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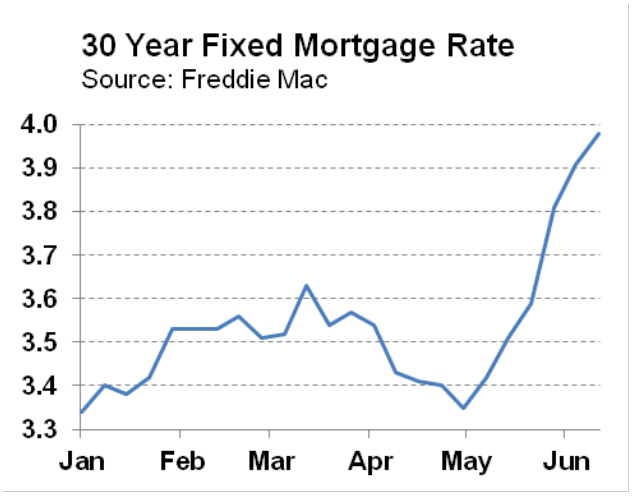
Office of the Chief Economist

June 2013 U.S. Economic & Housing Market Outlook

What Happens When Interest Rates Rise?



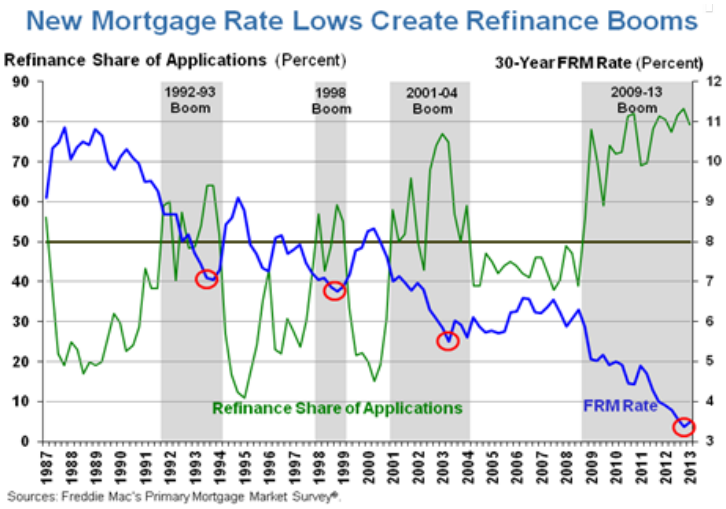
The recent upturn in interest rates is sparking fears among some that the nascent economic and housing recoveries will be choked off before they produce sustained growth. Interest rates have risen rapidly recently, with both the benchmark 10-year Treasury and the 30-year fixed-rate mortgage rates rising by more than 40 basis points during May and early June. For most of 2013 30-year fixed mortgage rates have remained at or below 3.5 percent, but the recent movements have pushed the rate to about 4.0 percent.

To be sure, low mortgage rates have helped fuel the recent good news in housing, where house prices have been increasing across most of the country. While it's true that rising mortgage rates and increasing house prices work together to drive up the cost of buying a home, mortgage rates remain near their 60-year historical lows helping to keep homebuyer affordability strong. At today's house prices and income levels, mortgage rates would have to be nearly 7 percent before the U.S. median priced home would be unaffordable to a family making the median income in most parts of the country. So while rising interest rates will reduce housing demand, rates would have to increase considerably more before the reduction in demand for home purchases would be substantial across the country.

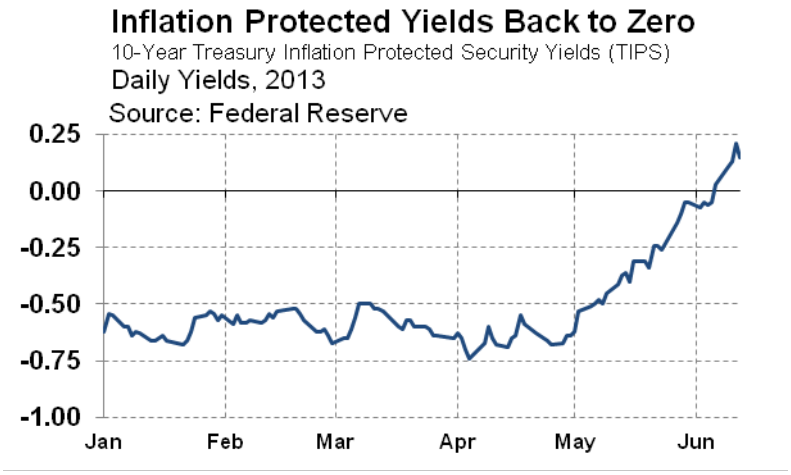
That said, in some metro areas affordability is already out of reach for a typical family. An increase in mortgage rates, coupled with house price growth will have a more significant impact on purchase activity in these markets. For example, the median sales price in the Los Angeles metro was $365,000 in March 2013 (National Association of Realtors® Median Sales Price seasonally adjusted by Moody's Analytics). With a median family income of $65,000 (Moody's Analytics), the typical family in Los Angeles can afford approximately a $1,500 monthly mortgage payment. With a 30-year fixed-rate mortgage at 4 percent the median priced home in Los Angeles (assuming a 10 percent down payment) would require about $2,200 per month for principal, interest, taxes, and insurance. Sustained interest rate or price increases in Los Angeles will make home purchasing even more unaffordable for many families. Meanwhile, in nearby Riverside , the median home sales price was $219,000, and the median family income was $60,000 in March 2013. At a 4 percent interest rate, the monthly principal, interest, taxes, and insurance payment on a median priced home with a 10 percent down payment would be about $1,300, well below the $1,400 the median income family could afford to spend on housing related expenses. However, this market would become unaffordable if rates were to reach 5 percent for a 30-year fixed-rate mortgage. Looking at other regions, both the Denver and Washington D.C metros would become unaffordable for the typical family if rates were to reach 5 percent.

