



Office of the Chief Economist

Insight & Outlook

Insight: Are House Prices Too High In Your Neighborhood? (p. 2)

If we learned anything from the housing crisis, we should have learned how to detect when house prices are too high, when houses are overvalued relative to the fundamentals. As it turns out, statistics alone can't answer that question reliably, either at the national level or in specific metro areas. Substantial human judgment is required to make sense of the statistics.

You should think of affordability metrics like those signs in national parks that indicate today's level of fire danger. They can tell you when the danger is elevated, but they can't predict if or when someone will accidentally drop a match in the wrong spot.

Outlook: Are we there yet? (p.5)

The Fed watch grinds on and on—will they or won't they start raising rates at the September meeting? When we look at the indicators the Fed is monitoring, we don't think we're there yet. But the Fed may just be tired of waiting to act August 31, 2015

How much are house prices overvalued?



Forecast update (p. 7)

Forecast summary	2015	2016
Real GDP Growth (%)	2.4	2.7
30-Year Fixed Mtg. Rate (%)	4.0	4.9
FMHPI House Price Appreciation (%)	4.9	3.9
1-4 Family Mortgage Originations (\$ Billions)	1,450	1,300

Insight: Are House Prices Too High In Your Neighborhood?

How to shock a San Franciscan

I grew up in a working class suburb of San Francisco. When our house was built in the mid-1960s, our subdivision was new and mostly a meadow except for a few, older homes built by the "pioneers" in the area. Bit by bit, the subdivision filled in with new homes. Like all Bay Area residents, we watched house prices rise higher and higher over the years, until asking prices of a million dollars or more for what were once starter homes no longer shocked us.

The tiny house next door to ours was the last surviving "pioneer" home in the subdivision. It looked more and more out of place as newer, larger, more attractive homes surrounded it. The new homes were beautifully landscaped, but the pioneer home still looked like something out of Little House on the Prairie. After many years, a contractor finally bought the house with the intention of completely remodeling it and reselling it.

Months of noise and dust ensued. We watched the progress with interest, hoping that a "gem" would replace the dilapidated house next to us. To our surprise, the contractor chose an unusual rustic-looking treatment for the exterior of the house. Instead of updating the appearance of the home, the contractor had retained, at great expense, the pioneer feel of the original. This project, of course, was the focus of neighborhood discussion, and the majority felt strongly that the contractor had replaced an out-of-place old home with an equally out-of-place new home.

Our next surprise was the asking price for the completed home—close to three million dollars. The final shock came when the house sold—at the asking price—in just a few days. Even the most jaded among us felt the house was significantly overvalued. Common sense told us that, despite this sale, prices in this range are unsustainable for our neighborhood.

But are they?

Approaches to measuring overvaluation

What do we mean when we say houses are overvalued? We might simply be expressing disbelief and/or outrage. "*What is this world coming to when a 2-bedroom ranch house sells for* (fill in a number that seems unreasonable to you)?" This is probably what we mean when we're talking to our friends and neighbors. But there are other meanings that have important implications for public policy and the economy.

- Affordability: We might be concerned that the rising cost of essentials—food, shelter, clothing, health care, education is cutting into our discretionary income. *"How can an average family afford to ..."*
- **Credit risk:** We might be anticipating an increase in mortgage delinquencies and defaults as borrowers struggle to make higher house payments.
- Asset values and the business cycle: Finally, we might be predicting that house prices are likely to fall at some point.

The housing industry has devised a host of affordability statistics that measure, not only the level and trend of house prices, but the reasonableness and sustainability of the current level. These metrics all attempt to answer the question: Are houses overvalued? This turns out to be a very difficult question.

It seems that it should be simple to tell when houses in a particular area are overvalued. Common sense tells us that, at least in the long run, house prices should bear some relationship to people's incomes, that is, to their ability to pay for the houses.

The simplest measure—and one frequently used—is the ratio of the median house price in an area to the median household income in the area. Exhibit 1 displays this ratio for the last 22 years in the San Francisco and Houston metro areas.

