Forecasting, Real Estate, and the Media

How accurate are the economic

forecasts of the print media and

the Internet news?

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THE TIMING AND unanticipated severity of the downturn that began in 2007 illustrates the important role that real estate can play in influencing the broader economy. The duration and depth of the crisis repeatedly surprised observers, raising questions about the ability of economists to accurately forecast asset bubbles and predict the path of major indicators such as unemployment, inflation, housing prices, and GDP. Policy makers and real estate investors were left wondering, "Should we have known what was coming?"

We undertake two exercises. First, we combine a review of academic assessments of forecasting with anecdotal evidence

from a sampling of articles from the popular press. We find that the use of real-time data limits their accuracy, that there appears to be a reluctance in the press to forecast bad news, and that when bad news is forecast, the report is often cushioned with counterbalancing observations. We compare accuracy of predictions over the course of the economic cycle (recovery versus contraction) and sources (academic, trade journal, or news report). We focus on two periods of real estate crises, the mid-1980s and the 2007-2009 crises.

Second, by employing textual analysis, we delve further into the question of whether the media provided material from which the real estate sector could have anticipated the crisis. We cover the period of the commercial construction boom in the 1980s followed by the savings and loan crisis, and articles from January 2001 through 2009 that addressed the housing bubble, identifying peaks and troughs of reporting and the tenor of the articles. Finally, using Google Insights for Search we examine the timeline of public interest concerning real estate and financial crises. We find evidence that interest peaks (and may die down) well before clear problems emerge, but that forecasters often offer reassurance even as the problems are building up to a crisis.

Between 1980 and 2000, researchers such as Victor Zarnowitz, Dennis Jansen and Ruby Kishan, Jordi Pons, Prakash Loungani, Masahiro Ashiya, and Markus Spiwoks demonstrated that forecasting is prone to pitfalls including error, irrationality, herd behavior, bias, and even corruption. Other studies, from one by Essam Mahmoud in 1983 to work by Lars-Erik Oller and Bharat Barot in 2000, have been more amenable to the possibility that forecasters can be effective, unbiased, and efficient. In 1990, Michael Keane and David Runkle used the price-forecast data from an ASA-NBER survey of professional forecasters, assuming that they would have an economic incentive to maximize their accuracy, and show that their survey responses accurately reflect their expectations, providing some evidence that professional forecasters behave rationally. Yet even with the availability of rational forecasts, the information may be colored by the environment in which it is reported. The media frequently focus on economic forecasts most concerning the public, such as employment, sales, and housing prices. The relationship between the public and the media runs in two directions: media may reflect public opinion or social consensus, or it may help mold public opinion, leading to self-fulfilling prophecies.

MEDIA COVERAGE

We examined a set of articles spanning the period from 1970 to the present to pro-

vide a broad set of anecdotal evidence of successful prophesying and grievous missteps. The data comes from two sources. The first is a large collection of print articles spanning the period from 1970 to the present day. These articles were collected by a developer interested in keeping track of national economic and real estate trends. The second is the result of searches of on-line sources for articles from major newspapers such as the *New York Times* and the *Wall Street Journal*. Several patterns emerge from this analysis. First, economic forecasters are limited to real-time data, which often paints a starkly different pattern after being subjected to revision, sometimes even overturning the direction of change in economic variables. Second, forecasters often simply project a continuation of the trend, which may reflect wishful thinking that good times will continue. Third, we notice a general reluctance to make negative predictions; prescient comments predicting downturns reported in articles were often accompanied by counterbalancing positive observations.

