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California Housing in the Subprime/Credit Crisis— Overview and a Forward Look at Recovery

Cynthia A. Kroll

Since 2007, California has experienced a home price decline unprecedented in the post-war era. Statistics are quoted freely in the press, but the degree, duration and geographic incidence of the decline vary depending on the time period, geographic coverage, and data sources used. This article examines price trends over the course of the subprime crisis and subsequent economic recession in the state and major California markets and discusses possible future trajectories for California home prices as recovery begins.

The article begins with a discussion of measures and indices of home prices in California and other parts of the nation. We demonstrate that the level of price change (absolute, and relative to other places) varies by indicator. We then examine variation by geographic location and by product type, and place this variation in the context of subprime lending activity. The article concludes with a look back at earlier downturns, a discussion of the factors that could drive recovery in the housing market, and the possible impacts on future home price trends.

Measuring Trends in Home Prices

Three different home price measures are readily available. These include the median price, reported by realtor associations, the same-home sales price index compiled by the Federal Housing Finance Agency (FHFA index; previously the OFHEO—Office of Federal Housing Enterprise Oversight—index), and Standard & Poor's/Case-Shiller home price index (also built on same-home sales).

The California Association of Realtors tracks the median price of existing homes sold in California and in various regions throughout the state. The National Association of Realtors provides similar data for the US and large regions, and comparable data for other geographic areas is reported by the National Association of Home Builders (new homes sold) and private organizations such as Dataquick. For any month, the median is the mid-price of all homes sold in the period—half of homes have sold for prices at or below the median, and half for prices at or above the median. If the mix of homes changes (for example, an increase in sales in a lower cost part of the state) then a change in the median would not necessarily reflect a similar direction of change in the market value of any individual home. In an extreme case, the median could drop at the same time that individual home prices in all areas were rising (or the opposite), if the mix of homes sold has changed.

The FHFA and S&P/Case-Shiller indices are both built on a similar methodology of weighted-repeat-home sales (Calhoun 1996), averaging direct measures of changes in values of individual homes. The indices are a closer indicator of actual price changes than the median price for individual homes, but a “mix” effect can still influence the results. If transactions in a period are

heavily skewed towards homes facing large price changes (as with foreclosed property in recent periods), the index may overestimate the change in value affecting other types of homes (such as homes sold by choice in submarkets with fewer foreclosures). Furthermore, the indices do not adjust for home deterioration or improvements, so there may be a further bias on this account. Finally, the two measures draw from different pools of sales, which lead to different results.

The FHFA index is based on data from conforming loan transactions provided by FannieMae (the Federal National Mortgage Association) and FreddieMac (the Federal Home Loan Mortgage Corporation). The conforming loan limit has changed over time, rising from \$203,000 in 1993-1995 to \$417,000 in 2006-2008 (FannieMae 2007), with an extension for loans in higher cost areas added after the housing bubble burst (\$625,000 for single family homes, as well as higher temporary levels; FannieMae 2009b). Conforming loan requirements also cover other characteristics of the loan, such as loan to value ratio and creditworthiness of the borrower (FannieMae 2009a). “Subprime” loans, by definition not conforming loans, are not included in the indices, nor are “jumbo” loans, which exceed the conforming loan limit and cover significant portions of high priced markets in California.

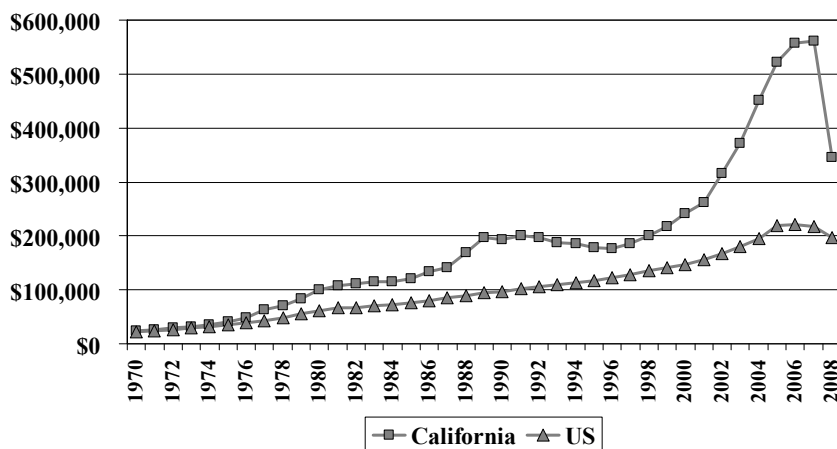
The S&P/Case-Shiller index is based on “all available arms-length transactions for single-family homes” over the previous three months (Standard & Poor’s 2007, p.6). All recorded transactions of arms-length sales where a previous arms-length sale can also be identified may be included in the calculation of the index. The estimates are done for three separate price tiers, and are weighted by a variety of factors, including initial sales price and time period between sales. Subprime sales were included in the index during the boom period, and sales of foreclosed properties in the bust have been included more comprehensively in the S&P/Case-Shiller index than in the FHFA index.