Exhibit 1: Price-to-income ratios



Median income in San Francisco has been relatively high over this period, roughly 1.4 times the median income in Houston. But house prices have been even higher—house prices in San Francisco have averaged 4.8 times median income compared to only 2.6 times median income in Houston.

This comparison can't tell us whether houses are overvalued in San Francisco. Residents in each city enjoy amenities that are difficult to measure—weather, natural beauty, culture, quality of public services, etc.—that contribute significantly to the value of the homes in the area. In effect, expenditure on housing combines payment for specific housing services—size of the house, number of bedrooms and bathrooms, quality of the appliances and infrastructure, etc.—with payments for the quality of life in the area surrounding the house. As the real estate adage goes, the three things that matter are location, location, and location.

One common way to control for the value of the location is to compare the price/income ratio in an area to its average value over time. Exhibit 2 compares these normalized ratios for San Francisco and Houston and plots the percentage by which prices are under-or overvalued based on that market's long-term median price-to-income ratio. The long-term median price-to-income ratio in San Francisco is 3.8. The ratio in the first quarter of this year was 6.0, 58 percent higher than the long-term median suggesting houses may be 58 percent overvalued in the San Francisco. Using the same method, homes in Houston appear to be 15 percent overvalued as of Q1 2015.

This approach to identifying overvalued markets seems reasonable. Unfortunately, it is

highly sensitive to small changes in the construction of the affordability statistic. For example, let's normalize the current price-toincome ratio by its long-term average rather than its long-term median value. With that change, San Francisco appears to be only 18 percent overvalued rather than 58 percent. And Houston appears to be undervalued by 16 percent.

Exhibit 2: Percentage Overvalued based on price-to-income ratios



Housing analysts have devised lots of different ways of assessing affordability and overvaluation. Some analysts compare the monthly mortgage payment on the medianpriced house to the median monthly income. This approach adds the impact of higher or lower mortgage rates to the simpler price-toincome ratio illustrated above. Other analysts compare monthly mortgage payments to median rents in the area. Both these approaches provide good measures of affordability, but they require additional normalization to address the question of overvaluation. In addition to these direct, intuitive approaches, some analysts have developed complex statistical models of house prices.

Exhibit 3 highlights some of the confusion that is generated by this multiplicity of reasonablebut-slightly-different measures. This exhibit displays four different March 2015 estimates of valuation for each of ten metro areas. Two models are represented along with the simple price-to-income ratio normalized by both the long-run median and the long-run average ratio. The range of variation among the measures is striking. For half of the metro areas, some approaches conclude housing is

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overvalued in the area while others conclude the opposite. Exhibit 4 provides another illustration of the range of answers provided by these metrics. The vertical axis displays the estimates of overvaluation provided by comparing the current-price-to-income ratio to the long-term median ratio. The horizontal axis displays the estimates provided by a statistical model. As in Exhibit 3, the range of variation—and disagreement—between the two approaches makes it difficult to form definite conclusions about many of the metro areas.



Exhibit 3: Four methods to evaluate house prices in 10 large metro areas





What about house prices nationally?

OK, so maybe it can be difficult to say whether a particular metro area is overvalued, but we have recent experience with a particularly destructive national house price bubble. From 2003 to 2007 U.S. house prices rose 8.6 percent annually and 39 percent overall, peaking in 2006. These price increases were part of an unsustainable housing bubble, and they were followed by a collapse over the next 5 years (Exhibit 5). Is there a reliable, early warning sign of national overvaluation?

Exhibit 5: Historical House Prices



Freddie Mac House Price Index

In retrospect, this bubble seems obvious and the correction inevitable. At the time however, expert opinion was divided. By 2006 most observers agreed that the rate of house price increase couldn't be sustained, but most observers were divided on the future price path. During the boom, the staff of the Federal Reserve attempted to determine if house prices were overvalued. They arrived at a wide range of answers, even up to the peak of the housing market. There are many examples of local house price collapses, often when a local industry suffers a setback. But overall U.S. house prices had never declined since the Great Depression of 1929-1933, and many observers were skeptical that this event could ever be repeated. Only a handful of investors were sure enough of their analyses to bet on a nationwide housing collapse.