Both the quality and timeliness of economic data are essential for forecasting success. Analysis by Evans Koenig, Sheila Dolmas and Jeremy Piger found that developing models using real-time data, the most popular method, often leads to inaccuracy. To remedy this, they recommend using current-vintage data. Our evidence suggests that in an economy with

rapid structural change, timeliness of economic indicators may not keep pace. Even major indicators of economic growth such as GNP or GDP can be subject to large revisions. In August 1986, for example, the annual growth rates for each of the four quarters ending with first quarter 1986 were revised up by 0.9 percent to 1.4 percent, and first quarter growth was increased to 3.8 percent. According to *Business Week*, "'The upward revisions for recent quarters are so large,' says economist Lacy Hunt of Carroll McEnter & McGinley, Inc., 'that they raise questions about the reliability and accuracy of early GNP estimates.' …The major reason for the rosier picture of economic activity over the past year was substantially upward revisions in consumer spending for services, a sector that is evidently plagued by lengthy data-reporting lags and omissions. 'The economy is shifting to a service-based system,' he says, 'yet many of the economic statistics produced on a regular monthly basis are geared to measuring the pulse of an economy dominated by manufacturing concerns.'"

In addition to data revision, new data may simply not be available in time to make reasonable predictions. Louis Uchitelle, in a 1989 *New York Times* article, reports, "Given the notorious delay in gathering accurate inventory figures, the buildup could appear in the April or May data, to be reported in June or July. 'The

one statistic that is not available on an up-to-date basis, but is the absolute key to the recession issue, is inventories,' said A. Gary Shilling, an economic consultant."

One of the features that made the recession of 2001 unique is that it appears to have taken most observers by surprise. One possible explanation for this, offered by Kevin Kliesen in 2003, is that forecasters lacked the benefit of hindsight, whereas the National Bureau of Economic Research (NBER) recession dating committee did not. Real-time economic data available at the time was later revised downward, essentially rewriting history to look worse than initially thought. Anecdotal evidence suggests that 20/20 hindsight is abundant. Joseph Wright and Beryl Sprinkel in a *New York Times* article, for example, reported, "In March 1981, the Administration predicted 4.2 percent real growth for 1982; in fact, real growth dropped by 2.5 percent."

INERTIA IN PREDICTIONS

Even the most sophisticated models rely in part on historic data. Thus, there is a built-in tendency to build the picture of the future from what has been experienced in the past. An analysis of 136 forecast time series found none that were unbiased, and discovered a strong tendency to predict a simplistic continuation of recent trends.

Furthermore, there was evidence of adaptive expectations, in which expectations about the future are formed in part based on how well expectations have worked out in practice.

In addition, forecasters' past experiences are often limited by their fields of study. An article by Dirk Bezemer in 2009 argued that accounting models could have identified the growing imbalances that macroeconomic models of the economy missed leading up to the financial crisis. Adjustments to models, once errors are discovered, are also based on past experience. Gary Schilling is quoted in *Inc.* in 1986: "And so forecasters spend so much time correcting the model for *last* year that they don't spend the time asking themselves what is to be really important *next* year—figuring out what are the one or two factors that are going to deviate from the trend, from past experience. That is the only question really worth asking. Otherwise, computer modeling is just a glorified trend-forecasting technique—it's very complicated, and it's very sophisticated, but it's not very good at predicting the turning points."

Individual perceptions of the situation may still vary from official assessments over long periods of time. In several recent recessions, the fall-out from the recession lasted much longer than the official numbers. In fall 1991, for example, many observers were unwilling to recognize an

end to the recession despite the NBER assessment that the recession ended in March. David Wessel in the *Wall Street Journal* observed: "Most economists say the recession ended in April or May, but three-quarters of the 1,510 questioned this week in a new *Wall Street Journal*/NBC News poll think the country is still in recession. And half of them say the worst is yet to come—a definite damper on consumer spending."