What these statistics make clear is that, with the exception of high-cost markets (primarily San Francisco south to San Diego, and Washington, DC north to Boston), as well as Seattle and Miami, house prices in most parts of the country are very affordable. With high affordability, these markets can absorb a further rise in mortgage rates before we would expect housing activity to slow substantially. (To see what effect rising interest rates could have on the Top 30 U.S. Metro Markets see the below table.)

With homebuyer affordability remaining very high, we expect that rising interest rates will have only a small, slowing effect on the home purchase market. The capital-market signal is that rates are up from the cyclical trough and are likely to move gradually higher in the coming year. In the short term this may spur renters and other first-time homebuyers who have the financial capacity, to get off the fence and buy a home before financing costs go higher. Such activity would help to at least temporarily bolster the purchase market.



However, as mortgage rates rise, we expect refinance activity to fall quickly and sharply. Historically, the refinance share of mortgage applications has been very sensitive to mortgage rates. For 2013 we are expecting about $1.1 trillion in refinance originations, down from $1.5 trillion in 2012. The Bureau of Economic Analysis reports that for the first quarter of 2013, the average effective interest rate on mortgages was 4.7 percent, less than one percentage point above Freddie Mac's 30-year fixed-rate mortgage rate in early June. Based on historical correlations, a gap of 0.5 percentage points implies a refinance share of about 50 percent. The HARP program will keep refinance levels a bit higher than historical averages would suggest, but refinance originations will be lower nonetheless.

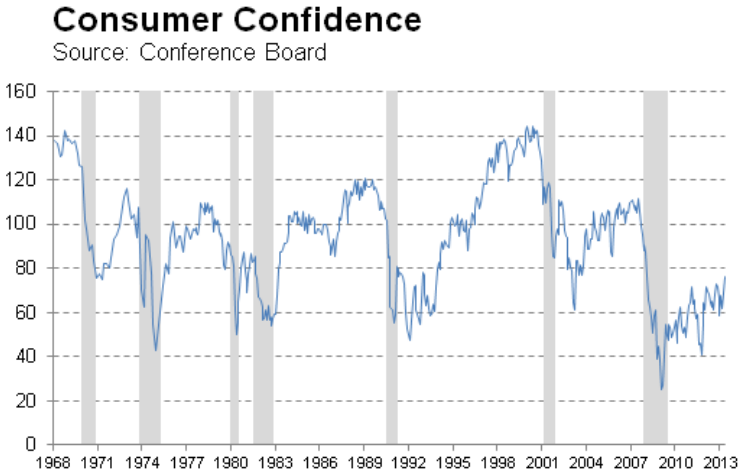


For the broader macroeconomy the recent rise in interest rates is an encouraging sign. Since the economic recovery began in June 2009, real interest rates (the rate of interest minus expected inflation) have been trending down. The yield on 10-year Treasury Inflation Protected Securities (TIPS) has been negative for much of the past year. That is, investors in TIPS have been willing to accept less than the anticipated rate of inflation as compensation for their investment. Negative real interest rates are a troubling sign.

If returns on risky investments are so low, and the demand for liquidity and the safety of a risk free return are so great that investors are willing to accept a negative return (after adjusting for inflation) the growth prospects for the economy are dim indeed. Part of the explanation for the decline in real interest rates in late 2012 was the impact of the Federal Reserve's bond buying

program (Quantitative Easing), which lowered long-term interest rates without driving up inflation expectations. Through mid-2013 long-term inflation expectations remain in check, according to the Philadelphia Federal Reserve's Livingston Survey, but interest rates have been rising.

This dynamic is the result of increased optimism due to the strengthening housing recovery. Consumer confidence, which has been stubbornly low throughout the recovery, surged in May to 76, the highest reading since February 2008. Increasing confidence and the rising real rate of interest reflect the growing optimism about the economic recovery. Seeing better days ahead, investors are willing to sell off some of their bond holdings, which helps to push interest rates higher.



When we look at household balance sheets there is additional good news for the economy and homeowners. The Federal Reserve's Flow of Funds data for the first quarter of 2013 shows that household wealth is increasing, due to gains in both the stock market and house prices. Household net worth was up $3 trillion in the first quarter of 2013 from the fourth quarter of 2012. Residential real estate holdings increased by $784 billion in the first quarter, while equities and mutual funds added $1.5 trillion. Household debt also fell 0.6 percent in the first quarter, driven by a 2.3 percentage point decline (annualized) in single-family mortgage debt outstanding.

While recent movements in long-term interest rates have been dramatic, it helps to contrast short-term volatility with long-term trends. With the Federal Reserve committed to keeping short-term rates low until the unemployment rate reaches 6.5 percent (as long as inflation remains in check), the recent action has been on the long-end of the yield curve. The movements in rates are a blend of anxiety about future rates as Quantitative Easing slows, and increased optimism about economic growth. As the economy continues to improve, we expect to see continued upward movement in long-term interest rates. It is important to put these movements in historical context. Real interest rates are still half of what they were prior to the recession and are still very low by historic standards. Even with increases in house prices and rising mortgage rates, home purchases in most of the country will continue to be very affordable. Nothing in the recent trends suggests that we need to fear a major slowdown. Rising rates will not derail the recovery, and are themselves an indication that the overall economic situation is improving.

