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Martha A. Starr

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## Contributions of economists to the housing-price bubble

Martha A. Starr

March 2011

### Abstract

After the bursting of the housing-price bubble in 2006 and ensuing financial crisis, there has been much discussion of what economists could have done differently to help avert the crisis and ‘Great Recession’ that followed. One dimension of this concerns information supplied by economists to the general public about causes of high appreciation in home prices and their likely future course, as good information could have helped the public hedge their finances against downside risks while bad information may have encouraged them to take on too much risk. This paper analyzes data from 24 California newspapers on assessments and predictions offered by economists as to whether bubbles were forming in the state’s housing markets. In brief, we find that the California public was fairly decently served by economists offering their views via the media -- although with some significant problems of biased forecasts not made in good faith, and of inattention to concerns about ‘harm avoidance’ that ought to apply when economists share their opinions in this way.

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## Introduction

The role of economists in causing or failing to avert the 2008 financial crisis and ensuing Great Recession has been much discussed in the economic profession. To date, debate has centered on questions of whether top economic policymakers could or should have recognized the rising systemic financial risks associated with the housing-price bubble and the lending boom which accompanied it, and whether they should have made changes in policies that could have contained these risks.<sup>1</sup> Also much questioned is whether widely-used theoretical frameworks, like the ‘dynamic stochastic general equilibrium approach’ to macroeconomic modeling or the efficient-markets view of financial markets, inadequately capture risks of instabilities in highly financialized economies, causing policymakers to miss accumulating risks (Buiter 2009, Krugman 2009, Colander et al. 2009, Gordon 2009, White 2009).

Less attention has been paid to information and analysis supplied by economists to the general public in the years when the housing bubble was building. As documented by Blinder and Krueger (2004), the public’s main source of economic information is the media, with television and newspapers at the top of the list.<sup>2</sup> During the years before 2006, when home prices were strongly increasing in many parts of the U.S., economists’ opinions as to the causes and consequences of these increases were regularly solicited and reported in the press. Had a preponderance of economists expressed concerns that strong increases in home prices were likely to peter out and/or that price levels could even fall, people living in areas where prices were soaring might have been better able to form unbiased expectations of future home prices. At best, tamping down the public’s expectations of future appreciation may have helped reduce upward pressure on home prices, so that markets could have settled down before bubbles fully inflated. At least, it may have enabled more households to hedge their finances against possibilities of flat or falling prices.

To be sure, the views of prominent economists who recognized early on that housing prices were diverging from fundamentals in many metropolitan areas, like Dean Baker and Robert Shiller, were widely covered in the popular press in 2002-05, as the housing-price bubble was inflating. Thus, for example, *USA Today* covered Baker’s views six times during this period and those of Shiller thrice; Shiller appeared on the evening news of all three major broadcast networks; and *Newsweek* ran three articles mentioning Shiller’s views that home prices were irrationally high. Yet similar coverage was given to the views of Fed Chairman Alan Greenspan, who maintained until 2005 that widespread housing bubbles were ‘really quite unlikely’ and his successor Ben Bernanke, who argued as late as

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<sup>1</sup> See, for example, Taylor (2007); Baker (2008); Kregel (2008); Crotty (2009); Dokko et al. (2009); Calza, Monacelli and Stracca (2009); the collection of papers in the June 2009 special issue of *Critical Review*; Duca, Muellbauer, and Murphy (2010); and Gerardi, Foote, and Willen (2010).

<sup>2</sup> Although readership of print newspapers has slipped over the past decade, internet news readership has steadily increased (Pew Research Center 2011). Many newspapers now have web presences that rival their print editions, so that total readership of newspapers has held steady or even risen.

2005 that home-price increases largely reflected “strong economic fundamentals” (Greenspan 2002, Bernanke 2005). Thus, without a systematic examination of views economists shared with the public, it is difficult to establish whether they helped the public make sense of robust home-price gains -- or whether they contributed to problems of ‘irrational exuberance’ in housing markets by actively discounting downside risks.

To investigate this question, this paper compiles and analyzes data on views of economists reported in 24 California newspapers between 2002 and 2007. The case of California is interesting because home prices rose at double-digit rates through much of the state between 1998 and 2005, prompting widespread and continuous discussion of whether price bubbles were forming; prices uniformly declined thereafter, albeit at different rates in different metropolitan areas (see Figure 1). Given strong interest in questions of why home prices were rising so rapidly, and whether or when such gains might stop, opinions of economists were frequently solicited and reported in the press. Thus, the 24 newspapers in our sample contained 379 stories on the housing bubble, including 688 instances in which economists’ views were reported. Having a large number of representations of economists’ views enables us to develop a systematic picture of information and analysis related by the economics profession to the general public in what became one of the epicenters of the housing crisis.

In a nutshell, the results show some good news and some bad news. On the good news side, a decent number of academic economists, largely in forecast or real-estate centers at California universities, cautioned clearly from early on that housing prices were diverging increasingly from levels suggested by fundamentals, indicating at least that people should expect rates of appreciation to fall and/or that price levels might stagnate or slump. But on the bad news side, there was also a loud chorus of voices -- mostly chief economists from the real-estate industry -- who dismissed this perspective and instead framed prices as rationally reflecting the state’s unique economic fundamentals. As will be argued here, the frequent and colorful views expressed by this group acted as ‘spoilers’: even if their views were blatantly bullish, the fact that their analyses and forecasts seemed more in line with housing-market developments in 2002-05 than those of other commentators clouded the picture supplied to the public of the economics profession’s interpretation of what was happening in housing markets. This problem was exacerbated by the fact that, up until mid-2005, comments from top Federal Reserve officials seemed broadly supportive of this group’s positions. After reviewing the evidence, the paper discusses issues of how to evaluate assessments and predictions which turn out to be ‘off’ *ex post* but may have been reasonably formulated *ex ante* -- rooting discussion in concepts of ‘good faith’ and ‘harm avoidance’. As such, it aims to advance the emerging literature on appropriate ethics for the economics profession (DeMartino 2010, Epstein and Carrick-Hagenbarth 2010).

## Background

Although it is often acknowledged that the media provide an important conduit via which economic information and analysis are transmitted from economists to the general public (e.g. Hamermesh 2004), there has been little prior research on how this conduit works. Central issues about which little is known include: what types of economists offer information or analysis via the press (academic, policy, think-tank, business/financial); whether the press offers a broad distribution of economists' viewpoints or whether it gives special attention to certain types of views; and whether commentary comes primarily from economists experienced in dealing with the media, who value opportunities for publicity and know how to get their messages across, and/or from people who are contacted more randomly and have less skill in shaping how their views are presented. Harder to get a handle on but equally important are questions of the extent to which the general public pays attention to economic-news coverage and/or whether they 'decode' the information and analysis provided by economists in the same way that economists intend (Starr 2008). Beginning to fill in these voids is helpful for developing our understanding of the extent to which the public is well served by the economics profession, or whether there are practices that ought to be changed if economics is to have the social value that the profession intends (DeMartino 2010).

Previous research on professional forecasting is valuable for thinking about whether economists' views shared with the public via the media best meet the general public's needs and interests.<sup>3</sup> A good share of economists' views quoted in the media comes from economists who speak regularly to the press (as will be demonstrated below for the present case). Economists' employers may benefit from having them maintain high public profiles, as is the case with economists at forecasting firms, in trade associations, and in research functions at banks, brokerages, and mutual funds. Their jobs may entail regular release of data on which they offer comments; for example, the chief economist of the National Association of Realtors regularly comments on its monthly release of data on existing home sales. Well-cited economists may hold interesting and contrarian views on widely-discussed issues, as was the case with Dean Baker and Robert Shiller in the years when the housing bubble was building. Or journalists may simply find them to be consistently helpful and effective in commenting on economic news (Mandel 2004).

The literature on professional forecasting helps to lay out some of the incentives faced by people asked to share assessments and predictions in a public venue. It has long been noted that, when one looks at panel data on forecast errors of professional forecasters, there is some predictability to their errors.

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<sup>3</sup> Note that often economists interested in questions of relaying economic ideas via the media are most concerned with the influence on the economic policymaking process (e.g. Zimmermann 2004). Our concern here is instead with influence on the general public, which arguably is at least as important if households and businesses form their economic expectations and understandings in good part based on information they acquire from the media.