Most forecasters fail to predict recessions and sometimes even fail to recognize them as they occur. Robert Fildes and Herman Stelker find that forecasters make systematic errors, such as underestimating growth during expansions, overestimating declines, under-predicting inflation during accelerations and over-predicting inflation during decelerations. Our article collection generally supports the view that while some pundits stand out as perennial bears, the general community of forecasters appears reluctant to predict bad news. According to Richard Curtlin, director of the University of Michigan's Consumer Survey (quoted in an article by Uchitelle in the *New York Times* in 1989), "But as the bad news mounts, economists are growing more reluctant—not less—to predict a recession. In January, 35 percent of the economists surveyed by the *Blue Chip Economic Indicators* said a recession would begin this year. By this month, only 21 percent thought so."

In fact, these more reluctant economists were correct for 1989, although the recession did eventually emerge in the second half of 1990. However, even in November 1990, Jim Carlton in the *Wall Street Journal* was still presenting the recession as something "to come" rather than an established fact: "A majority of economists still expect a brief, mild recession. But some may be underestimating the kind of chain reactions that can be set off by plunges in consumer confidence, home values and construction, especially when many companies and consumers are awash with debt."

Bad news is often unwelcome, as when University of California-Berkeley economist Ken Rosen, quoted in a *San Francisco Chronicle* article by Dan Levy, presented a "dire prediction that an impending dotcom collapse would flood the city with space and push down rents." When the market turned, Jessica Materna and Steve Ginsberg in the *San Francisco Business Journal* reminded readers: "Mr. Rosen was slammed for scaremongering last April when he predicted that 80 percent of dotcoms in San Francisco would fail, flooding the market with 6 million square feet of sublease space… Exactly a year later, estimates are that San Francisco has 6 million square feet of sublease space."

Many newspapers in 2006 contained positive predictions in the face of troubling indicators. During July 2006, Vikas

Bajaj and David Leonhardt in the *New York Times* reported the opposing effects of historically low mortgage rates that offer "one reason to doubt that a crash will happen," and the recent housing boom that "pushed housing prices out of reach for many families along the coasts." Even as they noted the emerging concern of expensive houses, industry professionals still wanted to offer a glimmer of hope: Edward Yardeni, chief investment strategist at Oak Associates, a money management firm, predicted, "Housing is just not going to be what it has been. It could go back to being a significant but relatively small contributor to economic growth."

Even as the scope of housing problems began to emerge, news articles showed great reluctance to forecast serious problems. In August 2007, Leonhardt in the *New York Times* reported that most analysts of the mortgage market believed that the housing bust would not cause a recession or a bear market, and "that the damage will be contained," since "subprime loans still make up a distinct minority of the mortgage market." The article pointed to the positives, noting that while consumer spending had "slowed recently," it was "still fairly strong. Corporate balance sheets and the job market seem fine." The article concludes with optimism but a few caveats: "Rationally, the argument for optimism is pretty compelling: the economy's strengths do look big enough

to overcome its weaknesses. Yet even many of the optimists confess to an uncomfortable amount of uncertainty. There has never been a real estate bubble like the one of the last decade. So it's impossible to know what the bust will bring…"

Some of the reluctance to make predictions may result from higher volatility during downturns. An analysis by Anthony Davies and Kajal Lahiri in the *Blue Chip Survey of Professional Forecasts* from July 1976 through May 1992 concluded that more than half of the forecasts for both inflation and real GNP growth showed significant bias. The authors also found that bad news affected volatility significantly more than good news of equal size, citing the high volatility during the early 1980s, which peaked during the October 1987 stock market crash, and in January 1991, just before the March 1991 turning point.

FORECASTING ERRORS

Even rational forecasters may have ulterior motives, such as harboring wishful expectations, pursuing strategic behavior to maximize publicity, or following the herd to minimize the personal cost of forecasting errors. One potential explanation for forecasting bias, offered by David Lester, Paul Bennett and In Sun Geoum in 1999 and by Ashiya in 2009, is the pub-

licity hypothesis, that is, extreme forecasts make great headlines. The negative fallout of intermittent inaccuracies is more than overcome by the advantages of publicity accruing from flamboyant forecasts, especially if the forecaster's income depends on publicity.