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June 18, 2013

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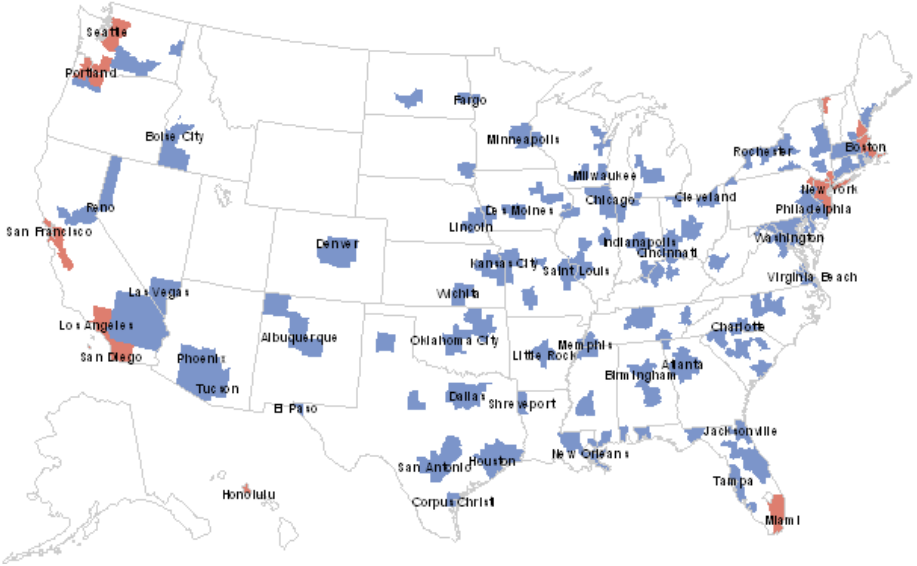
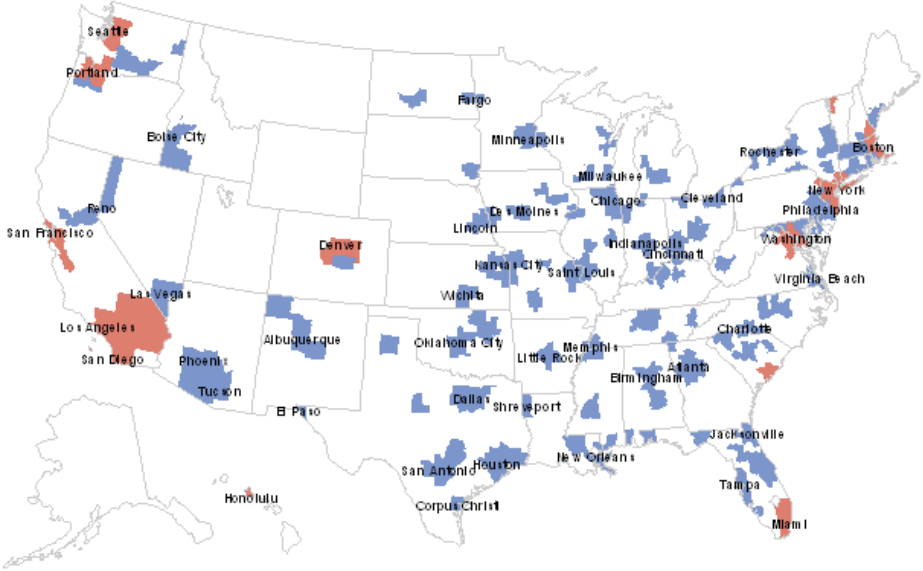
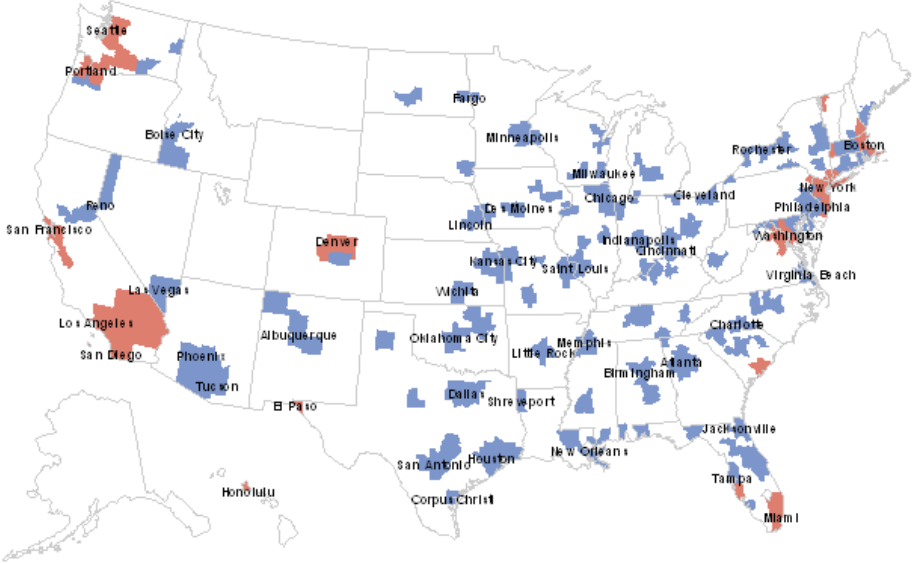
At 4% Affordable Not Affordable