Trends in California and US Home Prices

The median home price measure is the only one of the three indicators described above that reports the absolute level of home value.

The measure is useful in comparing price levels among different locations (although there is still the problem of comparability of size and quality). The differential between California and US home prices has varied over time, with a general trend for California prices to increase over time relative to the US (see Figure 1). As early as

Figure 1
California and US Median Home Prices, 1975-2008

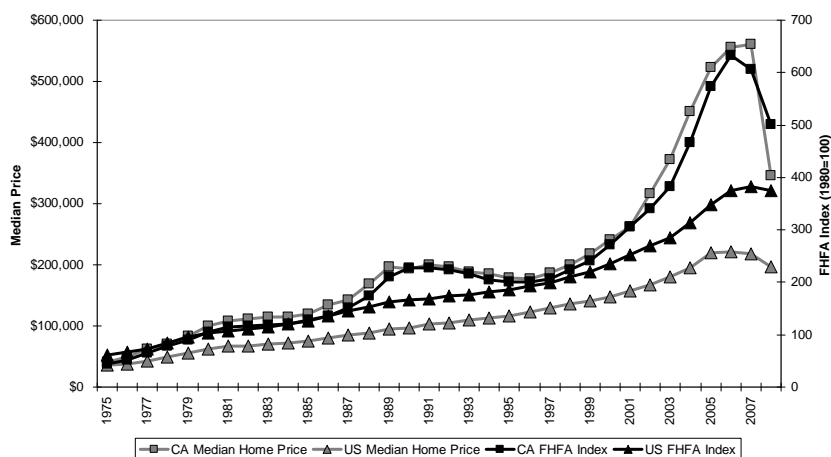


Source: FCREUE from California Association of Realtors

1970, the California median home price level was less than ten percent above the US; by 2000 the differential had risen to 64 percent and by 2007 to over 150 percent. California's price premium dropped in 2008, as foreclosed homes flooded the California market, but the median nevertheless remained 76 percent above the US median. California median prices appeared to hit bottom in February 2009, while US prices continued to drop for two more months.

Home values (for specific homes) also dropped more precipitously in California than in the US, as measured by changes in the FHFA index.¹ In Figure 2, the dark black lines, corresponding

Figure 2
California and US Home Price Trends, 1975-2008
Median Price and FHFA Index



Source: FCREUE from California Association of Realtors and Federal Housing Finance Agency.

to the right hand axis of the graph, show the FHFA indices for California and the US. The median price data shown in Figure 1 remain in the graph for comparison. The FHFA index for California closely tracks the median home price trend, but the rise of the index is slightly slower in boom periods, and the downturn is less in the most recent year (17 percent drop in the FHFA index from 2007 to 2008, compared to a 38