A related concern is that individual motivations and personal reputation come into play when evaluating economic data. Owen Lamont in 2002 suggested that forecasters with more experience and prestige will make more radical forecasts, deviating further from the consensus in order to distinguish themselves and obtain a greater number of clients and revenue. Jordi Pons-Novell in 2003 suggested that Livingston Survey participants may have varying incentives. Those deviating from the consensus may strategically be maximizing publicity, revenue, or prestige, while forecasters who follow the consensus generally may simply reflect herding. An additional source of bias is that professional forecasters may be motivated to make predictions that could benefit their employer or themselves. For example, Takatoshi Ito's 1990 analysis of yen-dollar exchange rate forecasts found that forecasters predicted what was best for their employers, rather than minimizing forecast errors.

Extreme forecasts, even if largely wrong, nevertheless may have a kernel of truth. Thus, the following *San Jose Mercury*

News article in July 1989 was wrong about trends and yet in hindsight appears prescient about the possibility of a housing market collapse: "Home prices in the United States are expected to decline slowly but steadily over the next two decades, dropping 45 percent in real terms by the year 2007 because the pool of young buyers is drying up, according to a new study by the National Bureau of Economic Research. But Bay Area economists, citing job growth and household formation statistics, said Friday that they expect the Bay Area to remain a vibrant housing market over the long term." Nevertheless, we should note that while U.S. home prices underwent a substantial slide in 2008 and 2009, they remain about 70 percent above the 1989 price level as estimated by Case-Shiller and more than twice the 1989 level as estimated by the FHFA index.

TEXTUAL ANALYSIS

We employed several textual analysis approaches. First, using our selected sample of print articles, we identified forecasting successes and errors and tabulated summary statistics. Second, we carried out a selective search of the complete LexisNexus database of digitized U.S. newspapers looking for patterns in forecasting reports in the media. The results from the first exercise are presented in Table I. We focused on

Table I: Forecasting surrounding the 1990-1991 recession

	Total	Prediction		Source	
		Expansion	Contraction	Newspaper	Academic and Trade Journals
Total	38	24	14	27	11
Accurate	24	17	7	14	10
Inaccurate	14	7	7	13	1

	Total	Prediction		Source	
		Expansion	Contraction	Newspaper	Trade Journal
Accurate	63 percent	71 percent	50 percent	52 percent	91 percent
Inaccurate	37 percent	29 percent	50 percent	48 percent	9 percent

For a complete list of article sources, see Bardhan, et al (2010).
Expansion includes a prediction of economic growth or recovery from recession.
Contraction includes a prediction of economic decline or descent into recession.

a number of articles at the time of the 1990 recession. We identified thirty-eight articles that made clear forecasts for this time period. Of these, twenty-four were correct. Of those forecasts predicting a slowdown or recession only seven out of fourteen were correct, and of those made about growth seventeen out of twenty-four were correct. These inaccuracies could be because slowdowns are harder to predict, or they could be because the economy is more often growing than in recession. In addition we see from Table I that academic and trade journal forecasts in our sample were significantly more accurate than those reported in the regular news media (91 percent vs. 52 percent).

We employed the following methodology to analyze patterns in forecasting behavior. Using the subset of NBER turning points, we searched the LexisNexis database of *New York Times, Washington Post*, and AP wires for specific key words to see if the number of articles with those key words changed dramatically just before or after a "turning point," and to examine how the terms were used in different periods. Results for two periods are reported here. For 1984 to 1990 we began with terms "office space" and "overbuilding," and then evaluated the articles with terms such as "risk," "regulation," and "adjustment." For the 2001 through 2008 period we began with "housing bubble," and evaluated articles based on discussion of risk, recession, policy, and housing market rate of change. (Articles culled through this process are listed in an appendix of the online working paper cited at the end of this article.)