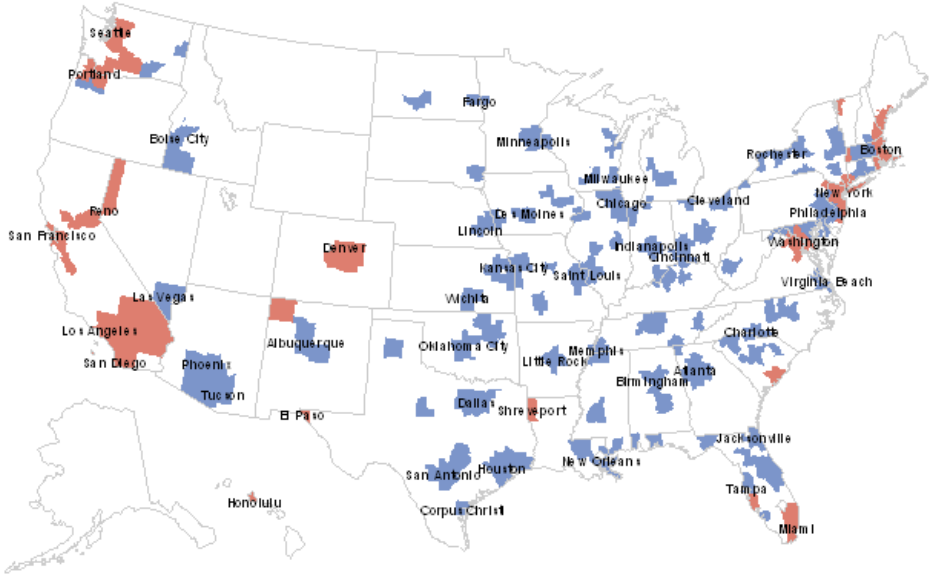
At 5% Affordable Not Affordable



At 6% Affordable Not Affordable



At 7% Affordable Not Affordable



Source: Moody's Analytics, National Association of Realtors, Freddie Mac, American Housing Survey. Calculations assume a family earning the median income purchases the median price home with a 10% down payment and a 30-year fixed-rate mortgage. Affordability is calculated by requiring that principal, interest, taxes, and insurance not exceed 28% of gross monthly income. We estimate annual taxes and homeowner's Insurance based on the American Housing Survey to be 1.68% of the purchase price and private mortgage insurance to be 0.5% per annum.

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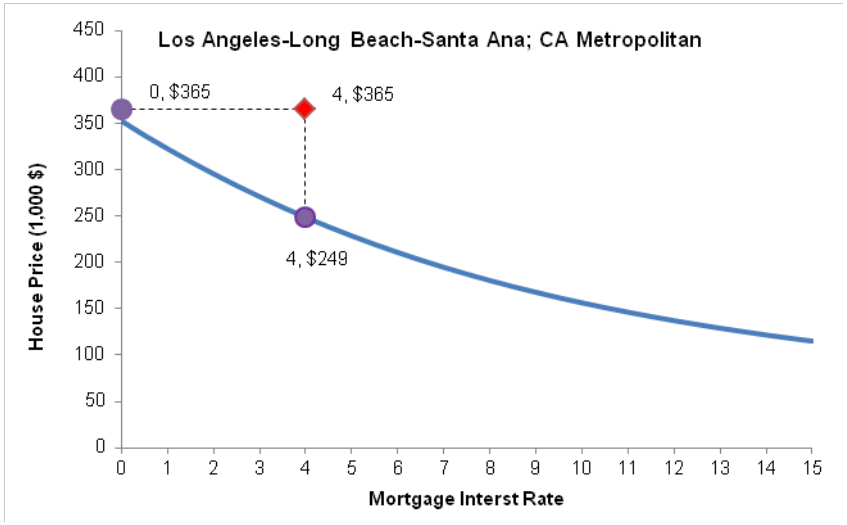
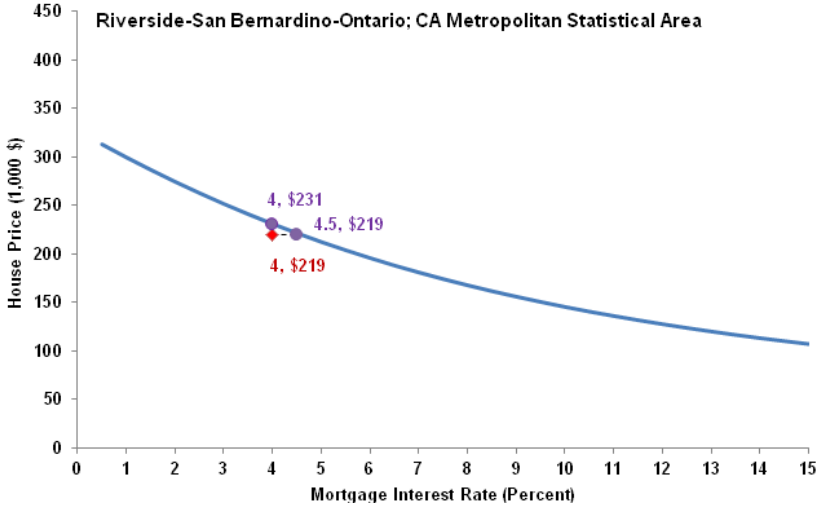
How Will Rising Interest Rates Affect Affordability?