This suggests they are not providing their actual ‘best’ forecasts -- in which the mean square forecast error is minimized -- because if they were, they should detect and eliminate any systematic sources of ‘miss’ in their predictions. Various studies have examined possible explanations for this pattern. Ehrbeck and Waldmann (1996) show that, if forecasters differ in their abilities, it can be rational for a forecaster to give a forecast which combines her own error-minimizing forecast with that of other forecasters known to be especially ‘able’. Their analysis of data from the North-Holland *Economic Forecast* turns out to reject this hypothesis, as forecasts are biased in the directions of forecasters with big rather than small ‘misses’. Still, this raises a possibility of potential importance in this paper: that the forecasts of people regarded as especially able (as Alan Greenspan was during this period) may affect those of less skilled or experienced people.

Laster, Bennett and Geoum (1999) elaborate on implications of characteristics of users of economic forecasts for the incentives faced by forecasters. Specifically, they differentiate between ‘intensive’ and ‘occasional’ users of forecasts, where the former closely monitor forecasters’ track records over time, while the latter consult forecasts only occasionally and opt to rely on forecasters who did best in the most recent period.<sup>4</sup> Because returns from attracting occasional users are good, forecasters will not supply their best forecasts but rather will focus on doing well at forecasting short-term trends. Their analysis of forecasts published in the *Blue Chip Economic Indicators* is broadly supportive of this model. This calls attention to problems that could arise during asset-price bubbles, if the general public pays special attention to the predictions of ‘bullish’ forecasters because their recent forecast errors have been relatively low.

A final study to mention is that of Ashiya (2009), who considers ways in which forecasters’ incentives are shaped by their professional affiliations. He considers three possible mechanisms that might influence their forecasts: (1) a ‘wishful expectations hypothesis’, wherein the forecaster predicts that variables will change in ways that would benefit the employer (e.g. that an economist working for a brokerage company would predict rising stock prices); (2) a ‘publicity hypothesis’, wherein the forecaster aims to have her forecasts cited in the press; and (3) a ‘signaling hypothesis’, wherein forecasters deliberately make predictions distant from the consensus to signal that they are ‘able’ [and so have no tendencies to ‘herd’, as per Ehrbeck and Waldmann (1996) and Pons-Novell (2003)]. His evidence on forecasts of GDP growth from Japanese economists finds good support for the ‘publicity hypothesis.’ It is notable, however, that his ability to test the ‘wishful expectations hypothesis’ is relatively limited, as it is based on the proposition that economists working for private for-profit businesses may have an upward bias in their growth predictions relative to economists working for

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<sup>4</sup> See also Carroll (2003), who considers a model in which consumers only infrequently update their expectations, making use of information supplied by professional forecasters. This imparts a ‘stickiness’ to aggregate expectations, as a good part of the stock of prevailing expectations will be based on out-of-date information.

research firms. In the present study, there is a stronger incentive to produce forecasts with ‘wishful expectations’, in that economists associated with large institutions in the real-estate industry supplied an appreciable share of the assessments and predictions related to housing prices and sales that were relayed by economists to the public via the press, and thereby could hope to affect housing-market developments discernibly by conveying bullish forecasts.

## Data

The data in this paper come from 24 California newspapers available in the Lexis Nexis database for the period between January 2002 and December 2007 period.<sup>5</sup> To identify potentially relevant stories, I searched for stories that included at least one of a set of terms related to home prices and sales (“housing price”, “home price”, “house price”, “housing sales”, “home sales”, “house sales”), along with the terms ‘bubble’ and ‘economist’. As was often mentioned in articles on the ‘bubble’, the term does not have a standard definition, so there is no assurance that people talking about whether there were bubbles in California property markets were talking about the same thing. To be clear, in the context of what was being discussed at the time, I take a good definition of the term ‘bubble’ to be: a period of protracted divergence between the market price of an asset and the value implied by its fundamental determinants, during which the volume of trading or sales is also unusually high.<sup>6</sup> While individual economists may or may not have had this concept in mind when commenting on bubble-related issues,<sup>7</sup> the term ‘bubble’ provides a useful way to identify relevant articles as it was a central organizing trope in discussions about how to interpret unusual trends in home prices and sales in the state during this period.

To winnow down the pool of articles to those which were on topic, I reviewed the set of articles returned by the search and dropped those which were not centrally concerned with housing-price bubbles in California or the U.S.<sup>8</sup> I also dropped stories that referred generically to views of ‘economists’ without indicating who those economists were. As a matter of capturing distinct original news stories, I omitted duplicates or near-duplicates of stories appearing in the same newspaper (for example, due to early vs. final editions, corrections, or updates). However, if the same news event (e.g. congressional testimony by Alan Greenspan) was reported in different stories in multiple newspapers, each story was included as a separate entry in the data base; effectively this weights individual news stories according to how widely they were picked up by California newspapers. This

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<sup>5</sup> See the appendix for the list of included papers. Only general newspapers were included in the analysis, on the grounds that business newspapers are unlikely to be widely read by members of the general public.

<sup>6</sup> For discussion of definitions of bubbles, see Brunnermeier (2008).

<sup>7</sup> For example, some economists took ‘speculative’ buying to be a defining characteristic of a bubble.

<sup>8</sup> Many of these were articles on the high-tech bubble of the late 1990s, from which California was just recovering at the outset of the period.



methodology yielded a total of 379 bubble-related stories and 668 instances of economists being quoted by name over the six-year period.

For the remaining stories, I went through and recorded the story's publication date, the newspaper(s) in which it appeared, the names and affiliations of any economists mentioned by name in the article, and the gist of what they said. I then read through the comments (with the name and affiliation of the economist concealed) and coded any views expressed by the economist on the following three issues:

- Any prediction as to future home prices -- in particular, will they:
  - continue to rise at an extraordinary pace
  - return to a more healthy/normal/historical single-digit appreciation rate
  - stop rising and either stay flat or modestly decline for some period
  - possibly even decline absolutely
- If the person gave no prediction of future home prices, but did comment on current prices and/or price gains to-date -- did they see these as:
  - consistent with fundamental factors affecting California housing markets (e.g. little new home construction, scarcity of buildable land, strong income growth, population growth, low mortgage rates)
  - unsustainable and/or out of line with fundamental determinants of housing prices
- In cases where the person specifically addressed the question of whether there was a bubble in specific California markets and/or the state as a whole -- did they say:
  - Yes, there is a bubble (in this area)
  - No, there is not a bubble (in this area)
  - I don't know

In cases where the person's remarks were not related to the above points, they were left uncoded and were not analyzed. In only 31 of the 668 instances where economists were quoted were the comments not code-able via the above scheme.<sup>9</sup>

Tables 1 and 2 give some basic descriptive statistics on coverage of economists' views. As shown in Table 1, 153 economists were quoted on the subject of housing-price bubbles during these years, for an average of 4.4 times each. However, the distribution of quoted views across economists was highly skewed. The top 10% most-quoted economists provided more than half the quotes; the top four individuals, each quoted 25 times or more, accounted for more than a quarter of the total. At the

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<sup>9</sup> These cases cover a mishmash of topics, including general assessments of housing-market conditions (e.g. "It's a buyer's market"), projections for how changes in interest rates by the Federal Reserve would affect mortgage interest rates, discussions of wealth effects on local economies, and towards the end of the period, increasing concerns about mortgage delinquencies and defaults.

other end of the spectrum, over half of all economists were quoted only once. This illustrates the potentially important influence that often-quoted economists could have on the public's expectations.

Table 2 shows the institutional affiliations of the economists whose views were quoted. 42.4% of quotes came from academic or think-tank economists, with people in forecast or real-estate research centers at California universities contributing the lion's share; notably, the Anderson Forecast at UCLA alone provided 44% of quotes coming from this group. Next in relative importance were quotes from economists at the major trade associations in the real-estate industry -- especially the National Association of Realtors, California Association of Realtors, National Association of Home Builders, California Building Industry Association, and Mortgage Bankers Association -- along with top economists from Freddie Mac and Fannie Mae with whom they frequently appeared. Economists from private forecasting and consulting firms like Economy.com provided another 11.2% of quoted views; those from private financial institutions like Wells Fargo another 8.7%; and 6.4% came from Federal Reserve officials, especially Alan Greenspan.