Figure 1 charts articles concerning the possibility of overbuilding in the office market, during the period when deregulation allowed the thrift industry to expand

Figure 1: Timeline of articles on office overbuilding 1984-1990 (190 articles)
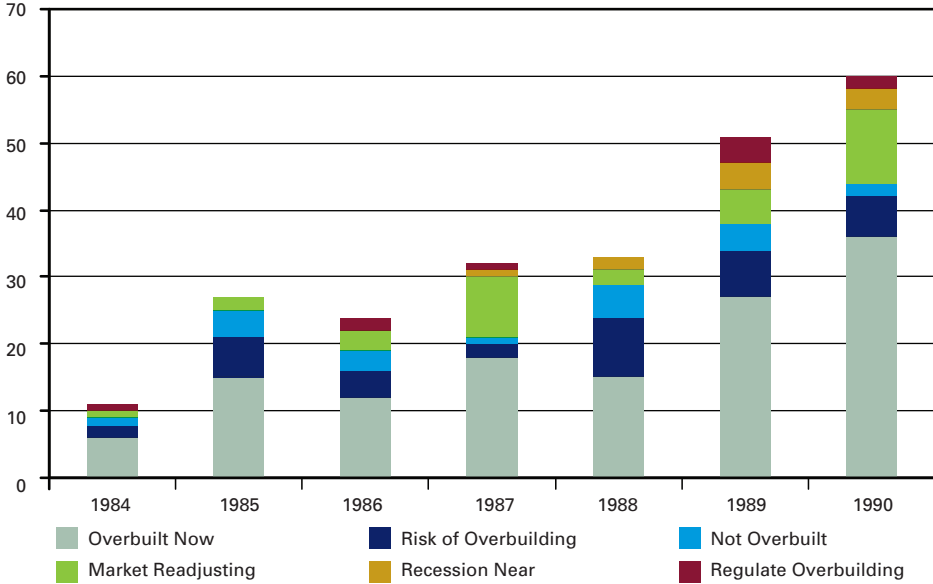
Source: Authors from articles drawn from LexisNexis search conducted December 2009.

investment outside the housing sector. More than five years of expanding office space and rising vacancies grew in part out of deregulation and changing tax policy, and played a role in the savings and loan crisis that occurred in the late 1980s. The number and tenor of articles describing the office market shifted over time. Concern with overbuilding was first raised in 1985, when the economy was expanding. The number of relevant articles increased, and many articles suggested either that the market was already overbuilt or that it would shortly become so. Yet there were also articles that either countered fears that the market might be overbuilt or reassured readers that the market was readjusting. In 1986, the total

number of relevant articles dropped. The numbers rose again in 1987, with fewer articles denying the problem, but there was a rise in articles suggesting the problem was already self-adjusting. Then in the later 1980s, discussion of overbuilding and other risks expands again, as problems associated with loans from thrifts emerge.

Major newspapers began covering the possibility of a housing bubble well before the crisis became widely recognized in late 2007. Indeed, there was a cluster of articles in 2005 on the topic. Of the 940 articles drawn from LexisNexis on the topic of a housing bubble, 180 were published in 2005, as shown in Figure 2. Figure 3 disaggregates the 2005 articles by message. A series of articles first emerged in the second

quarter of the year. At that time, very few suggested a bubble already existed, while the discussion was for the most part evenly divided between articles that reassured that no bubble existed and articles that hinted at a risk of a bubble emerging.