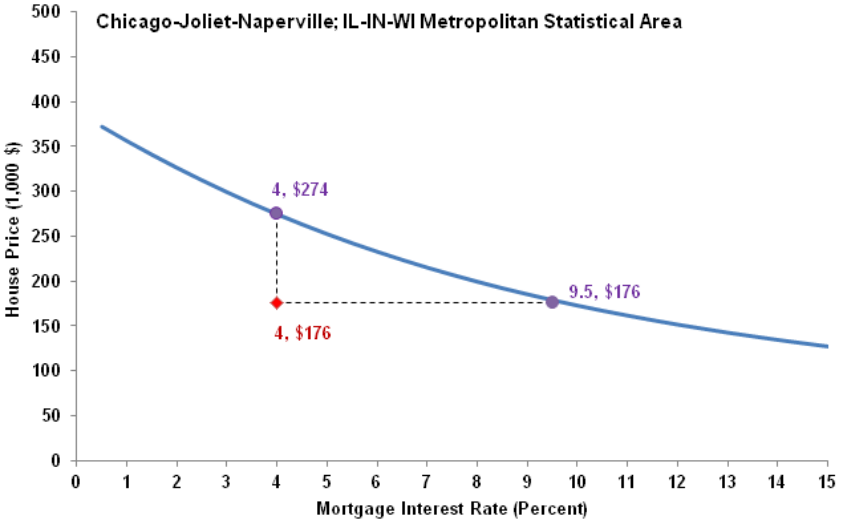
Rank	Metro	Annual Median Income* ($1,000s)	Monthly Funds for Payments* ($)	Annual Median Price* ($1,000s)	Max Affordable Price (1,000 $). At Mortgage Rate of: 3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0
1	New York-Northern New Jersey-Long Island, NY-NJ-PA	78	1,820	379	311	298	285	274	263	252	243	233	224	216
2	Los Angeles-Long Beach-Santa Ana, CA	65	1,521	365	260	249	238	229	220	211	203	195	188	181
3	Chicago-Joliet-Naperville, IL-IN-WI	72	1,678	176	286	274	263	252	242	233	224	215	207	199
4	Dallas-Fort Worth-Arlington, TX	67	1,566	165	267	256	246	236	226	217	209	201	193	186
5	Houston-Sugar Land-Baytown, TX	66	1,532	171	262	251	240	230	221	212	204	196	189	182
6	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	78	1,819	212	311	298	285	274	263	252	242	233	224	216
7	Washington-Arlington-Alexandria, DC-VA-MD-WV	105	2,453	374	419	401	385	369	354	340	327	314	302	291
8	Miami-Fort Lauderdale-Pompano Beach, FL	54	1,262	232	215	206	198	190	182	175	168	162	156	150
9	Atlanta-Sandy Springs-Marietta, GA	65	1,516	121	259	248	238	228	219	210	202	194	187	180
10	Boston-Cambridge-Quincy, MA-NH	89	2,078	359	355	340	326	313	300	288	277	266	256	247
11	San Francisco-Oakland-Fremont, CA	91	2,122	643	362	347	333	319	306	294	283	272	262	252
12	Detroit-Warren-Livonia, MI***	64	1,492	67	255	244	234	224	215	207	199	191	184	177
13	Riverside-San Bernardino-Ontario, CA	60	1,411	219	241	231	221	212	204	196	188	181	174	168
14	Phoenix-Mesa-Glendale, AZ	59	1,387	171	237	227	218	209	200	192	185	178	171	165
15	Seattle-Tacoma-Bellevue, WA	80	1,857	321	317	304	291	279	268	258	247	238	229	221
16	Minneapolis-St. Paul-Bloomington, MN-WI	80	1,856	183	317	304	291	279	268	257	247	238	229	220
17	San Diego-Carlsbad-San Marcos, CA	70	1,642	419	280	269	258	247	237	228	219	210	202	195
18	St. Louis, MO-IL	67	1,573	127	268	257	247	237	227	218	210	201	194	187
19	Tampa-St. Petersburg-Clearwater, FL	55	1,293	148	221	211	203	194	187	179	172	166	159	154
20	Baltimore-Towson, MD	84	2,948	243	333	319	306	293	281	270	260	250	240	231
21	Denver-Aurora-Broomfield, CO	75	1,757	270	300	287	275	264	254	244	234	225	217	209
22	Portland-Vancouver-Hillsboro, OR-WA	65	1,527	254	261	250	240	230	221	212	204	196	188	181
23	Sacramento--Arden-Arcade--Roseville, CA	69	1,611	212	275	264	253	242	233	223	215	206	199	191
24	San Antonio-New Braunfels, TX	61	1,424	163	243	233	223	214	206	197	190	182	176	169
25	Orlando-Kissimmee-Sanford, FL	57	1,329	150	227	217	208	200	192	184	177	170	164	158
26	Cincinnati-Middletown, OH-KY-IN	67	1,572	132	268	257	247	237	227	218	209	201	194	187
27	Cleveland-Elyria-Mentor, OH	62	1,451	118	248	237	228	218	210	201	193	186	179	172
28	Kansas City, MO-KS	70	1,629	144	278	267	256	245	235	226	217	209	201	194
29	Las Vegas-Paradise, NV	61	1,421	157	243	232	223	214	205	197	189	182	175	169
30	San Jose-Sunnyvale-Santa Clara, CA	100	2,331	755	398	381	366	351	337	323	311	299	287	277