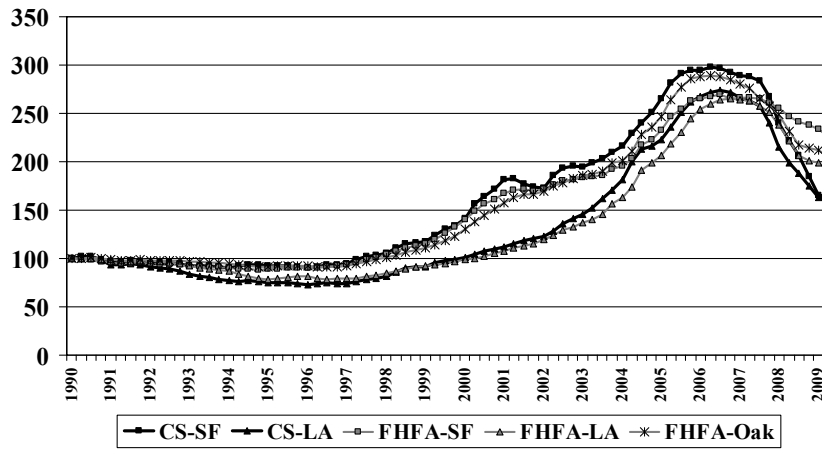
percent drop in median home value). The US FHFA index has risen faster than the national median home price trend, and the latest downturn has been less severe in this index than for median prices as a whole. The smaller 2007 to 2008 price adjustment in the FHFA index is consistent with the absence of subprime loans in the index.

Regional and Price Range Differences in Home Price Trends

Figure 3 compares the FHFA and S&P/Case-Shiller indices for San Francisco and Los Angeles. In this figure, both indices are rescaled so that 1990 first quarter values equal 100. The S&P/Case-Shiller San Francisco index (CS-SF) covers a substantially larger geographic area than does the FHFA San Francisco index (FHFA-SF). FHFA-SF covers only the three counties included in the San Francisco metropolitan statistical area (Marin, San Francisco and San Mateo) while CS-SF includes in addition Alameda and Contra Costa Counties. Those two counties are reported in the Oakland metropolitan area by FHFA (FHFA-Oak).

¹ The S&P/Case-Shiller index is not reported for state, but only for the US level and for metropolitan areas.

Figure 3
Regional Comparisons, Median Price, FHFA Index and S&P/Case-Shiller
(Converted to 1990=100 base)



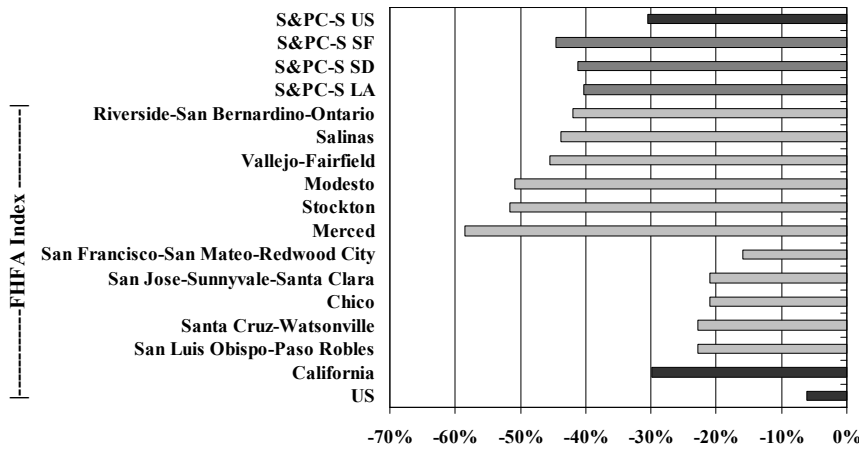
Source: FCREUE from Federal Housing Finance Agency and S&P Case-Shiller.
Note: The original bases for the two indices are S&P/CS: 2000=100, FHFA: 1995=100.

The FHFA-SF index illustrates the strength and relative stability of the core San Francisco market over time. In the 2001 downturn prices flattened but did not decline despite a major loss of jobs in the region. In the present downturn, prices have declined much less than in the Los Angeles market.

A broader look geographically and by product type shows more vulnerability in both the San Francisco and Los Angeles areas. The S&P/Case Shiller indices rise faster and fall further than the FHFA indices, even taking into account the different geographic areas covered. (The FHFA Oakland index falls less than the S&P/Case Shiller index for San Francisco, even though it includes the weakest part of the five-county area's market). The S&P/Case Shiller indices show San Francisco prices rising to higher levels relative to 1990 compared to Los Angeles prices. Most of the San Francisco advantage came from the region having less of a home price downturn in the 1991-1993 recession. Los Angeles outperformed San Francisco in price gains during the 2000 to 2006 boom, but had not "caught up" with San Francisco prices by the 2006 peak. The bust evened up prices across the two markets--by first quarter 2009, San Francisco prices relative to 1990 were no different from Los Angeles prices based on the S&P/Case-Shiller index, although the two markets followed very different paths in the intervening years.