## Results

Figure 2 shows the relationship between appreciation in home prices in California over the 2002-07 period and the number of economists quoted by name in California newspapers. In 2002-03, when home prices were rising by 13-14% annually, newspapers quoted economists' views 75-100 times each year. Home appreciation jumped to 25% in 2004 and slipped back only a bit to 21% in 2005, when the number of economists' views quoted rose to almost 250. In June 2005, Greenspan made a much-quoted remark about 'froth' in certain markets in recent months, followed in July by a reference to 'speculative fervor' in some regional markets. When California home sales markedly decelerated in late 2005, it was widely recognized that the over-heated conditions of recent years were ending. Appreciation dropped back to 3% in 2006 and turned negative in 2007. As uncertainty about the future direction of home prices receded, the number of economists' views on the subject of the bubble also dropped back.<sup>10</sup>

Table 3 shows how economists' views of housing prices evolved over the 2002-07 period. At the outset of the period, quoted views from economists were almost evenly balanced between giving predictions about future prices and offering assessments of whether price levels or gains were consistent with fundamental determinants of home prices. Interestingly, in 2002, 40.5% of predictions were for prices to level off or fall in coming years, repeating the pattern that set in after the housing boom which ended in the early 1990s (see Figure 1). But the following year, this share fell to 29.1%, in favor of predictions that appreciation would taper down into a normal, healthy, single-digit range. This

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<sup>10</sup> This reflects a combination of lower interest in economists' views, as the onset of depreciation resolved uncertainty about where home prices were heading, and the fact that the term 'bubble' was increasingly replaced in discussions of prices by terms like 'housing crash' and 'housing slump'.

possibility of a ‘soft landing’ -- exiting from an overheated phase into one of normal growth -- was the majority view through 2006, when prices clearly crested. In 2005, the last year of booming housing markets, only 17.8% of predictions called attention to the possibility that home prices could decline absolutely. Only in 2007, when prices were obviously declining, did the preponderance of predictions shift over to flat or falling prices.

At the same time, after 2002, most quoted remarks that did not give a prediction, but did comment on the relationship between home prices and fundamental determinants of home prices, described home prices as too high relative to fundamentals and/or rising at an ‘unsustainable’ rate; from 2004 on, this share was above 80%. In many instances, economists pointed to formal or informal methods of gauging what price levels ‘ought’ to be based on rental costs, income levels, or income growth. Notably, UCLA’s Edward Leamer tried hard to get across that “Your home has a P/E ratio too”, i.e. that in the long run its price should reflect the value of potential earnings from renting it out, net of maintenance and management costs. As early as 2002, his analysis showed substantial overvaluation in home prices, and although he would not predict how this overvaluation would be corrected going forward, he was clear that it posed real risks: “This is just an early alert saying you had better be worried about where this ship is going, because we are moving into dangerous waters.”<sup>11</sup>

Table 4 shows data on statements made by economists directly on the question of whether housing-price ‘bubbles’ had emerged in one or more California housing markets. In 2002, over one-third of quoted views contained a statement about whether there was a bubble, but this share trailed down over time, possibly because people found the zero-one notion of ‘bubble’ to be decreasingly useful as a way of representing risks present in the housing market. Nonetheless, among quoted views which did comment on the possibility of a bubble, the share agreeing that there was one rose from a low of 27% in 2003 to 57% in 2005, right before the market turned. This suggests that, in the last year of the housing boom, a member of the general public might reasonably have taken the economics profession to be split on the question of whether there was a bubble in the housing market.

To gain more insight into who was conveying what views of housing-price developments and investigate possible sources of bias in the opinions economists offered, Table 5 breaks down economists’ predictions and assessments according to the type of institution with which they were affiliated. What stands out is the unambiguously ‘bullish’ views offered by economists from the major real-estate trade associations and mortgage giants Freddie Mac and Fannie Mae; for simplicity, this group is hereafter referred to as ‘real-estate industry economists’. Whereas 49.8% of quotes from economists from other types of institutions contained some prediction about the future direction of housing prices, 63.7% of those from real-estate industry economists did, suggesting the latter aimed to convey certainty about where prices were going. In terms of what they predicted, 86.1% of comments of economists from the

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<sup>11</sup> From Leamer’s report on “Bubble Trouble”, covered in the *Sacramento Bee* on June 25, 2002.

real-estate industry predicted that strong home-price appreciation would continue or that it would taper down to a healthy, normal single-digit rate -- compared to 48.9% of other economists. Among quoted views giving an assessment of housing prices but not a prediction, quotes from real-estate industry economists were almost evenly split between comments that acknowledged some divergence from fundamentals and comments seeing them as well-aligned; quotes from other economists were split about 80/20 between a notable divergence and good consistency with fundamentals. In all cases, these differences between economists from the real-estate industry and other economists were statistically significant at a 5% level or better.

Three other patterns in the data are worth noting. First, academic and think-tank economists as a group leaned 'bearish' compared to economists overall: they were more likely to predict flat or falling prices, and raised more concerns about divergences between prevailing prices and fundamentals of home values. The opinions of economists from UCLA Anderson Forecast, especially its director Edward Leamer (quoted 32 times) and senior economist Christopher Thornberg (70 quotes), were strongly influential in this bearish tilt: because the two of them alone provided 36% of quoted views from academics, and 15.2% of all quotes from economists, their decidedly risk-conscious views significantly tilted the distribution of economists' opinions shared with the general public in a negative direction. Thus, for example, if comments from Leamer and Thornberg are excluded, the share of comments from academics expressing concerns about misalignment between prices and fundamental drops from 83.2% to 68.3%.

Second, views expressed by economists from private forecasting and consulting firms and from private financial institutions were fairly similar to those of academics as a group, although economists from private financial institutions were more optimistic that appreciation rates would taper down to a normal single-digit range. Neither group was anywhere near as positive as economists from the real-estate industry. Third, comments offered by Federal Reserve officials (mainly Alan Greenspan, but also Ben Bernanke and respective presidents of the San Francisco Fed, Robert Parry and Janet Yellen) were oddly dichotomous. When they offered predictions about future prices, which was relatively rare, they uniformly said they expected them to settle back into low-to-normal rates of appreciation.<sup>12</sup> But later along in the period, Greenspan began offering assessments of levels of home prices vis-à-vis their

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<sup>12</sup> Greenspan made statements to this effect in May 2002 and March 2003, which was admittedly before the outsized appreciation rates of 2003-04 occurred. In late 2005, after California home sales had dropped ominously, Yellen predicted, "We may have some cooling in California in some markets, but nothing terribly pervasive, nothing dramatic." Bernanke's congressional testimony in early 2006 suggested that housing markets would slow down from their torrid pace, but said that "... at this point, a leveling out or modest softening of housing activity seems more likely than a sharp contraction."

fundamentals which were notably bearish. We return to a discussion of this late shift in Fed opinions below.

Finally, Table 6 shows economists' statements about the possibility that there was a bubble in California housing prices according to the type of institution with which they were affiliated. Again, economists associated with the real-estate industry stand out as absolute outliers: 91% of their comments rejected that there were bubbles in California housing markets. Indeed many of their comments colorfully dismissed 'bubble babble' in no uncertain terms. For example:

"The time has come to put this issue to rest ... The nation's home builders have said it, the Realtors have said it, and Alan Greenspan has said, in no uncertain terms: There is no such thing as a current or impending house-price bubble."

--David Seiders, chief economist, National Association of Home Builders (Sept. 2002)

"I feel we have driven a stake through the heart of the housing bubble story ... There are fundamental reasons why home prices in general keep rising."

--Robert Kleinhenz, deputy chief economist, California Association of Realtors (May 2003)

"I don't hear a popping sound at all in 2004 ... The next decade will be great for housing."

--David Lereah, chief economist, National Association of Realtors (Nov. 2003)

"Should you buy tomorrow? None of us knows if prices will fall tomorrow. Over the longer run, places like San Diego, where people want to live, will see more population, and prices will go up."