How Freddie Mac manages house price volatility

The difficulty of detecting when a metro area's homes are overvalued poses a challenge to mortgage insurers like Freddie Mac. The future path of house prices is an important factor in measuring the credit risk—and thus setting an appropriate guarantee fee—of the mortgages that Freddie Mac funds.

However, Freddie Mac has an important advantage over local lenders and homeowners. Freddie Mac funds houses throughout the U.S. Isolated local house price declines are averaged in with house price increases in the rest of the country. As a result, the collection of loans funded by Freddie Mac experiences the average change of house prices nationwide. Of course, this diversification can't protect Freddie Mac against another national house price bubble. Instead the various reforms in industry practice and regulation over the last seven years provide the defense against a repeat of that experience.

Conclusion

There is no single statistic that reliably identifies when a housing market is overvalued or when house prices are likely to fall. Sadly, the only reliable method for identifying these situations is in retrospect. The best minds and most sophisticated statistical techniques all have fallen short of the mark.

The lesson of this review is that statistics--by themselves--cannot tell us whether housing in a particular market—or the nation as a whole—is overvalued. Substantial human judgment also is required. At best, these affordability statistics wake us up to potential danger. In this way, they are like the signs posted every summer in national parks that indicate the current danger of a forest fire. We recognize when the danger is elevated, but we can't predict for sure if or when someone will accidentally drop a match in the wrong spot.

Nonetheless, if my family's new neighbors decide to flip their house for \$3.5 million, you certainly will hear me say, "What is this world coming to...?"

Outlook: Are We There Yet?

This is the question the market keeps asking the Federal Reserve. Six-plus years into what has been a very tepid expansion, is it finally time for the Fed to raise short-term interest rates? The Fed has stated it is waiting for evidence that labor markets have recovered and inflation is reliably expected to be at or above 2 percent before it will take action. Let's take a look at the evidence.

Exhibit 1: Unemployment rate and unemployment rate if labor force participation was unchanged from June 2009 levels.



Employment: The unemployment rate, which peaked at 10 percent in October 2009, stands today at 5.3 percent, within rounding error of the Fed's estimate of full employment. Virtually all of the reduction in the unemployment rate is the result of potential workers exiting the labor force rather than growth in employment (Exhibit 1). The labor force participation rate has been falling for the last 15 years. However the rate of decline has tripled during this expansion (Exhibit 2). Weak employment combined with stagnant wage growth suggests the Fed should be cautious in tightening monetary policy.

Exhibit 2: Declining Labor Force Participation



Inflation: Inflation is running below the Fed's 2 percent target and, if anything, is in danger of dropping lower. Core inflation, which excludes volatile food and energy prices, has been running below 2 percent on a year-over-year basis since 2008 (Exhibit 3). Recently, the core personal consumption expenditures (PCE) price index—the Fed's preferred metric of inflation—has fallen to about 1.2 percent on an annualized basis. Total PCE annual growth, which includes oil price declines, has been practically zero in recent months. Recent events in China and Europe suggest the dollar may strengthen further which will put additional downward pressure on inflation in the U.S.

Exhibit 3: Core Inflation



Looking at the Fed's stated triggers, we don't see a compelling reason to raise interest rates any time soon—and the picture doesn't change if we look at other indicators of broad economic performance. In our opinion, we're not there yet. The International Monetary Fund appears to agree with us—in June it cautioned the Fed against raising rates too soon. Nonetheless remarks by Janet Yellen and some (but not all) of the Fed governors and presidents have persuaded the market that Fed may nonetheless act in September. In any event, we expect the initial rate increases to be very cautious and more symbolic than impactful.

Housing

Housing is a good news/bad news story.