The different "stories" told by the FHFA and S&P/Case-Shiller indices is further illustrated in Figure 4, which shows the S&P/Case-Shiller indices for the three California markets covered as well as metropolitan areas with the highest and lowest price declines from the peak of the bubble, as measured by the FHFA index and comparative US and California indices. The difference in the two indices is perhaps most striking at the national level, with S&P/Case-Shiller indicating a loss in same-home value of over 30 percent from the peak, and FHFA indicating less than a 10 percent loss. Much of the difference can be explained by the higher gains measured by S&P/Case-Shiller in the boom (an increase of 90 percent from 2000, compared to the FHFA gain of 67 percent).

Figure 4
Highest and Lowest Price Declines from Peak, California Markets



Source: FCREUE from Federal Housing Finance Agency and S&P Case-Shiller.

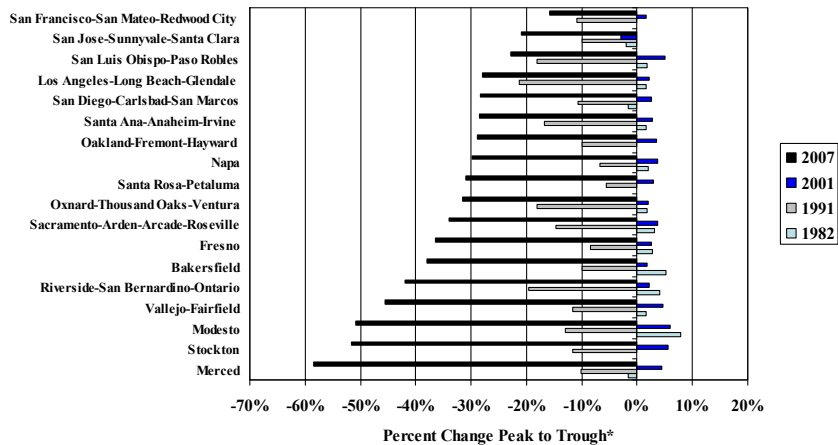
S&P/Case-Shiller indices show very similar price changes in the bust for all three California regions covered. In contrast, the FHFA indices show a wide variation in price impacts of the housing bust among California metropolitan areas. The San Francisco core market showed the lowest FHFA

home price declines compared to other markets, in part because the area saw less of a gain in the boom period (the San Francisco and San Jose markets were the only two California metropolitan areas where the FHFA index did not double from 2000 to the peak). Places with the greatest price declines were smaller metropolitan areas on the periphery of large coastal markets, where prices had risen by at least 150 percent during the 2000 to 2006 boom.

A Closer Look at Vulnerable Markets

The pattern of price effects is distinct from earlier recessions. In addition to much larger price declines statewide and in many metropolitan areas, the distribution of price declines is quite different from that experienced in earlier recessions. Several of the lower priced areas that suffered the greatest losses in value in 2007-2009 were among the strongest

Figure 5
Recession Related Price Changes in California Metropolitan Markets (1982, 1991, 2001 and 2007 recessions)



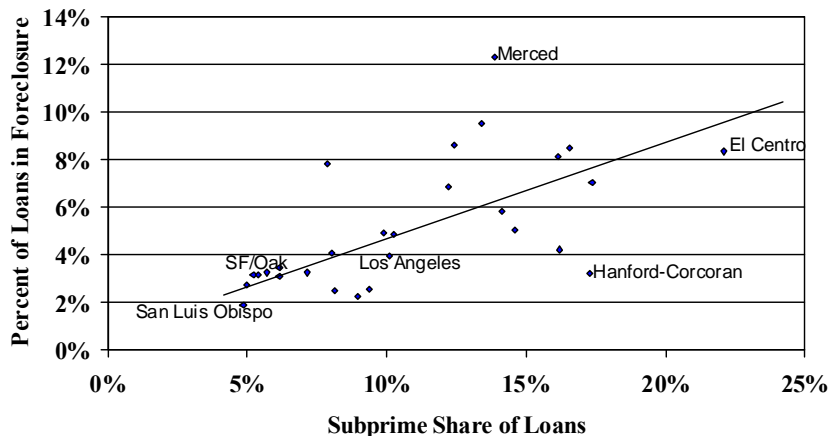
Source: Author from FHFA data.

