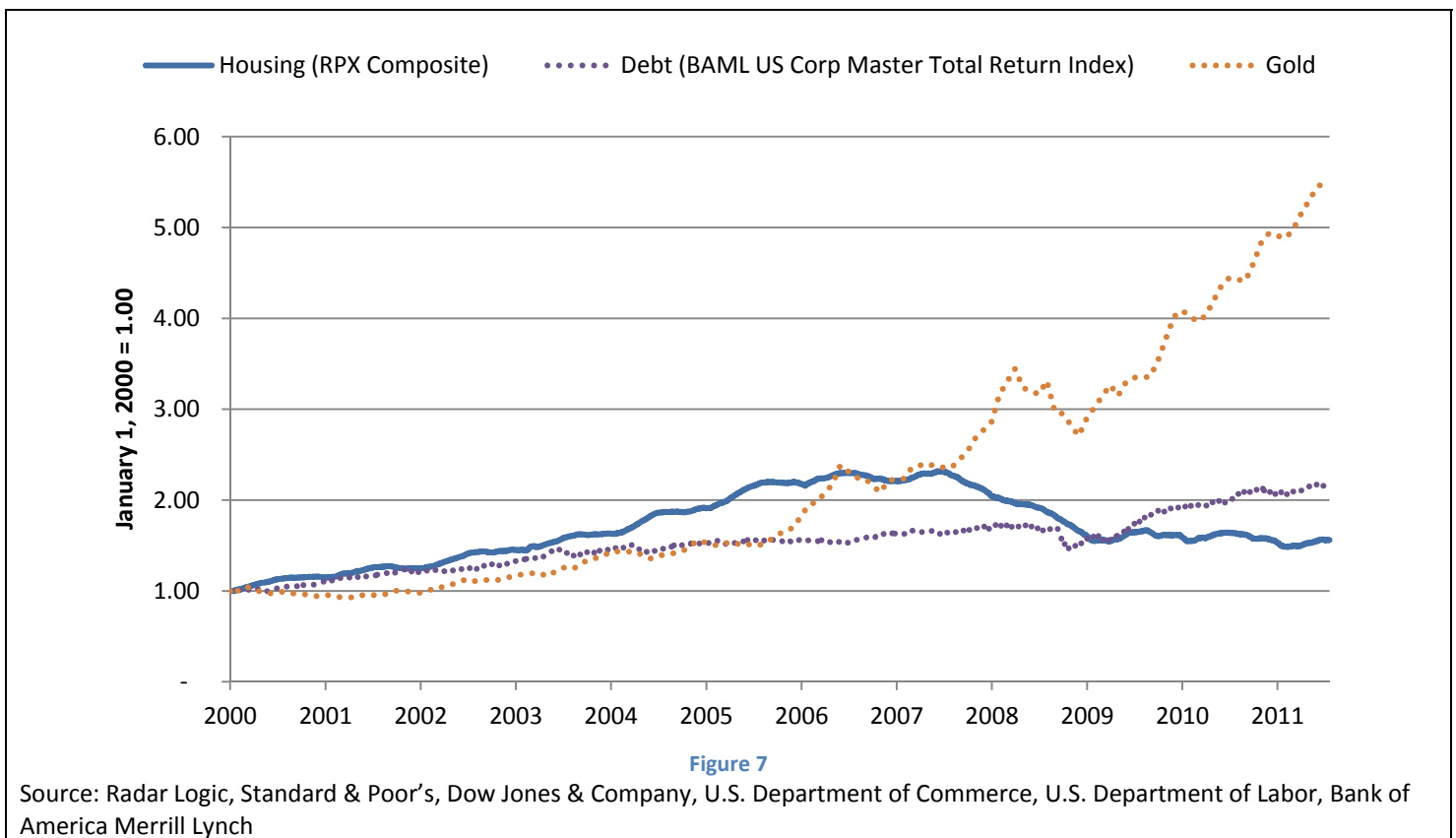
Why Now is a Good Time to Invest in Housing

In light of the current state and recent history of the housing market, there are compelling reasons to consider a long position in the housing asset class.

- Home prices have fallen back to about where we would expect them to be given pre-bubble growth rates.
- Home prices have dropped to the point where some institutional investors see portfolios of distressed properties as attractive investments. Demand from such investors has helped stabilize home prices.
- Inventories are slowly decreasing, including distressed inventories in non-judicial foreclosure states.
- Housing is now cheap relative to other tradable asset classes. In historical perspective, housing is cheaper than gold, which is just slightly off its all-time high. Housing is also cheap relative to bonds, as bond prices have been driven upward by the impact of public policy (Figure 6).
- Finally, as the largest asset class there is, housing represents an investment for which everyone should consider an allocation.

RPX futures will allow you to invest in residential real estate without having to mow the lawn.

Figure 6



About Radar Logic

Radar Logic Incorporated, a real estate data and analytics company, calculates and publishes the Radar Logic Daily™ Prices. The prices track housing values for major U.S. metropolitan areas and are the basis of the Residential Property Index™ (RPX™), a market that enables real estate to be traded as a liquid asset, via property derivatives marketed by major financial institutions.

RPX allows real estate and financial professionals to manage opportunity and risk, invest in real estate values without owning physical assets and effectively analyze markets using a consistent metric: price per square foot. Data in this report reflect the 28-day aggregated value of Radar Logic Daily Prices.

The Daily Prices are not adjusted for seasonal variations. In some cases, Daily Prices may vary based on reporting characteristics within individual metropolitan areas. This study is based on the premise that there is no national housing market; rather, each metropolitan area housing market, while having some economic influences in common, is influenced primarily by local conditions.

RPX Analytics & Research

Radar Logic offers specialized analytic services that allow real estate and financial professionals to view current and historical price per square foot and transaction count trends for all markets and sub-markets we track. MSAs can be segmented by location (zip code and county), property type (single family, multi-family and condo), property size, date range, and sale price. The database is derived from public-source records.

Radar Logic data provide a means for all entities associated with or affected by housing prices to maintain market data streams on a constant, neutral and daily-updated basis.

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