The good news is the strength of home sales—best year since 2007—and the steady increase in house prices that is chipping away at the number of underwater borrowers. Housing starts in July beat market expectations and the home builder confidence index is at a 10-year high. It's important to remember, that despite these positive signs, overall housing activity remains weak compared to historical norms.

The bad news includes uneven access to mortgage credit and some strains on affordability. Lenders continue to set tighter credit standards than the GSEs will allow, reflecting concerns and uncertainty about regulatory and legal exposure. As a result, many creditworthy low-and-moderate income borrowers face challenges obtaining a mortgage, while more-affluent borrowers with pristine credit have ready access to mortgage finance. With respect to affordability, rising home prices make it tougher for first-time home buyers to accumulate a down payment and qualify for a mortgage. To make matters worse, rapidly increasing rents often consume more than 30 percent of renters' income, increasing the difficulty of saving for a down payment.

Forecast Update

In the absence of some event that throws the expansion off course, we continue to expect growth to pick up in the second half of the year. Long-term interest rates—including mortgage rates—will rise only gradually, even if the Fed starts raising rates this year.

Relative to last month we've made several changes to our forecast. The most significant change is an upward revision to our forecast for mortgage originations in 2015 and 2016. Due to stronger-than-expected refinance activity and home sales, we've increased our estimate of 2015 mortgage originations to \$1.45 trillion and 2016 originations to \$1.3 trillion. We've also increased our projection of 2015 home sales to 5.73 million units, which would be the best year since 2007. And we've revised the 2015 refinance share up to 46 percent of all single family mortgage originations.

Housing Snapshot

A selection of key indicators¹



¹ Sources: Freddie Mac, HMDA, NAR, US Census Bureau, FHFA, CoreLogic



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With new home sales <u>data</u> out for July, we're currently running 127,000 home sales (nonseasonally adjusted) above the July 2013 rate keeping us on track for the best year in home sales since 2007.



How Will Sales Compare This Season?

Source: National Association of Realtors, Census/HUD

The <u>Multi-Indicator Market Index</u>® (MiMi®) shows the U.S. housing market continuing to slowly stabilize with two additional states, Arkansas and Tennessee, and four additional metro areas entering their outer range of stable housing activity: Omaha, Nebraska; Scranton, Pennsylvania; Chattanooga, Tennessee and Madison, Wisconsin.



In Closing: Putting the risk of low down payments in context

In last month's edition of the Insight & Outlook, we wrote about programs, like Freddie Mac's Home Possible Advantage®, that expand affordability by allowing low down payments for creditworthy borrowers. We highlighted the safeguards in these programs that limit the credit risk associated with lower down payment. A key ingredient in these safeguards is the elimination of layered risks-the combination of multiple risky features that magnify the total risk of a loan. The prevalence of layered risks represented a significant vulnerability in the run-up to the recent recession. As the legendary banker Walter Wriston said, "Judgment comes from experience-and experience comes from bad judgment." Some of the market's bad judgments during the housing bubble led to the bitter experiences in recent years. And those experiences forged the better judgment underlying the design of programs like Home Possible Advantage.

Nonetheless, in order to launch Home Possible Advantage, Freddie Mac had to assess the magnitude of the risk of low down payments and structure the program accordingly. If the risk turned out to be modest, the program could be structured more flexibly. If the risk turned out to be severe, additional safeguards might be appropriate.

One way to gauge the risk of low down payments is to look at the relative historical credit performance of different types of loans. We measure absolute risk by the average percentage loss on a group of loans.² Absolute risk is dominated by the time period of the measurement. Years of unusually high loss—which are included in our sample--generate unusually high estimates of absolute loss. To control for this influence, we report *relative risk*, that is, the ratio of the absolute risk of two comparable groups. As an example, 3/1 hybrid ARMs turned out to be 35 percent riskier than 30-year fixed rate mortgages. In other words, the absolute risk of a 3/1 hybrid ARM was 1.35 times the absolute risk of a 30-year fixed rate mortgage.