* Note: Chart graphs the smaller of 1) the change from peak home price going into the recession to trough home price during or coming out of the recession, or 2) the home price change from economic peak to trough.

housing markets in the 1982 and 2001 recessions, while markets experiencing relatively mild price declines after the subprime bubble burst were among the weakest markets in the 1991 recession, as shown in Figure 5.

Much of the differential in the current period can be explained by high levels of subprime lending followed by foreclosures. As shown in Figure 6, metropolitan areas in California with the highest levels of subprime loans outstanding were also the most likely to have high shares of loans in foreclosures.

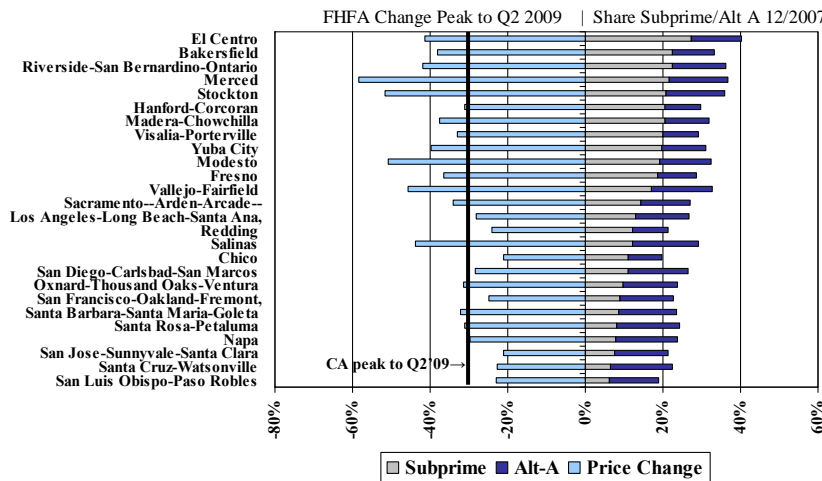
Figure 6
Share of Loans in Foreclosure Compared to Subprime Share of Outstanding Loans
(by California Metropolitan Area, December 2008)



Source: FCREUE from First American CoreLogic LoanPerformance data.

The degree of price decline was closely related to the degree of subprime activity (or foreclosure), illustrated in Figures 7 and 8. Places with the highest shares of subprime mortgages issued (out of all mortgages issued) were more likely to have a high gain in value during the boom and a higher loss post-boom.²

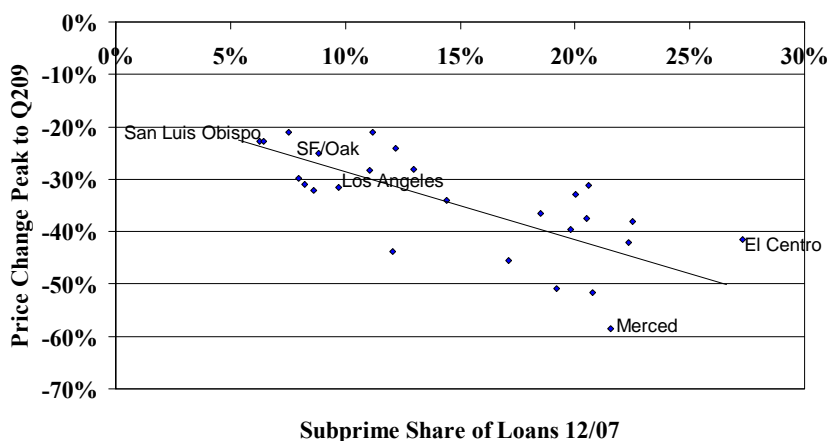
Figure 7
Subprime and Alt-A Exposure (12/2007) Compared to Change in FHFA Index (Peak to Q2 2009)



Source: FCREUE from FHFA and First American CoreLogic LoanPerformance data.