--David Berson, chief economist, Fannie Mae (Jan. 2005)

It was only after Greenspan's remarks about 'froth' and 'speculative fervor' in mid-2005 that economists in this group stopped making such remarks, although even then David Lereah of the National Association of Realtors attempted one last 'spin':

"Yes, there is froth in the markets, but you know froth can be healthy ... It's not a bad word. And unfortunately the media, I think, has really been carried away with the word 'froth,' just like they were with 'irrational exuberance' in the stock markets. ... I could think of froth as effervescence rather than some popping of bubbles." (June 2005)

In contrast, 64% of comments by academic economists agreed that there were bubbles in California housing markets, with shares of economists from private forecasting and consulting firms and private financial institutions not far behind (60% and 57% respectively). Opinions of Fed officials, while nowhere near as dismissive as those of economists from the real-estate industry, clearly tilted in the same direction, with over three-quarters of them rejecting the idea of notable problems with housing-price bubbles.<sup>13</sup>

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<sup>13</sup> True to form, Greenspan's language never completely ruled the possibility of bubbles. For example, in fielding questions after testifying before Congress in 2002, Greenspan said, "We've looked at the

Before we proceed to discussion, it is valuable to pull together the various views of Fed officials reported in California newspapers over this period. Because there are only 43 of them, it is helpful to aggregate them into two categories: ‘bullish’ comments which portrayed home prices as largely reflecting fundamentals, free of bubbles, and/or unlikely to flatten out or turn down in the years ahead; and ‘bearish’ comments which portrayed them as out of line with fundamentals, containing bubbles to some degree, and/or likely to flatten out or turn down in years ahead. Figure 3 shows the results of this categorization. Clearly, opinions of Fed officials related to home prices were simply not reported much in the years when the bubble was building: they were mentioned three to seven times per year in 2002-04 and ran in a bullish direction. It was only in mid-2005, when Greenspan made his remarks about ‘froth’ and ‘speculative fervor’, that Fed views were widely covered in the California press. Low reporting of Fed opinions on the possibility of a housing-price bubble before 2005 mostly reflected the fact that top Fed officials commented infrequently on this possibility, rather than Fed officials commenting regularly but their views not receiving coverage in the press. Nothing about their comments ‘leaned against the wind’ as the housing-price bubble was building, but they tried anemically to lean against the wind as it started deflating, as shown in the small stream of bullish comments given in 2006.

### Discussion

In trying to evaluate how well economists served the public in the information and analysis they provided via the press in the years before the housing bubble burst, it is important to underline the uncertainties associated with forecasting, which are easy to underestimate *ex post*. Good forecasting requires a shrewd and thorough assessment of incoming data, in view of a solid understanding of the underlying processes that generate the data. Especially when it comes to forecasting markets in which psychological, behavioral or expectational phenomena may have caused prices to become detached from fundamentals, it can be difficult to detect in a timely way when a break has occurred. Thus, some say the only way to know for sure whether a given market has a bubble is ‘in the rear view’. Moreover, even when incoming data suggest the odds are good that a bubble is in progress, it is very difficult to foresee how long the divergence will last, how much its magnitude may widen before it turns, and whether it will close in an orderly or disorderly way. Thus, for example, even the UCLA Anderson economists who spotted the divergence early on predicted it would end with a ‘fizzle’ rather than a ‘pop’ (that is, that price growth would turn minimal for a long stretch of time). While this seemed like a likely scenario, given what happened in California in the early 1990s when an earlier set of price bubbles deflated (see Fig. 1), the most-quoted UCLA economist, Christopher Thornberg, eventually

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bubble question, and we’ve concluded that it is most unlikely” (e.g. reported in the *Contra Costa Times*, 9/29/2002).

stated plainly that there was no solid basis for predicting how the bubble would end: “We’re in uncharted waters, and you’re asking me what island’s up ahead, .... I don’t have a clue.”<sup>14</sup>

Such uncertainties imply that forecasts that look off the mark *ex post* may have represented reasonably-formulated guesses *ex ante*. Then on what basis could we judge whether information provided by economists served the California public well in helping them interpret the unusual developments in housing markets over this period? There are two layers of considerations in thinking this through. The first concerns whether the predictions and assessments economists supplied to the public were supplied *in good faith*. The concept of good faith (*bona fide*) implies a sincere intention to deal fairly with others. It has a concrete meaning in legal settings, in general referring to “A party’s state of mind in acting or carrying out an action or transaction, evincing honesty, fairness, full communication of any hidden issues or information, and an absence of intent to harm other individuals or parties to the transaction” (*Webster’s New World Law Dictionary*, 2010). The notion of ‘good faith’ figures into standards of conduct in a variety of legal, professional, business, and employment settings, conveying the expectation that people will carry out the obligations of their positions with good effort and attention to those obligations, and without malice, negligence, or intention to deceive. Thus, a person acting in good faith who makes decisions that turn out to have negative consequences for others (provided that she has upheld all other duties implied by her position) should not be held liable for those consequences, as there is nothing she could reasonably have been expected to do to prevent them. I would argue that this concept provides a good way of thinking about one set of problems that arose in the transmission of information and analysis from economists to the public via the press during the housing-price bubble.

In particular, it is clear that the strongly bullish perspectives offered by economists from the real-estate industry were not delivered in good faith, but rather reflected some effort to skew the public’s expectations in directions of benefit to their employers. As shown above, they portrayed soaring home prices as well aligned with fundamentals, dismissed talk of bubbles, and/or insisted that double-digit price appreciation would just settle down into a normal, healthy range, above the rate of inflation. To illustrate that their comments were of sufficient clarity and volume to influence the distribution of opinions from economists presented to the general public, Figure 4 shows shares of quoted views that could be categorized as ‘bullish’ using the method described above, including and excluding views offered by economists from the real-estate industry. Quotes from economists from the real-estate industry notched up the prevalence of bullish views by 5 to 13 percentage points over the period. Especially in 2005, when it became increasingly clear that the housing boom was ending and financial fragilities were building, the share of bullish comments offered by other economists dropped from 36% to 29%, but the optimistic calls of economists from the real-estate industry kept the overall share

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<sup>14</sup> Reported in the *Orange County Register*, 10/12/2004.

steady at 43%. The size and direction of these biases underline that they reflected concerted efforts to influence public opinion with respect to the housing market.

Does this upward bias simply reflect ‘self-selection’ of people with positive outlooks for housing into the real-estate industry, with minimal issues of forecasts and analyses not made in good faith? To be sure, some degree of self-selection seems likely, on the grounds that it would be difficult to work for employers with strong ‘wishful expectations’ without being bullish oneself. But it is not plausible that the expressed outlooks of these economists can be attributed to self-selection *alone*. For one, unlike the forecasts and analyses of other economists, those of economists from the real-estate industry conveyed consistently high degrees of certainty about the housing-market outlook; given that all forecasts and analyses are subject to uncertainty, consistently implying that one’s own are not is problematic and misleading (see below for further discussion).<sup>15</sup> For another, their employers were clearly engaged in projects to sustain positive attitudes towards home-buying, whether or not market conditions warranted them. Especially striking was that, in early 2008 when prices were depreciating at double-digit rates, the NAR spent \$40 million on an advertising campaign to promote home-buying, emphasizing that “a home isn’t just a great place to raise a family; it’s also the key to building long-term wealth”; even Gary Becker of the University of Chicago cautioned that the NAR’s material never mentioned that real estate is a “risky investment [so that] unless borrowers recognize that, they could be misled” (Cuneo 2008: 1).<sup>16</sup>

It is legitimate to ask whether the general public would have discounted the views of economists from the real-estate industry, given that their affiliations are always clearly stated next to their names, and it could be obvious that they and their employers would benefit from stoking and prolonging strong housing-market conditions.<sup>17</sup> In fact, newspaper stories occasionally referred to people from this group -- notably Leslie Appleton-Young, the chief economist of the California Association of Realtors (CAR), who is one of the top 4 most cited economists in the sample -- as ‘cheerleaders’ or ‘boosters’ of the housing industry, so careful readers could well have taken note.<sup>18</sup> But there are two reasons to be concerned that the public would not have discounted their opinions by as much as they should have.

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<sup>15</sup> See e.g. Clements and Hendry (1998) or Ericsson (2001) on forecast uncertainty. Gross (2007) and Keates (2009) discuss controversy over whether Lereah’s unrelentingly bullish forecasts were deceitful, irresponsible, incompetent, and/or some combination thereof. In contrast, many of the bearish forecasters during this period freely acknowledged that, even if they were confident that home prices had diverged significantly from underlying values, they could not foresee when and how these divergences might start to reverse.

<sup>16</sup> Keates (2009) discusses comments made by Lereah suggesting that his NAR career benefited during the bubble years from “doing everything they wanted me to”, and that the NAR’s public-relations department sometimes wrote in even more optimism than his own outlooks conveyed. He was apparently nudged out of the chief economist position in 2007, at least partly due to how discredited he was after the housing market turned (Leonard 2008).

<sup>17</sup> In this sense, the problem here differs from that analyzed in Epstein and Carrick-Hagenbarth (2010), who examine issues of undisclosed financial conflicts of interest.

<sup>18</sup> See also Gross (2007).