Not surprisingly, low down payment mortgages are relatively riskier than loans with down payments between 20 and 29 percent (80 LTV loans). What is surprising though is the small size of that differential. Loans with down payments less than 5 percent (95+ LTV loans) were only 31 percent riskier than 80 LTV loans. In other words, their relative risk is in line with the relative risk of 3/1 ARMs. And the relative risk of these low down payment loans is much lower than the relative risk of other standard types of loans. For instance, 7/1 ARMs were 155 percent riskier than 30year fixed rate mortgages, and 5/1 ARMs were five times as risky as 30-year fixed rate mortgages.

One way Home Possible Advantage controls risk is to allow only fixed rate loans, thus avoiding the payment shocks that can create financial distress. If we restrict our attention to 30-year fixed rate loans—the most common type of loan—95+ LTV loans were 68 percent riskier than 80 LTV loans. This estimate is a bit higher than the 31 percent relative risk for all loan types but still much lower than the relative risk of medium-term hybrid ARMs. And at exactly 97 LTV, the maximum allowed by Home Possible Advantage, low down payment loans were only 17 percent riskier than 80 LTV loans.

² More precisely, we calculate actual losses realized between January 2003 and June 2013 on Freddie Mac fundings from January 2000 to June 2013 as a percentage of the original amount borrowed. This historical span includes the period of peak loan losses along with more typical years.



Walter Wriston also said "All life is the management of risk, not its elimination." The measurements above indicate that low down payments, by themselves, do not carry unreasonable credit risk compared to other well-accepted mortgage products. Through the Home Possible Advantage program, Freddie Mac is able to expand affordability while appropriately managing the risk of low down payments.

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Q2 Cash-Out Refinance Statistics Available

Cash-outs increased, mortgage terms shortened

The Freddie Mac Cash-Out Refinance Statistics for Q2 2015 are available here.³

- Cash-out refinances—that is, refinances where the loan balance increased by five percent or more—increased, from 27 percent of refinances in Q1 to 34 percent in Q2. A year ago, the cash-out share was 22 percent. During the housing boom, the cash-out share peaked at 89 percent in the third quarter of 2006.
- An increasing share of refinancing borrowers chose to shorten their loan terms. Of borrowers who paid off a 30-year fixed-rate loan in the second quarter, 40 percent chose a 15- or 20-year loan, compared to 39 percent in the first quarter.

³ If this link doesn't work for you, please go to <u>http://www.freddiemac.com/finance/refinance_report.html</u> for the complete report.

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August 2015 Economic and Housing Market Outlook

Revised 8/28/2015																			
	2014 2015									2016			Annual Totals						
Indicator	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2011	2012	2013	2014	2015	2016	
Real GDP (%)	-0.9	4.6	4.3	2.1	0.6	3.7	2.7	2.8	2.7	2.7	2.7	2.7	1.7	1.3	2.5	2.5	2.4	2.7	
Consumer Prices (%) a.	2.1	2.4	1.2	-0.9	-3.1	3.0	2.3	1.3	2.4	2.3	2.1	2.1	3.3	1.9	1.2	1.2	0.9	2.2	
Unemployment Rate (%) b.	6.6	6.2	6.1	5.7	5.6	5.4	5.3	5.2	5.2	5.1	5.1	5.0	8.9	8.1	7.4	6.2	5.4	5.1	
30-Year Fixed Mtg. Rate (%) b.	4.4	4.2	4.1	4.0	3.7	3.8	4.1	4.3	4.5	4.7	5.0	5.2	4.5	3.7	4.0	4.2	4.0	4.9	
5/1 Hybrid Treas. Indexed ARM Rate (%) b.	3.1	3.0	3.0	3.0	2.9	2.9	3.2	3.4	3.7	4.0	4.3	4.6	3.3	2.8	2.9	3.0	3.1	4.2	
1-Year Treas. Indexed ARM Rate (%) b.	2.5	2.4	2.4	2.4	2.4	2.5	2.5	2.6	2.7	2.8	3.0	3.2	3.0	2.7	2.6	2.4	2.5	2.9	
10-Year Const. Mat. Treas. Rate (%) b.	2.8	2.6	2.5	2.3	2.0	2.2	2.3	2.5	2.6	2.9	3.1	3.3	2.8	1.8	2.4	2.6	2.3	3.0	
1-Year Const. Mat. Treas. Rate (%) b.	0.1	0.1	0.1	0.2	0.2	0.3	0.6	0.9	1.1	1.6	2.1	2.6	0.2	0.2	0.1	0.1	0.5	1.9	