² A simple statistical model shown in Appendix A further confirms the importance of type of mortgage issuance and the vulnerability of lower priced markets in the recent housing bubble. Eighty percent of the variation among counties can be explained by the share of mortgages issued that were subprime, the share issued that were Alt-A, and the 2000 Census metropolitan area median home price.

Figure 8
 Subprime Share of Loans Compared to Price Changes, Peak to Second Quarter
 2009 (by Metropolitan Area)

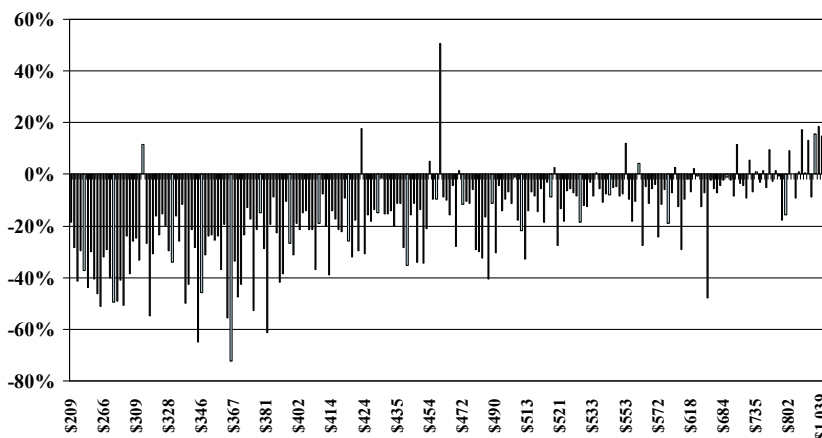


Source: FCREUE from First American CoreLogic LoanPerformance and FHFA data.

Within metropolitan markets, there is further evidence of significant differences in vulnerability based on price level. Lower priced markets, often those most heavily infused with subprime lending, experienced much higher levels of price declines in the early stages of the downturn.

While indices are not available from either FHFA or S&P/Case-Shiller for more detailed geographic areas, Dataquick reports median price per square foot at the zip code level for markets in the San Francisco Bay Area (Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano and Sonoma). From 2007 to 2008, the largest home price declines were heavily clustered at the lower end markets, as shown in Figure 9.

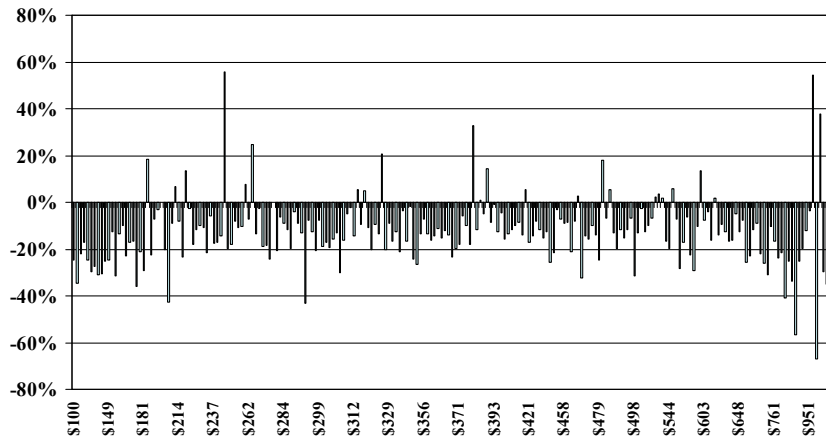
Figure 9
 Price Change by Median Price/SQ FT of Neighborhood
 San Francisco Bay Area, 2007-2008



Source: Author from data drawn from Dataquick website, September 2009
<http://www.dqnews.com/Charts/Annual-Charts/SF-Chronicle-Charts/ZIPSF08.aspx>

Trends over time of prices at this “neighborhood” level illustrate the course of the housing market, from adjusting to the initial collapse of credit markets and home prices to the broader recession. In 2009, the rate of price decline moderated at the lower end, but a larger number of higher end markets experienced price declines approaching levels experienced at the lower-cost end of the market in 2008, as shown in Figure 10. The loss in value at the upper end of the market is more typical of the pattern during previous recessions in California, when pent-up demand helped to bolster prices of starter homes.