First is the issue of infrequent sampling of economists' opinions: If most people were not regularly reading newspaper stories that relayed perspectives from economists, they may not have detected and 'factored out' the systematic bias in the positions of economists from the real-estate industry. Second is the problem that, if infrequent consumers of forecasts use recent forecast 'misses' as the basis for choosing whose forecasts to believe, people who were forecasting high rates of home price appreciation during this period would have the best-looking track records of the bunch. Thus, articles sometimes noted that the forecasts of economists from the real-estate industry had been better than those of others in recent years, even if they seemed "wildly optimistic" (e.g. *Fresno Bee* 3/18/2005), while those from places like UCLA Anderson Forecast were chronically undershooting.

But even if reasons for bias of economists from the real-estate industry were fairly transparent, their predictions and assessments clearly acted as *spoilers* in debates about housing bubbles. For one, even if people recognized that their positions were self-interested, their continuous efforts to promote the 'availability' of their position (in the sense of Kahneman and Tversky (1974)) made sure that the public viewed it as a *possible* scenario, even if not the most likely one. Their efforts in this respect benefited considerably from Greenspan's sparse comments in 2002-05, which seemed quite supportive of their positions (a point to which we return below). In addition, their continuous promotion of a strongly bullish view made sure the public viewed economists as *having no consensus* on the question of what was going on with housing prices; as one article put it, "The consensus among economists is: There is no consensus on the likely future course for the housing market" (*Inland Valley Daily Bulletin*, 11/10/2006). From the point of view of average members of the general public, this would have conveyed that what was happening in the housing market was simply uncertain, so it was up to them to discern what the most likely scenario was.

This brings us to the second layer of problems in evaluating whether economists failed the California public in the information and analysis they conveyed via the press. If we omit the views of economists from the real-estate industry, do the comments of the rest look like they were conveying to the public a helpful representation of what was going on in the housing market -- that is, one which would have enabled average people thinking about buying, selling, or refinancing a home to make a decently-informed decision? With the benefit of hindsight, their failure to grasp the risks of prices declining absolutely looks like a huge mistake; for example, in 2004 only 32% of predictions about prices (excluding those of economists from the real-estate industry) indicated they could actually drop. For the most part, economists based their predictions on what had happened after the earlier price bubbles that had deflated in the 1990s: prices slipped for several years after markets peaked but

mostly people just held their properties off the market, waiting for demand to pick back up.<sup>19</sup> What was different this time, as we now know, is how highly leveraged people's home purchases were, and how many people who bought homes had taken out variable-payment mortgages, so that financial fragility in households' balance sheets steadily built as the bubble continued (Mian and Sufi 2009). Thus, to the extent that economists made a systematic error in interpreting the incoming data on housing-market conditions, it was a failure to fully appreciate that these 'emergent properties' of mortgage markets meant significant changes in historical relationships between home prices and sales. This supports the position of Colander et al. (2009) and others that modeling methods in which structural relationships are allowed to change over time in potentially complex ways could be of considerable benefit for detecting emerging risks.

But even if a good part of the assessments and predictions supplied by economists to the public were 'off' for understandable reasons, especially among top economists one can point to notable instances of inattention to a burden of *harm avoidance* to which the profession ought to be mindful when sharing opinions with the public. In many fields like law and medicine, in which professionals with specialized knowledge give advice, guidance or treatment to others who lack that knowledge, a basic standard of conduct is that the professional's actions and behaviors will 'do no harm' to those who consult them; that is, they should not be made any worse off than they would have been had they not consulted the professional to begin with [see DeMartino (2010: 124-130) for detailed discussion]. Economists who share their opinions via the media typically do not view themselves as providing a service to the public, as there is no semblance of a buyer/seller or professional/client relationship between them. But they do typically regard their media commentaries as helping the public understand economic phenomena more effectively than they could on their own, which is held to be important not for its own sake, but because it could have practical value in people's lives, for example, by helping them make better sense of changing economic conditions, make better choices as voters, etc.<sup>20</sup> In this sense, when economists agree to share their views with the public via the press, they agree to take on a role similar to that of a lawyer or doctor, wherein there is a fundamental asymmetry in knowledge between them and the people to whom they relate their views, and there is a burden upon them to make sure the knowledge they transmit does not have unintended negative consequences for others. This implies a

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<sup>19</sup> See, e.g. comments from UCLA's Ryan Ratcliff in the *Contra Costa Times* (6/22/2006). Other factors people cited to support their forecast of flat but not falling prices included lack of overbuilding and the underlying issue of scarce land putting a 'floor' under how low prices could go.

<sup>20</sup> Thus, for example, Hamermesh (2004: 370) writes that, "Explaining economics through the media allows economists to reach far more people than they can in even the largest classes. If handled properly, the media provide academic economists with the chance to invest their time to enhance the national and global stock of knowledge about economic issues and behavior". Similarly, Zimmermann (2004: 395) believes that "In the information age, an exchange with the media is part of the duties the economics profession has to educate the public."

need to be mindful that their dealings with the public at the very least do not make members of the public any worse off than they would have been, had they not read or listened to their views.

In the context of the case at hand, this implied a burden on economists communicating their predictions and assessments related to the housing market to the California public to avoid inadvertently *reducing* their perceptions of possible downside risks, in the process causing them to hedge too little against them. Many economists articulated the view that a ‘soft landing’ was the most likely end to the state’s housing bubbles: outsized appreciation would be replaced by low to no appreciation for some years, but prices would not actually drop. Yet saying that something is the ‘most likely’ scenario begs the question of what one thinks that likelihood is: it could be 100%, or 51%, or somewhere in between. If the subjective probability one has in mind for a soft landing is 75%, and the other 25% reflects the possibility of a very hard landing, an unqualified statement about a soft landing being more likely may give someone thinking about buying, selling or refinancing a home false confidence that its price will not go down. Many economists quoted in the California press were quite careful about making sure their assessments of downside risks came across clearly, even if they thought odds were better than not that prices would not plummet when the market slowed. For example, Kenneth Rosen of the University of California at Berkeley was quoted as expecting a “slow slump in prices, not double digit declines”, but he cautioned that “If enough people overextend themselves and lose their jobs, the bubble could pop” (*Monterey County Herald*, 5/26/2002). Similarly, Sun Won Sohn of Wells Fargo told the *Contra Costa Times* (7/1/2004) that “‘My hope is that home prices will go up, but at a slower rate, letting jobs and income catch up.’ But a doomsday endgame could emerge if job growth and income don’t accelerate in the Bay area, he warned.” Keitaro Masuda of Union Bank conveyed that “A lot of people say there is no housing bubble, and I sort of share that view. But [we’re not going to see] double-digit price increases going forward ... it will not be something people can count on for their retirement or whatever” (*San Diego Union-Tribune*, 9/5/2004).<sup>21</sup>

At the other end of the spectrum were the comments of Alan Greenspan, which were given enormous weight due to his reputation as a masterful forecaster. As mentioned, up until 2005 his comments were decidedly negative towards the possibility that bubbles were forming in the nation’s housing markets to any notable degree. His comments in 2002-03 argued that broad-based bubbles in housing markets were implausible *a priori* for a number of reasons, including: high transactions costs of buying and selling homes, which would keep speculation limited; the local or metropolitan character of housing markets, which make it hard for bubbles to become national in scope; and slowly evolving fundamental

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<sup>21</sup> Note that these sorts of qualified forecasts are broadly consistent with the recommendation of Engelberg, Manski and Williams (2006) that forecasts be given not as simple point forecasts, but in richer forms. While Engelberg et al. favor quantitative reporting of distributions of subjective expectations, as the above quotes indicate, people in the forecasting community often do this qualitatively in their natural-language choice.

factors underlying demand for living space (productivity growth, household formation, immigration), which should impart a well-behaved, gradually rising trajectory to housing prices (Greenspan 2002, 2003). True to form, Greenspan usually acknowledged that odds of seeing housing bubbles were not strictly zero, but he implied they were just a whisker above that; for example, "We've looked at the bubble question, and we've concluded that it is most unlikely".<sup>22</sup> It was not until 2005 that he began expressing concerns about downside risks, and some months after, California home prices topped out.