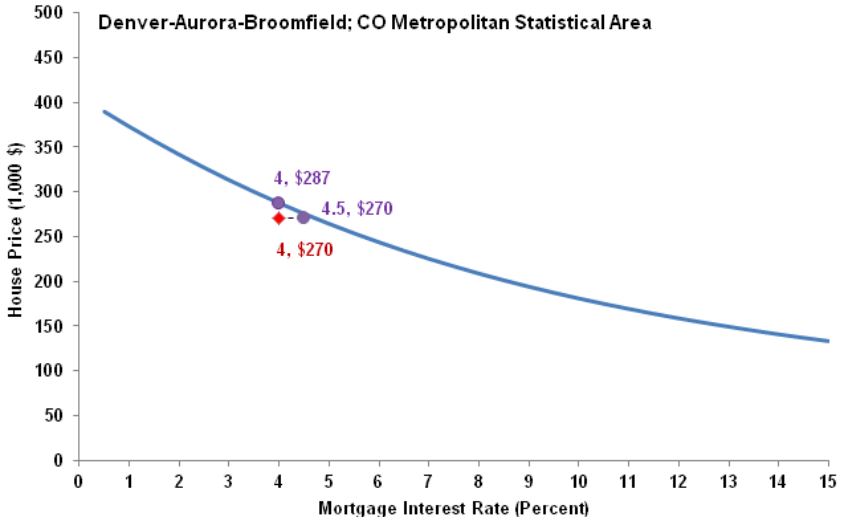
***Source:** Median Family Income Estimates (Moody's Analytics) Median House Prices (National Association of Realtors®, seasonally adjusted by Moody's Analytics), Data as of 2013 Q1. ** Affordable payments are calculated by restricting mortgage principal, interest, taxes, and insurance payments to no more than 28% of gross monthly income and assuming a fixed rate mortgage with a 10% down payment, with homeowner's Insurance, real estate taxes, and mortgage Insurance totaling 2.18% of the property value per year. Assumes median income constant. Green=affordable, Red=not affordable. *** March 2013 not available for Detroit, so we use December 2012 median sales price.

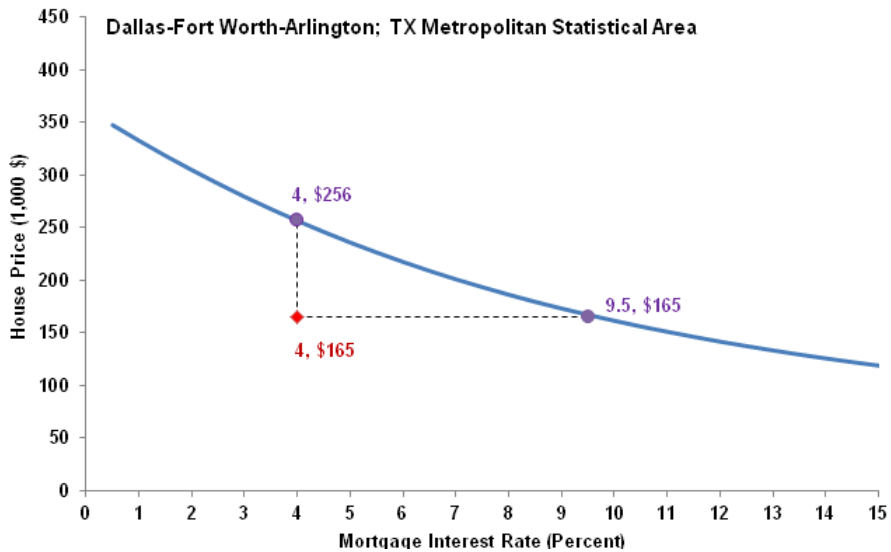
Iso-Affordability Curves: All points along the Blue curve are affordable to a family earning the median income in this area, assuming the maximum monthly payment for principal, interest, taxes and insurance does not exceed 28 percent of gross income and the family can make a 10 percent down payment. The Red dot corresponds to the income and median sales price as of March 2013. The Purple dots show the maximum interest rates (house prices) that would be affordable holding house prices (interest rates) constant.