Figure 10
Price Change by Median Price/SQ FT of Neighborhood
San Francisco Bay Area, August 2008-August 2009

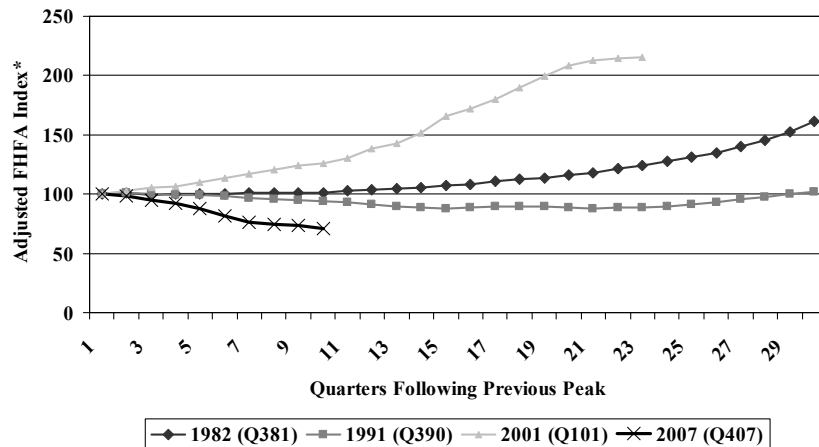


Source: Author from data drawn from Dataquick website, September 2009
<http://www.dqnews.com/Charts/Monthly-Charts/SF-Chronicle-Charts/ZIPSFC.aspx>

What Will Price Recovery Look Like?

Historic downturns have taken widely varying paths to recovery of home prices in California, making it very difficult to predict the direction of recovery in emerging from the current downturn. In 1982, prices dropped less than 2 percent from the peak and regained the previous peak and began increasing again within five quarters.

Figure 11
Price Recovery Cycle, Previous Recessions



Source: Author from FHFA index.
* Note: FHFA index adjusted so that Housing Price Index = 100 in peak year prior to recession.

(See Figure 11). In the 1991 recession, prices took more than three years to reach a low point (down over 20 percent from the peak), hovered at this lower level for another two years before beginning recovery, and only reached the previous peak seven years after the downturn began. The 2001 recession saw only a very temporary slowing of the rate of price increase, spurred on by lower interest rates as well as readily available credit.

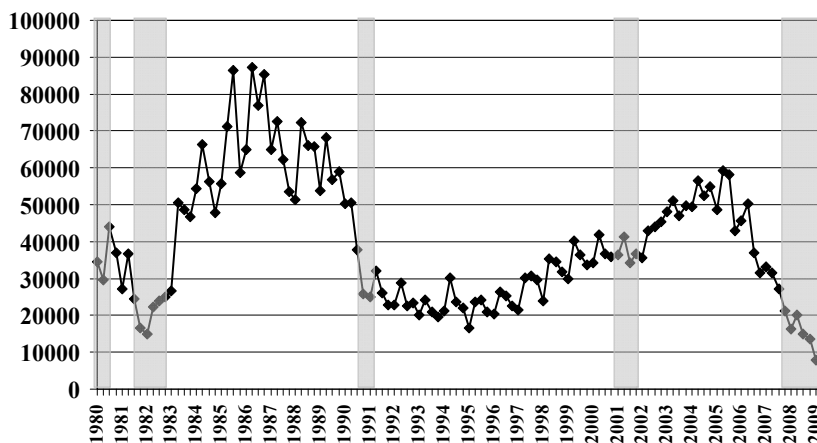
Two separate types of factors have led to the current downturn in California home prices. The first was the housing bubble and the second the recession that followed the bursting of the bubble. In looking at “recovery,” we are really considering two questions: 1) when will prices stop falling and begin to rise again, and 2) when will previous peak levels be regained? Past experience requires that we consider these questions with great caution.