	2014 2015							2016					Annual Totals					
Indicator	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2011	2012	2013	2014	2015	2016
Housing Starts c.	0.93	0.98	1.03	1.06	0.98	1.14	1.20	1.25	1.30	1.35	1.45	1.50	0.61	0.78	0.92	1.00	1.14	1.40
Total Home Sales d.	5.10	5.31	5.50	5.53	5.49	5.81	5.80	5.80	5.85	5.95	5.95	6.10	4.57	5.03	5.52	5.38	5.73	5.96
FMHPI House Price Appreciation (%) e.	1.6	0.8	1.1	1.5	1.6	1.2	1.0	1.0	1.0	1.0	0.9	0.9	-3.2	6.2	9.6	5.0	4.9	3.9
S&P/Case-Shiller® Home Price Index (%) f.	1.3	-0.1	1.2	2.1	1.0	0.7	1.0	1.0	1.0	1.0	0.9	0.9	-3.7	6.6	10.8	4.6	3.8	3.9
1-4 Family Mortgage Originations g.																		
Conventional	\$198	\$257	\$279	\$257	\$270	\$354	\$304	\$228	\$208	\$316	\$312	\$204	\$1,206	\$1,750	\$1,570	\$991	\$1,156	\$1,040
FHA & VA	\$52	\$63	\$71	\$73	\$80	\$81	\$76	\$57	\$52	\$79	\$78	\$51	\$286	\$372	\$355	\$259	\$294	\$260
Total	\$250	\$320	\$350	\$330	\$350	\$435	\$380	\$285	\$260	\$395	\$390	\$255	\$1,492	\$2,122	\$1,925	\$1,250	\$1,450	\$1,300
			40			_		-				10		40	-		_	
ARM Share (%) h.	11	11	10	11	6	5	9	9	13	14	15	16	11	10	9	11	(15
Refinancing Share - Applications (%) i.	52	45	50	60	63	47	40	40	39	38	36	33	71	77	63	52	48	37
Refinancing Share - Originations (%) j.	44	38	42	50	57	50	40	35	40	30	26	25	64	70	59	43	46	30
Residential Mortgage Debt (%) k.	-0.8	0.4	1.4	1.8	-0.4	2.0	2.0	2.5	2.5	3.0	3.0	3.5	-2.1	-1.7	-0.5	0.7	1.5	3.0

Note: Quarterly and annual forecasts 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.

g. Billions of dollars (not seasonally-adjusted); conventional for 2014 are Freddie Mac estimates.

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. MBA Applications Survey: activity by dollars, total market refi share percent for United States

a. Calculations based on quarterly average of monthly index levels; index levels based on b. Quarterly average of monthly unemployment rates (seasonally-adjusted); Quarterly average of monthly interest rates.

the seasonally-adjusted, all-urban consumer price index.

yearly data.

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; seasonally-adjusted; annual rates for yearly data. f. National composite index (quarterly growth rate), seasonally-adjusted; annual rates for

j. Home Mortgage Disclosure Act for all single-family mortgages (not seasonally-adjusted); annual share is dollar-weighted average of quarterly shares (2014 estimated).

k. Federal Reserve Board; growth rate of residential mortgage debt, the sum of single-family and multifamily mortgages

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(not seasonally-adjusted).

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