Figure 2: "Housing bubble" articles (*New York Times, Washington Post,* AP) 2001-2008
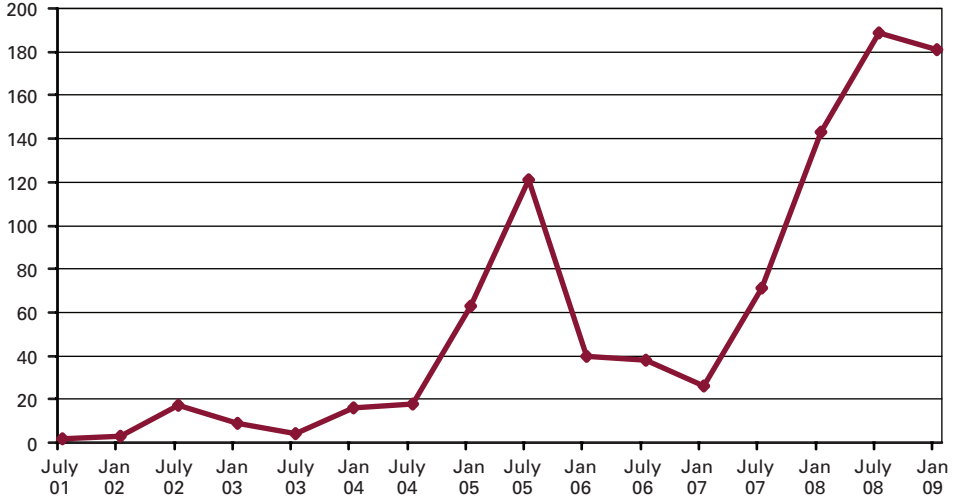
Source: Authors from articles drawn from LexisNexis search conducted December 2009.

Figure 3: Tenor of housing bubble articles in 2005 (123 articles)
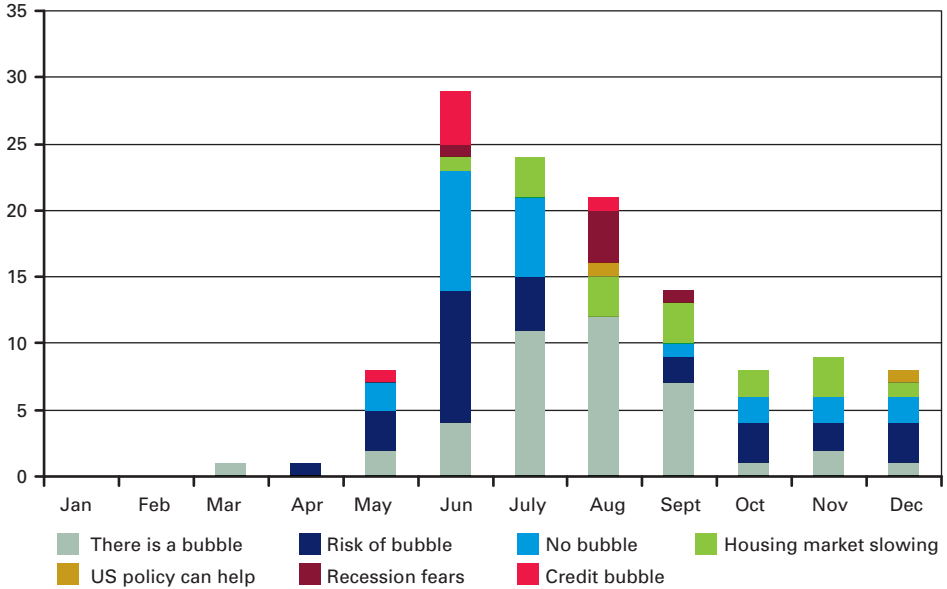
Source: Authors from articles drawn from LexisNexis search conducted December 2009.

By the third quarter, a far larger number of articles were asserting that a housing bubble existed, while other articles pointed to the housing market slowing. For example, Eduardo Porter reported in the *New York Times*: "Critics also worry that offering extra-risky financial products that permit financially vulnerable buyers to get ever bigger mortgages is particularly perilous now, when many experts say the housing bubble may be near a breaking point. 'We are in uncharted territory,' said Susan Wachter, professor of real estate at the Wharton School of the University of Pennsylvania. 'On the one hand, it is the case that these mortgages enable purchases of homes by higher-risk, poor-credit households who otherwise wouldn't be able to own a home. But on the other hand, they are riskier products, and we don't have historical data to know how risky they are.'"