The direction of employment or unemployment and of interest rates and the availability of credit influence the level of and changes in home prices. In 1982, employment recovered in California within less than two years. Interest rates were much higher than today but dropped quickly from their peak during recovery. Home prices began an upward climb by year three following the recession. In contrast, in 1991, it took four years to replace the jobs lost in the recession, interest rates dropped to well below the 1980s recovery period, but prices took thirty quarters (seven years) to recover. The 2001 recession was managed with a sharp drop in interest rates and coincided with very liberal credit availability, sustaining the already existing expansion in prices, despite another four-year lag in employment recovery.

In the current downturn, California’s employment has been in decline for almost two years. Recovery to previous peak employment is likely another two years away or even more. The previous recovery, following the dot-com bust, was fueled in part by the housing bubble. Without another bubble on the horizon, job recovery to the 4th quarter 2007 peak may take longer than either of the previous two recessions. In addition, peak prices were fueled by very low interest rates and easily obtained mortgages. In the economic recovery, interest rates have continued at record lows, but credit terms have tightened at both the bottom and top of the market.

Interest rates and employment trends are indicators of demand factors affecting home prices. Changes in the supply side, as indicated by building activity, will also influence how quickly prices stabilize and rebound. A stronger recovery in building activity could slow the escalation of prices as the economy recovers and expands. Figure 12 illustrates California building permit activity

Figure 12
California Building Permits by Quarter, 1980-2009 (Q2)
(Shaded Areas Indicate Recession Peak to Trough)



Source: FCREUE from Construction Industry Research Board and National Bureau of Economic Research data.

through several recessions. Residential building recovery varied widely in the previous three recessions, dropping deeply but also recovery quickly in the 1980s, staying at a depressed level for much of the 1990s, while continuing to expand after flattening briefly in the early 2000s. Residential permits reached the lowest point in thirty years in first quarter 2009. The pace of new building activity will be affected by tighter credit conditions in the private market tempered by potential stimulus programs from the public sector.

Prices appear to be stabilizing now, although many uncertainties remain on the immediate horizon, including the pace of job recovery and building activity and the remaining backlog of problem mortgages. While some price fluctuations are likely to continue (Case-Shiller indices were up for California markets in second quarter 2009, while FHFA index were down), the state as a whole may be close to the bottom. The question now is whether prices will continue fluctuating at current levels for some quarters or years, or whether prices will again turn up. The pace of recovery is hard to predict, but it is unlikely that the previous peak will be regained even within the next five years.

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Appendix A

A simple statistical test using regression analysis shows that metropolitan areas were vulnerable to larger price declines if they had either a high share of subprime mortgages issued by the peak period or a high share of Alt-A mortgages (or both). Even taking the mortgage profile into account, metropolitan areas with lower cost housing markets prior to the boom were particularly vulnerable to price declines. The statistical results are shown in Table A-1.

Table A-1: Test of Effects of Subprime and Alt-A Shares on Price Declines from Peak to Q2 2009		
Variable	Coefficient	T-statistic (P> t)
Dependent Variable: Change from peak in the metropolitan FHFA indices as of Q2 2009		
Independent Variables:		
Subprime share of mortgages held Dec 2007	-0.9685198	-3.94 (0.001)
Alt-A share of mortgages held Dec 2007	-2.930867	-6.41 (0.000)
Census median homeowner price	4.77 E-07	2.59 (0.017)
Constant	0.094907	1.38 (0.181)
Number of observations=26 Adjusted R-squared=0.8060 Prob>F=0.0000		

Table A-2 reports results of a model that examines the importance of interest rates and unemployment rate in determining home prices. The results show both the sustaining effect of current trends and the influence of employment and interest rates.

Table A-2: Impacts of Unemployment and Interest Rates on California Home Price Change		
Variable	Coefficient	T-statistic (P> t)
Dependent Variable: California FHFA index change from previous quarter		
Index Quarterly Change, Lagged one quarter	0.7586888	11.25 (0.000)
Index Quarterly Change, Lagged one year	0.1322187	1.92 (0.057)
Quarterly Change, California unemployment rate (seasonally adjusted)	-0.047993	-2.01 (0.046)
Quarterly Change, US 30 year mortgage rate	-0.0477261	-2.05 (0.043)
Constant	0.2059812	3.07 (0.003)
Number of observations=133 Adjusted R-squared=0.7449 Prob>F=0.0000		