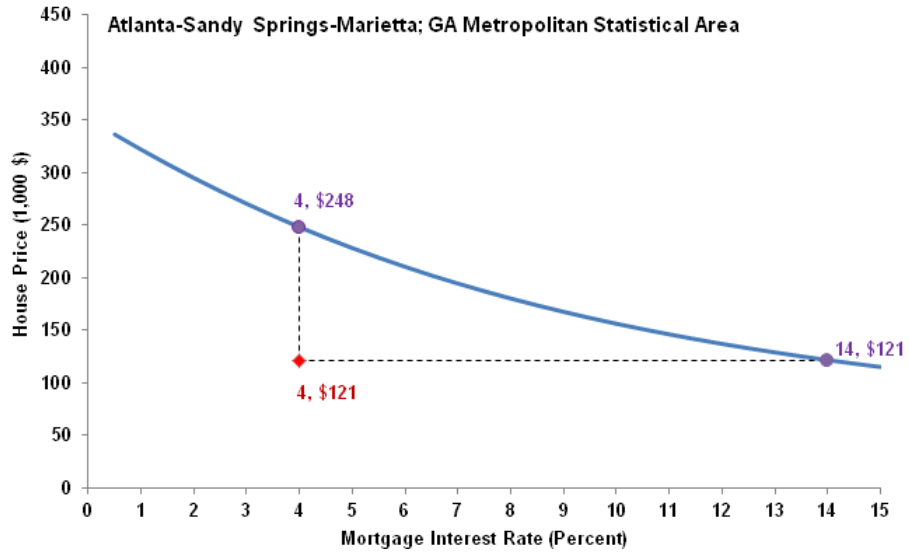


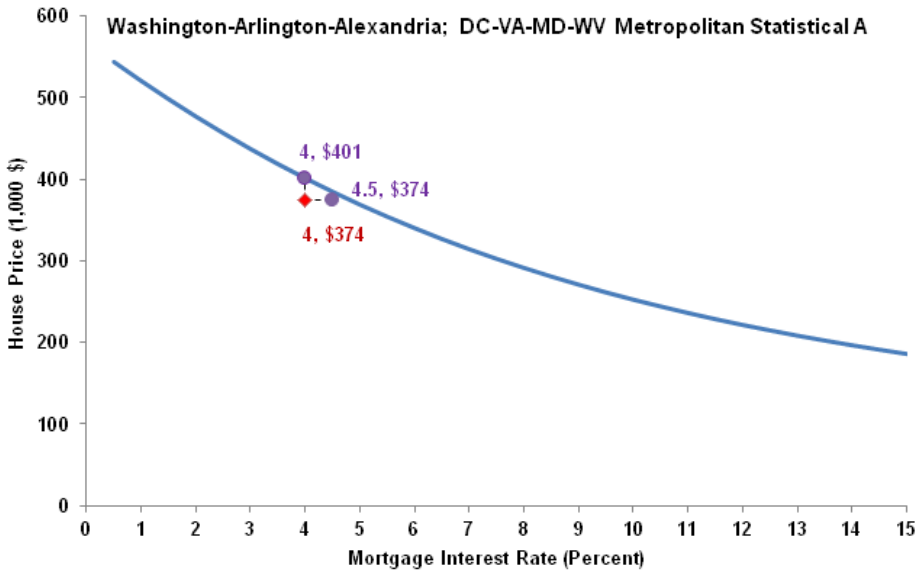


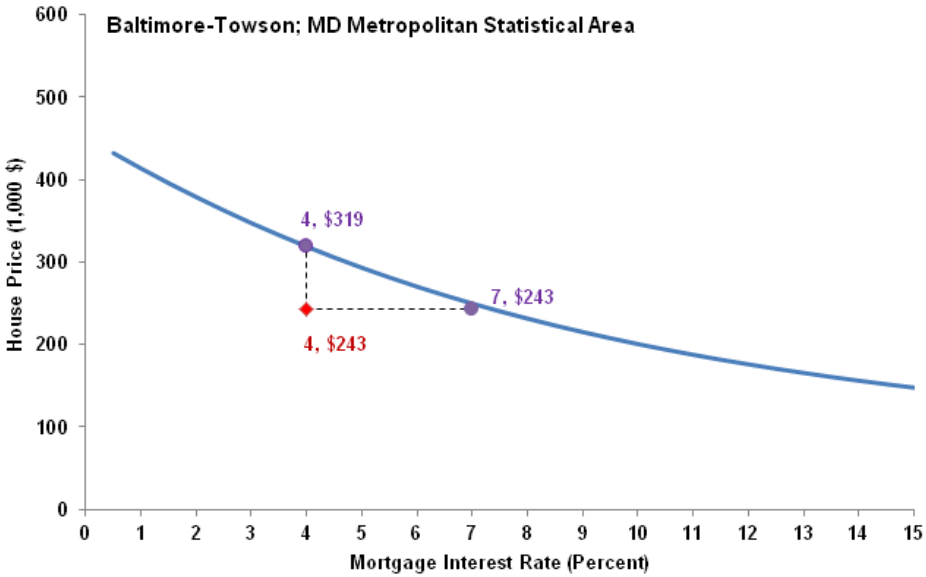





Dallas-Fort Worth-Arlington; TX Metropolitan Statistical Area
House Price (1,000 $)
Mortgage Interest Rate (Percent)
4, $256
9.5, $165
4, $165


Atlanta-Sandy Springs-Marietta; GA Metropolitan Statistical Area
House Price (1,000 $)
Mortgage Interest Rate (Percent)
4, $248
14, $121
4, $121


Washington-Arlington-Alexandria; DC-VA-MD-WV Metropolitan Statistical A
House Price (1,000 $)
Mortgage Interest Rate (Percent)
4, $401
4.5, $374
4, $374


Baltimore-Towson; MD Metropolitan Statistical Area
House Price (1,000 $)
Mortgage Interest Rate (Percent)
4, $319
7, $243
4, $243

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June 2013 Economic and Housing Market Outlook