Yet by fourth quarter of the year, the whole discussion had tapered off. Vivian Chu's December 2005 *AP Financial Wire* article noted "signs that a long-expected slowdown in the housing sector is under way," adding, "for all the talk of a housing bubble, many analysts don't foresee a crash-and-burn scenario for the industry's biggest players—though few expect a return to the double-digit profit growth of previous years."

A few articles continued to voice concerns about the housing market and its possible repercussions. Leonhardt reported in a 2006 *New York Times* article, "There is now a legitimate risk that the excesses of the housing boom have laid the groundwork for an economic downturn. At the very least, some families are going to regret having taken out such aggressive loans when the higher payments eventually come due." A major up-tick in coverage reemerged in much more severe terms only in late 2007.

ANALYSIS OF INTERNET SEARCH PATTERNS

Markets are a social construct, based on the collective action of multitudes. Keynes first proposed the term "animal spirits" to describe collective emotion, mania, panic, and hysteria, which were reflected in consumer confidence, or its lack, and which lead to a spontaneous urge to action. If enough people think there is a housing bubble and a critical mass is moved to start to sell, the resultant price decline may further stimulate sales, thus fulfilling the prophecy.

There has been increasing recognition of the role of psychology in the generation of economic outcomes, caused by the failure of traditional economic models to adequately forecast and explain the recent crisis, particularly the housing bubble euphoria and the collective doom-and-

gloom of the great recession. According to George Akerlof and Robert Shiller's *Animal Spirits*, the stories that people tell each other and the phrases that are prevalent end up having real effects. One metric of public interest can be found by looking at specific phrases concerning the housing market. Was there widespread dissemination and circulation of the phrase "housing bubble" before the crisis; did the story "lead" the housing market variables? Or, to put it differently, does public opinion unwittingly "forecast" a turning point, and serve as a leading indicator?

We used Google Insights for Search to analyze the timeline of historic Internet searches carried out by people all over the world. Figure 4 shows the relative frequency of the phrases "housing bubble" and "financial crisis" between 2004 and 2010. The former searches peaked (relative to total searches) in 2005, a full two years before the crisis. Figure 5 tells a similar story, where the "bubble phrase" portends the crisis to come (the Google news archive feature, which encompasses a broader range of news sources than LexisNexis, also shows a peak frequency of "housing bubble"-related articles in 2005). Superimposing the Case-Shiller National Index on the graph, we see searches for "housing bubble" peaking about a year before prices peaked.

Figure 4: Web search statistics: Housing bubble vs. financial crisis
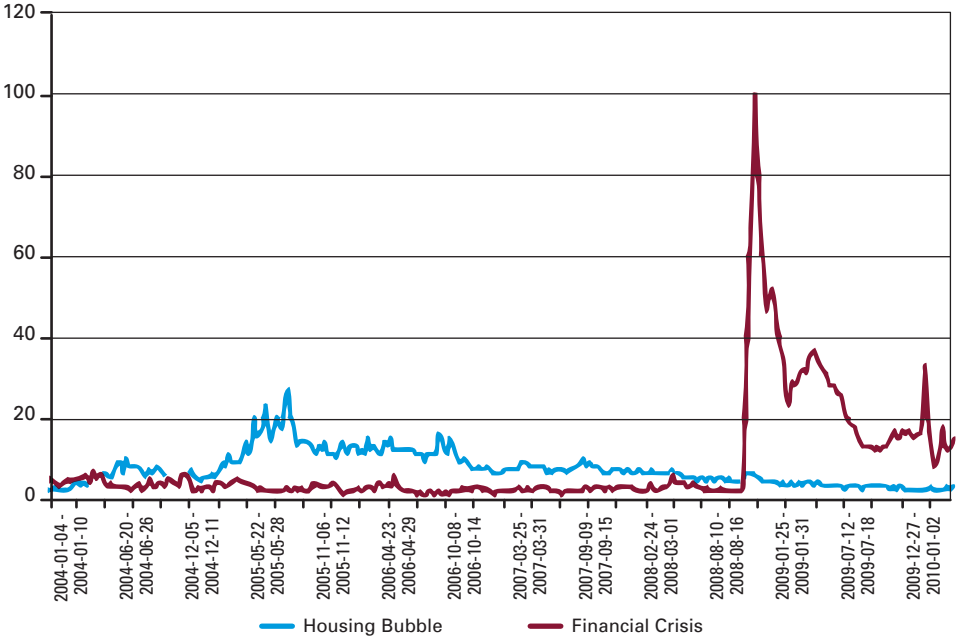
Source: Google Insights for Search