Of course, Greenspan was not just any economist sharing his views with the public via the media, as his always-carefully-chosen words were widely regarded as containing valuable information on the likely future course of monetary policy. Moreover, as the top economic policymaker, the burdens he faced with respect to harm avoidance were far more substantial and complex than those of the other economists whose assessments and predictions we are evaluating. Nonetheless, three important points should be made concerning his comments about housing bubbles that appeared in the popular press. First, his sparse and bullish comments as the bubble was inflating suggested he saw no grounds for concern about where prices were going and that he had no intention of making any adjustments to monetary, financial or banking policies that might lean against the bubble. Thus, to the extent that people who were considering buying, selling or refinancing a home in 2002-05 might have given Greenspan's views some special credibility, what they would have gotten from him is "All is well": prices are being driven by fundamentals, including income growth and scarcity of buildable land, implying no reason to think appreciation would top out or reverse. Thus, not only was his failure to adjust policies problematic in terms of making sure his decisions inflicted no harm on the public; his minimal and bullish comments on home prices suggested that people did not need to worry about downside risks. This does not meet the standard for harm avoidance, as listening to Greenspan's views likely *diminished* people's efforts to keep their household finances hedged against possibilities that home prices could fall.

Second is the issue that Greenspan's views gave the bullish positions of the real-estate industry an authority that they would not have had on their own. As the comment from David Seiders of the National Home Builders Association quoted above indicated, the real-estate economists found it very helpful to point out that Greenspan disagreed that there were bubbles in the housing market, and instead thought that "low mortgage rates, immigration, and shortages of buildable land" explained the "sizable gains" in home prices.<sup>23</sup>

Finally, the sudden shift of opinion in 2005 was strangely out of line with Greenspan's usual careful and deliberate efforts to manage expectations, in a way that notched the probability of a soft landing way

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<sup>22</sup> From Q&A following congressional testimony, quoted in the *Contra Costa Times* (9/29/2002).

<sup>23</sup> San Diego Union-Tribune (8/10/2003) and *Contra Costa Times* (9/29/2002).

down. In issues of making adjustments to interest rates, in view of incoming data relevant to gauging risks of inflation or unemployment, Greenspan was always careful to send advance warnings of changes in course before beginning to implement them, so that businesses, banks, financial markets, and consumers could begin to adjust their activities accordingly.<sup>24</sup> Of course, Greenspan did not believe (and continues to disbelieve) that central banks should be in the business of trying to manage asset prices (Greenspan 2004, 2010), so he presumably did not perceive himself to preparing for a change in *policy* course. He also doubted that “jawboning” by the central bank is capable of affecting asset prices unless it is accompanied by action (Greenspan 2004: 36). This may have led him to underestimate what effects his ‘froth’ and ‘speculative fervor’ remarks would have in suddenly shifting the subjective probabilities people attached to the soft vs. hard landing scenarios from the former to the latter. As it stood, his remarks seemed to boost the odds that the bubbles in California housing markets would end in a disorderly way: home sales dropped off much more quickly than people were expecting in the second half of 2005, so that by January 2006, even former staunch bulls like David Berson of Fannie Mae were acknowledging that, “At some point in the future, California probably will have another big housing recession ...” (*San Diego Union-Tribune*, 1/6/2006). At the very least, beginning to share concerns about signs of overvaluation in home prices earlier on in the 2003-05 period, before they were quite obvious, could have been quite beneficial for keeping housing bubbles from inflating to the extent that they did. More conscientious attention to the need to avoid harming others -- especially average members of the general public ill-prepared to deal with consequences of a bursting housing price bubble -- would have helped to flag to this fact.<sup>25</sup>

### Summary and conclusion

In sum, the preponderance of comments on housing prices given by economists via the press can be seen as having served the public reasonably well: many underlined that home prices were diverging increasingly from fundamental values, and that unusual appreciation was likely to end; even if few economists appreciated how severely home prices could decline, the extra risks due to increased leverage were not necessarily easy to foresee.

At the same time, the study demonstrates the potential for the absence of ethical guidelines or standards of conduct within the economics profession to undercut both the reputation of the profession and its ability to contribute to social welfare. The results raise real concerns about whether some economists in the real-estate industry promoted unduly positive outlooks for home prices, stoking the bubble and raising odds that it would unwind in a disorderly way. Many scholarly and professional associations have some set of principles spelling out expectations of good professional conduct which would have flagged as problematic both the systematic tilt in the analyses of real-estate industry

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<sup>24</sup> See Chirinko and Curran (2010) for evidence and discussion.

<sup>25</sup> See Bansak and Starr (2011) on the issue of who pays the price when housing bubbles burst.

economists towards the ‘wishful expectations’ of their employers, and their inattention to possible aggregate consequences of their public comments.<sup>26</sup> Critical here is the asymmetric-information character of professional knowledge; if the public lacks a basis for differentiating between high-quality economic analysis done in good faith, and analyses intended to advance the interests of those who produce and circulate them, the public’s trust in and willingness to rely on the profession for analysis and advice declines, to the detriment of both members of the profession and the public at large.<sup>27</sup> The present study illustrates that the reasonably formulated forecasts and analyses offered by many economists quoted in the press may not have had the beneficial effects that they could have had -- at best by leaning against the growth of the bubble as it was forming, or at least by encouraging more households to hedge their finances against its downside risks -- because they were mixed in with the unduly bullish comments of economists from the real-estate industry. This underlines that the potential of the economics profession to contribute to social welfare is likely to be enhanced by establishing *norms* of professional conduct that establish the priority of concerns with social welfare over those of personal gain, and that emphasize the importance of accuracy, freedom from bias, absence of intention to deceive, and attention to the wellbeing of others as fundamental, expected characteristics of economists’ work.<sup>28</sup>

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<sup>26</sup> To take a few examples, the Code of Professional Ethics of the 370,000-member American Institute of Certified Public Accountants (2010) spells out that commitment to “the public trust should not be subordinated to personal gain and advantage. Integrity can accommodate the inadvertent error and the honest difference of opinion; it cannot accommodate deceit or subordination of principle” (Section 54, Article III). The American Chemical Society (2011) lays out that “Chemical professionals have a responsibility to serve the public interest ... Public comments on scientific matters should be made with care and accuracy, without unsubstantiated, exaggerated, or premature statements.” The American Sociological Association (2011) states that sociologists “do not knowingly make statements that are false, misleading, or deceptive. ... Sociologists value the public trust in sociology and are concerned about their ethical behavior and that of other sociologists that might compromise that trust. ... They apply and make public their knowledge in order to contribute to the public good.”

<sup>27</sup> Law and Kim (2004) argue that solving the asymmetric information problem was a main rationale for adoption of professional standards and/or licensure in many professions in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries. Contrary to the traditional economic interpretation of licensing as a means of restricting entry and boosting earnings, they find that entry often increased after licensing requirements were adopted, and some measures of service quality rose. Thus, licensing seemed to reduce Akerlof-style ‘lemons’ problems, wherein inability to differentiate between “charlatans, incompetents, and frauds” and well-trained conscientious professions had limited market growth.

<sup>28</sup> See DeMartino (2010) for detailed discussion. While full discussion is beyond the scope of the present paper, it is worth noting that the explosion of economic research on social norms in recent years (e.g. Fehr and Fischbacher 2004) suggests that ethical codes may still have value even in the absence of mechanisms for imposing negative sanctions: if behavior is often governed by intrinsic motivations and social norms, not only extrinsic motivations and explicit incentive systems, clarifying that given behaviors are ethically unacceptable may reduce their incidence, especially if they are visible behaviors like commenting in the press. For discussion, see Noreen (1988) and Wendel (2001).