Revised 6/26/2013

Indicator	2012 Q3	2012 Q4	2013 Q1	2013 Q2	2013 Q3	2013 Q4	2014 Q1	2014 Q2	2014 Q3	2014 Q4	Annual Totals 2009	2010	2011	2012	2013	2014
Real GDP (%)	3.1	0.4	2.4	**1.7**	**2.4**	**2.8**	**3.3**	**3.5**	**3.6**	**3.5**	-0.1	2.4	2.0	1.7	**2.3**	**3.5**
Consumer Prices (%) a.	2.1	2.2	1.4	**1.4**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	1.5	1.4	3.0	1.8	**1.7**	**2.0**
Unemployment Rate (%) b.	8.0	7.8	7.7	**7.5**	**7.4**	**7.3**	**7.2**	**7.1**	**6.9**	**6.8**	9.3	9.6	8.9	8.1	**7.5**	**7.0**
30-Year Fixed Mtg. Rate (%) b.	3.6	3.4	3.5	**3.6**	**3.9**	**4.0**	**4.2**	**4.4**	**4.6**	**4.7**	5.0	4.7	4.5	3.7	**3.8**	**4.5**
1-Year Treas. Indexed ARM Rate (%) b.	2.7	2.6	2.6	**2.5**	**2.5**	**2.6**	**2.6**	**2.7**	**2.8**	**2.9**	4.7	3.8	3.0	2.7	**2.6**	**2.8**
10-Year Const. Mat. Treas. Rate (%) b.	1.6	1.7	2.0	**1.9**	**2.2**	**2.4**	**2.4**	**2.4**	**2.5**	**2.5**	3.3	3.2	2.8	1.8	**2.1**	**2.5**
1-Year Const. Mat. Treas. Rate (%) b.	0.2	0.2	0.2	**0.1**	**0.1**	**0.2**	**0.2**	**0.2**	**0.3**	**0.3**	0.5	0.3	0.2	0.2	**0.2**	**0.3**

Indicator	2012 Q3	2012 Q4	2013 Q1	2013 Q2	2013 Q3	2013 Q4	2014 Q1	2014 Q2	2014 Q3	2014 Q4	Annual Totals 2009	2010	2011	2012	2013	2014
Housing Starts c.	0.78	0.90	0.96	**0.98**	**1.00**	**1.05**	**1.10**	**1.15**	**1.25**	**1.30**	0.55	0.59	0.61	0.78	**1.00**	**1.20**
Total Home Sales d.	5.12	5.28	5.39	**5.45**	**5.50**	**5.65**	**5.75**	**5.85**	**5.95**	**6.05**	4.72	4.51	4.57	5.03	**5.50**	**5.90**
FMHPI House Price Appreciation (%) e.	0.6	0.0	1.4	**2.5**	**1.5**	**0.0**	**1.0**	**1.5**	**1.0**	**0.4**	-2.3	-5.3	-3.6	6.0	**5.5**	**4.0**
S&P/Case-Shiller® Home Price Index (%) f.	2.1	-0.4	1.2	**3.0**	**2.0**	**-0.3**	**1.1**	**2.1**	**0.5**	**0.2**	-2.5	-3.8	-3.7	7.3	**6.0**	**4.0**
1-4 Family Mortgage Originations g.																
Conventional	**$463**	**$475**	**$440**	**$455**	**$320**	**$235**	**$280**	**$340**	**$245**	**$185**	$1,549	$1,300	$1,206	**$1,720**	**$1,450**	**$1,050**
FHA & VA	$97	$105	$100	**$105**	**$80**	**$65**	**$50**	**$80**	**$65**	**$55**	$451	$377	$294	$380	**$350**	**$250**
Total	**$560**	**$580**	**$540**	**$560**	**$400**	**$300**	**$330**	**$420**	**$310**	**$240**	$2,000	$1,677	$1,500	**$2,100**	**$1,800**	**$1,300**
ARM Share (%) h.	8	7	8	**9**	**10**	**11**	**12**	**13**	**14**	**15**	3	5	11	10	**10**	**14**
Refinancing Share - Applications (%) i.	82	83	79	**70**	**65**	**50**	**45**	**40**	**40**	**35**	70	76	75	81	**66**	**40**
Refinancing Share - Originations (%) j.	**76**	**76**	**75**	**65**	**55**	**45**	**45**	**40**	**40**	**35**	68	67	64	**71**	**60**	**40**
Residential Mortgage Debt (%) k.	-2.9	0.0	**-1.9**	**1.5**	**1.5**	**0.5**	**1.0**	**2.0**	**3.0**	**4.0**	-1.6	-4.1	-2.2	-2.1	**0.4**	**2.5**

Note: Quarterly and annual forecasts (or estimates) are shown in shaded areas; totals may not add due to rounding; quarterly data expressed as annual rates.
Annual forecast data are averages of quarterly values; annual historical data are reported as Q4 over Q4.

a. Calculations based on quarterly average of monthly index levels; index levels based on the seasonally-adjusted, all-urban consumer price index.
b. Quarterly average of monthly unemployment rates (seasonally-adjusted); Quarterly average of monthly interest rates.
c. Millions of housing units; quarterly averages of monthly, seasonally-adjusted levels (reported at an annual rate).
d. Millions of housing units; total sales are the sum of new and existing single-family homes;quarterly averages of monthly, seasonally-adjusted levels (reported at an annual rate).
e. Quarterly growth rate of Freddie Mac's House Price Index (FMHPI); not seasonally-adjusted; Dec.to-Dec. for yearly data.
f. National composite index (quarterly growth rate); not seasonally-adjusted; Q4-to-Q4 for yearly data.
g. Billions of dollars (not seasonally-adjusted).
h. Federal Housing Finance Agency (FHFA); quarterly averages of monthly shares of number of loans of conventional, home-purchase mortgage closings (not seasonally-adjusted).
i. Primary Mortgage Market Survey®; quarterly averages of monthly shares of all single-family mortgage applications (not seasonally-adjusted).
j. Home Mortgage Disclosure Act for all single-family mortgages (not seasonally-adjusted); Annual share is dollar-weighted average of quarterly shares.
k. Federal Reserve Board; growth rate of residential mortgage debt, the sum of single-family and multifamily mortgages(not seasonally-adjusted, annual rate).

Prepared by Office of the Chief Economist and reflects views as of 6/26/2013 (MAS); Send comments and questions to chief_economist@freddiemac.com.

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