Figure 5: Web search statistics: Phrases "housing bubble" vs. "housing crisis" vs. Case Shiller
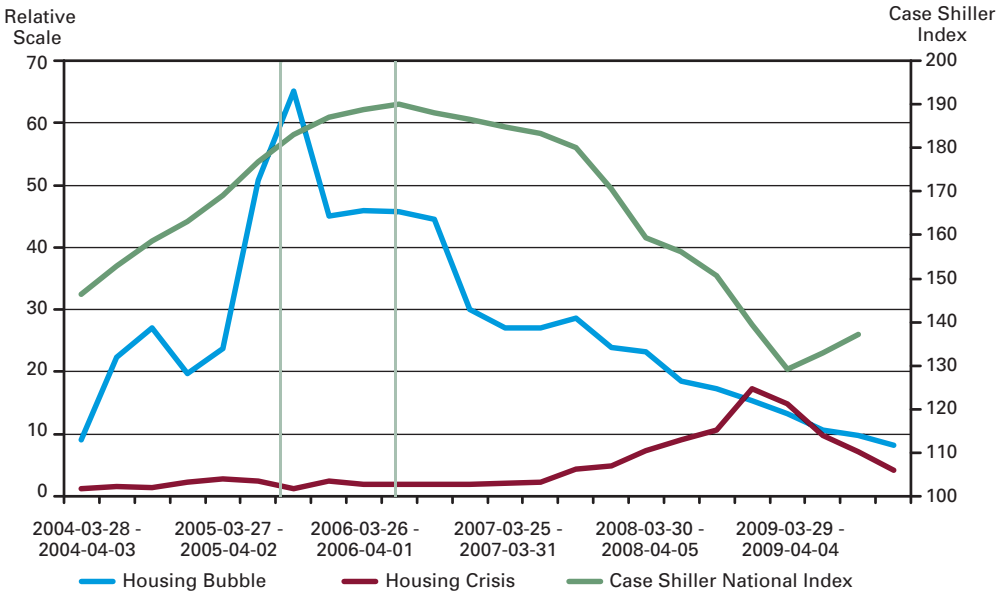
Source: Google Insights for Search

While both the approach and the tools are still in their infancy, social forecasting is ripe for additional analysis. Future work may revolve around identification of key phrases and stories that gripped the imagination in the housing bubble, relating public interest to subsequent impact, and identifying critical tipping points.

CONCLUSION

Our analysis of forecasts in the media suggests the use of real-time data limits the accuracy of forecasts; there appears to be a reluctance in the press to forecast bad news; and when bad news is forecast, the report is often cushioned with counterbalancing observations. A review of news articles surrounding individual crisis events shows that media reporting that employs academic forecasts has tended to be more accurate than reporting that relies on forecasts from other sources. Furthermore, our evidence suggests that there is often a series of warnings before major economic swings. Internet-based evidence on the "housing bubble" story doing the rounds also supports this premise. This knowledge would remind those using risky investments to gain high returns that what goes up also comes down. Our review shows how dif-

ficult it is to have any reliable forecast, but
that good information weighed by experi-
ence can help to temper uncertainty.