Figure 1. Indexes of California home prices, by metropolitan area (1995=100)

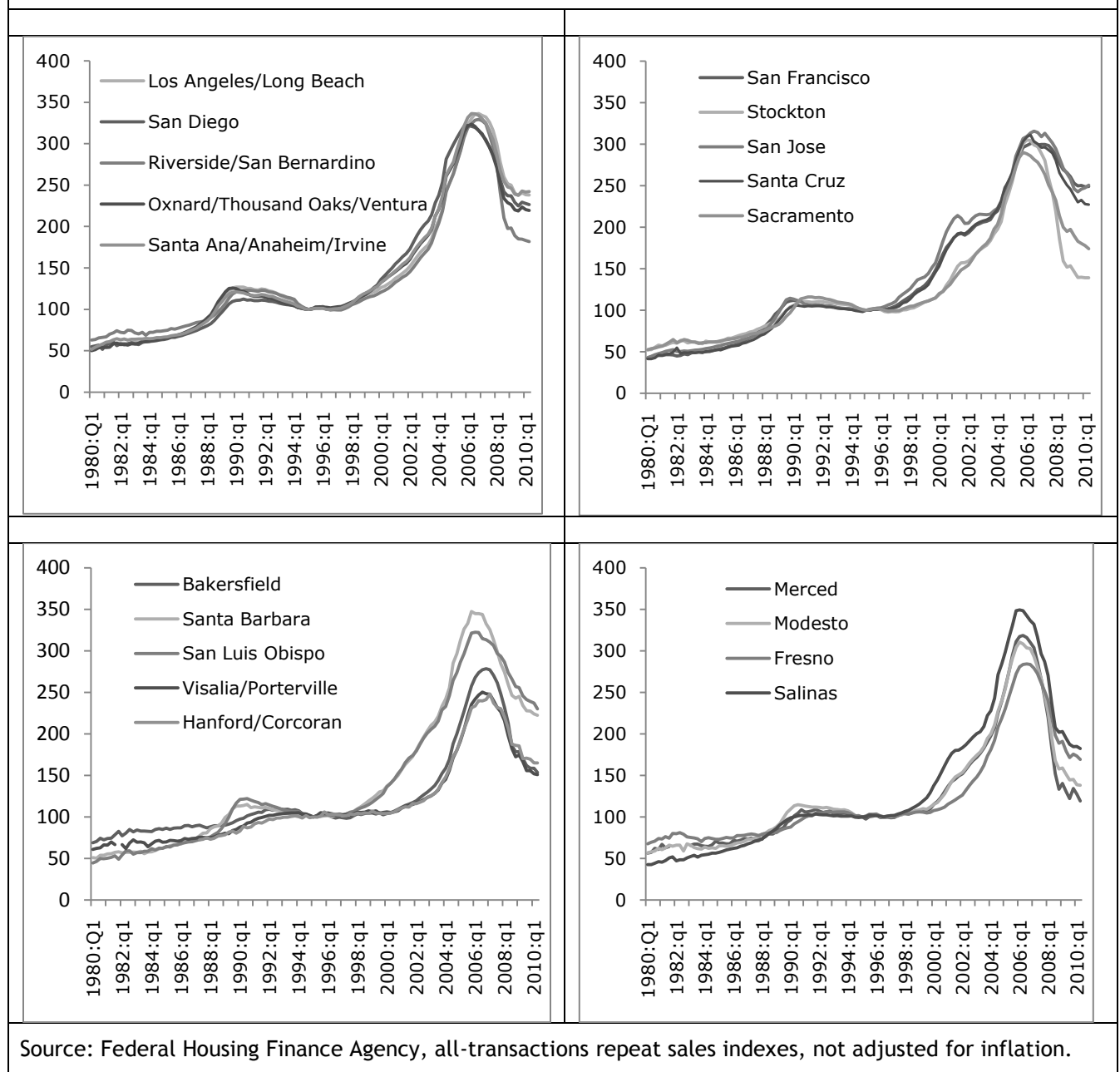
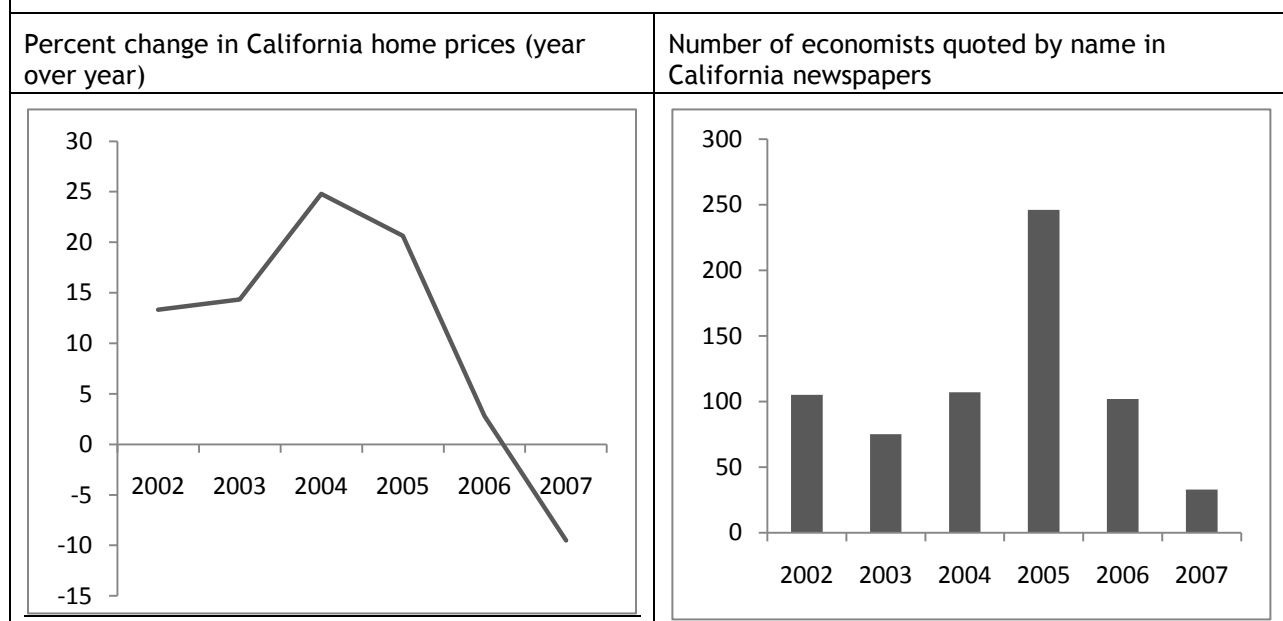


Figure 2. Trends in home prices and articles quoting economists in the California press



Home price data from the Federal Housing Finance Agency.

Figure 3. Number of 'bullish' and 'bearish' comments by top Federal Reserve officials quoted in the California press

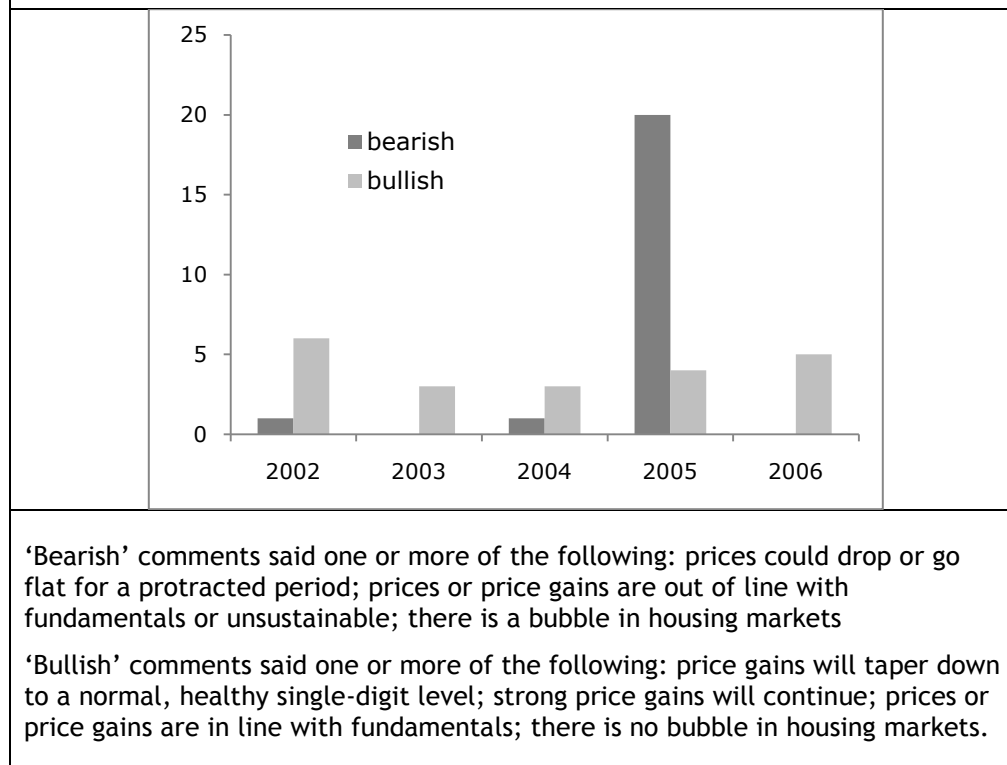
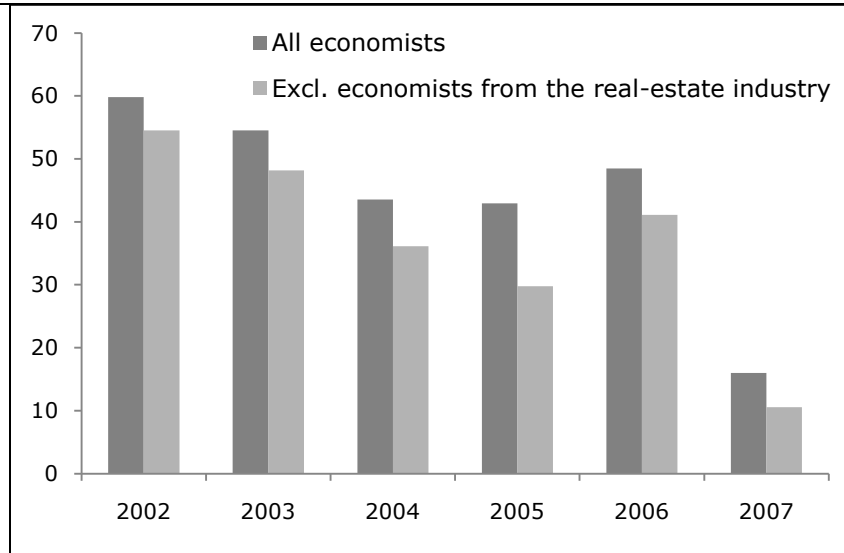




Figure 4. Share of quoted views from economists that were 'bullish', with and without economists from the real-estate industry



*Note:* 'Bullish' comments said one or more of the following: price gains will taper down to a normal, healthy single-digit level; strong price gains will continue; prices or price gains are in line with fundamentals; there is no bubble in housing markets

Table 1. Distribution of economists and quotes, by number of times the economist was quoted, 2002-07

	Economists		Quotes	
	#	%	#	%
Totals	153	100	668	100
By number of times economist was quoted, 2002-07:				
25+	4	2.6	177	26.5
10-24	12	7.8	173	25.9
5-9	20	13.1	131	19.6
2-4	37	24.2	107	16.0
1	80	52.3	80	12.0

Table 2. Affiliations of economists quoted

Institution type	Quotes		Institutions with 10+ quotes
	Number	% of	
Academic & think tanks	283	42.4	UCLA Anderson Forecast (125), UC-Berkeley (26), Chapman University (13), UC-Santa Barbara Economic Forecast Project (13)
Real-estate trade associations, Freddie Mac, Fannie Mae	146	21.9	California Association of Realtors (56), National Association of Realtors (27), National Association of Home Builders (12), Mortgage Bankers Association (16), California Building Industry Association (11), Freddie Mac (11), Fannie Mae (11)
Private forecasting & consulting firms	75	11.2	Economy.com (16)
Private financial institutions	58	8.7	Wells Fargo (14)
Federal Reserve System	43	6.4	Federal Reserve Board/Alan Greenspan (31)
Other government agencies	15	2.2	(none)
Other business associations	25	3.7	Los Angeles County Economic Development Corp. (18)
Independent & miscellaneous	23	3.4	(none)
Total	668	100.0	

Table 3. Opinions offered by economists quoted in the California press, 2002-07

	Offered some prediction	Distribution of predictions				No prediction, but some assessment	Distribution of assessments	
		Prices could decline absolutely	Period of flat or slightly falling prices	Return to healthy/normal/historical single-digit appreciation	Strong appreciation will continue		Prices are out of line with fundamentals &/or appreciation rates are unsustainable	Prices or price gains are consistent with fundamentals
2002	40.0	19.1	21.4	45.2	14.3	46.7	49.0	51.0
2003	41.3	22.6	6.5	54.8	16.1	42.7	65.6	34.4
2004	44.9	29.2	8.3	54.2	8.3	46.7	82.0	18.0
2005	48.0	17.8	14.4	56.8	11.0	48.8	81.7	18.3
2006	87.3	16.9	30.3	51.7	1.1	8.8	88.9	11.1
2007	75.8	24.0	64.0	12.0	0.0	0.0	0.0	0.0

Table 4. Statements on the possibility of a bubble in housing prices

	% of quotes providing some statement about whether home-price trends reflected a bubble	Distribution of statements (%)			N
		Yes, there is a bubble	No, there is no bubble	I don't know whether there is a bubble	
2002	35.2	29.7	62.2	8.1	37
2003	34.7	26.9	65.4	7.7	26
2004	25.2	40.7	55.6	3.7	27
2005	20.7	56.9	41.2	2.0	51
2006	22.6	69.6	26.1	4.4	23
2007	9.1	33.3	66.7	0.0	3

Table 5. Opinions offered by economists quoted in the California press, by affiliation								
	% of quotes containing some prediction	Distribution of predictions (%)				% of quotes containing some assessment of price trends, but without a prediction	Distribution of assessments (%)	
		Prices could decline absolutely	Period of flat or slightly falling prices	Return to healthy/normal/historical single-digit appreciation	Strong appreciation will continue		Prices are out of line with fundamentals &/or appreciation rates are unsustainable	Prices or price gains are consistent with fundamentals
All economists	52.8	20.1	21.3	50.4	8.2	38.9	73.9	26.2
<i>By affiliation:</i>								
Academic & think tank	48.4	30.8	29.5	34.9	4.8	39.9	83.2	16.8
Real-estate trade associations, Freddie Mac, Fannie Mae	63.7	5.4	8.6	71.0	15.1	28.1	48.8	51.2
Private forecasting & consulting firms	54.7	34.2	31.7	34.2	0.0	38.7	79.3	20.7
Private financial institutions	50.0	20.7	24.1	44.8	10.3	44.8	84.6	15.4
Federal Reserve System	27.9	0.0	0.0	100.0	0.0	55.8	87.5	12.5
Other	50.8	3.1	12.5	68.8	15.6	42.9	44.4	55.6
All economists, excluding those at RE trade associations/Fred/Fan	49.8	25.4	25.8	43.1	5.8	42.0	78.5	21.5
Diff between RE trade associations/Fred/Fan & all others	13.9*	-20.0*	-17.2*	27.9*	9.3*	-13.9*	-29.8*	29.8*
p-value for difference=0	0.0030	0.0000	0.0005	0.0000	0.0051	0.0030	0.000	0.0000
Academic & think tank economists, excluding Edward Leamer and Christopher Thornberg	56.8	28.4	22.0	43.1	6.4	31.3	68.3	31.7
All economists from UCLA Anderson Forecast	43.2	33.3	46.3	18.5	1.9	52.0	100.0	0.0

Table 6. Statements on the possibility of a bubble in housing prices					
	% of quotes providing some statement about whether home price trends reflected a bubble	Distribution of statements (%)			N
		Yes, there is a bubble	No, there is no bubble	I don't know whether there is a bubble	
All economists	25.0	44.9	50.3	4.8	90
<i>By affiliation:</i>					
Academic & think tanks	31.8	64.4	31.1	4.4	90
Real-estate trade associations, Freddie Mac, Fannie Mae	22.6	6.1	90.9	3.0	33
Private forecasting & consulting firms	13.3	60.0	40.0	0.0	10
Private financial institutions	12.1	57.1	42.9	0.0	7
Federal Reserve	30.2	23.1	76.9	0.0	13
Other	22.2	14.3	64.3	21.4	14
Difference between real-estate trade associations/Fred/Fan & all others	-3.1	-48.4*	47.6*	2.2	
p-value for difference	0.4492	0.0000	0.0000	0.5971	

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Appendix. List of 24 California newspapers included in the sample

1. Alameda Times-Star (Alameda, CA)
2. The Argus (Fremont, CA)
3. Contra Costa Times
4. The Daily Review (Hayward, CA)
5. Eureka Times-Standard (California)
6. The Fresno Bee
7. Inland Valley Daily Bulletin (Ontario, CA)
8. Long Beach Press-Telegram (Long Beach, CA)
9. Los Angeles Times
10. The Merced Sun-Star (California)
11. Modesto Bee
12. Monterey County Herald (CA)
13. The Oakland Tribune (Oakland, CA)
14. The Orange County Register
15. Pasadena Star-News (Pasadena, CA)
16. Sacramento Bee
17. San Bernardino Sun (San Bernardino, CA)
18. San Diego Union-Tribune
19. San Francisco Chronicle
20. San Jose Mercury News (California)
21. The San Luis Obispo Tribune
22. San Mateo County Times (San Mateo, CA)
23. Tri-Valley Herald (Pleasanton, CA)
24. Vallejo Times-Herald (California)