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Business Cycles and Forecasting since the 1960s

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**The Past as Prologue?
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Abstract

This paper examines how successfully economic forecasts as covered in public media foreshadow major real estate and financial crises. Building from existing research on the accuracy of economic forecasts, we focus on real estate crises and the portrayal of forecasts in the press. We utilize textual analysis to identify articles on specific topics and to track coverage over time, both in the print media, as well as the larger internet-based news world; we also use the Google tool, “Insights for Search,” to gauge public “forecasting” and popular beliefs. We find that the use of real-time data limits the accuracy of forecasts, 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. Preliminary results based on review of specific sets of articles show that articles reporting on academic forecasts have tended to be more accurate in hindsight than those relying on other sources. Reviews of two periods of real estate crises, the mid-1980s and the 2007-2009 crisis show that many of the serious problems were described in the press as early as two years in advance, but that interest and concern tended to taper off before the crisis occurred, leading to a sense of surprise. Our results suggest while the recent past is not always a good predictor of future trends, it can be very useful to be familiar with long term history that spans several cycles.

Acknowledgments

The authors of this paper are indebted to the Fisher Center for Real Estate and Urban Economics Policy Advisory Board, which is a major supporter of research in real estate, and in particular to Preston Butcher and Legacy Partners, whose expanded support for this project included the contribution of an extensive archive of articles representing decades of experience in the field as well as enthusiastic discussions and sharp questioning as the study evolved.

The Past as Prologue?

Business Cycles and Forecasting Since the 1960s

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Executive Summary

Introduction

The timing and unanticipated severity of the downturn that began in 2007 has brought to the forefront a number of issues regarding the economy, real estate, the housing market, and their coverage in the press. First, it has illustrated the sizeable role fluctuations in real estate can play in influencing the broad economy. Second, the duration and depth of the current crisis appears to continually surprise observers, raising questions about the ability of economists and policy makers to accurately forecast asset bubbles and predict the path of major indicators such as unemployment, inflation, housing prices, and GDP. Third, the inability to anticipate change is a problem not just for economists but for policy makers and real estate investors, many of whom are asking, “Should we have known what was coming?”

Using a unique sampling of articles, published between 1970 and 2009, we examine academic and media forecasts of the US macroeconomy and the real estate sector in particular. We focus on the following questions: (1) How has real estate fared in the context of booms and busts in the broader economy? (2) How well are cycles understood and portrayed in the press? Which indicators do writers focus on? (3) Are any indicators particularly successful in identifying turning points? We contrast our findings with existing reviews of forecasting success and prominent theories of forecasting error in the academic literature.

Real Estate and Economic Cycles

A review of macroeconomic fluctuations over the past four decades indicates that both the severity of the cycle and the role of real estate within the cycle has varied widely over time. While the most recent recession was surpassed in severity by the 1980 recession in terms of GDP decline, inflation, and depressed consumer sentiment, and by the 1982 recession in the peak percentage unemployed, it holds the record for drops in stock returns, real estate equity value, and housing value, as well as for building activity and construction employment declines, and for low interest rates. In many previous recessions the role of real estate at the outset, and the consequent impact on it were in general much milder. Nevertheless, this was not the first recession where weak real estate markets either foreshadowed or coincided with larger economic downturns.

Forecasts in the Academic and Popular Press

Over the last few decades, macroeconomic forecasters have been challenged both in terms of the effectiveness and impartiality of their forecasts. Pitfalls include error, herd behavior, bias, and even corruption. Professional forecasters may be affected not only by personal

motivations and reputation but also by their industry and employer. Systematic errors are common, such as underestimating growth and inflation in expansions, and overestimating declines. The accuracy of forecasts are also limited by the use of real time data—models may produce very different forecasts if based on initial estimates rather than final, often revised, counts. Because forecasts must rely on historic data, there is a tendency to forecast the continuation of existing trends, while accurately recognizing turning points is rare. Furthermore, forecasters appear reluctant to make negative predictions.

Textual Analysis of Forecast Information

We use textual analysis to delve further into the accuracy of information available through the general media and the question of whether those involved in the real estate sector could have known what was coming. Our first exercise is the evaluation of a set of articles from the period around the 1990 recession. Over two-thirds of the predictions of recovery were accurate, while only half of those predicting contraction were accurate. Academic forecasters and trade journals had a much higher accuracy rate than did newspaper articles.

The second set of exercises is based on Lexis-Nexis searches of news articles. We first look at articles during the 1980s that addressed the possibility that office space was becoming overbuilt. Early reports of overbuilding in the mid-1980s tapered off in the press, to resurge during the late 1980s, as the savings and loan crisis became apparent. We then look at articles from 2001 through January 2009 that address the housing bubble. We find a preliminary peaking of discussion in 2005 which had shrunk by about 80 percent by early 2007, to revive again after the subprime crisis hit in early 2008. Looking at 123 articles during 2005, we found that concern with a housing bubble was well documented, but that it was quickly counteracted with other articles dismissing the possibility.

We take advantage of Internet search engine records to track how public awareness of housing bubble concerns evolved from 2004 through 2010. Using a relatively new tool, Google Insights for Search, we were able to examine the timeline of historic internet Google searches carried out globally on the terms “housing bubble” and “financial crisis” and “housing crisis.” The term financial crisis peaks much later than “housing bubble,” which peaks approximately one year before the Case-Shiller home price index. Interest in the “housing crisis” peaks just before the Case-Shiller index troughs.

Conclusions

Should we have seen it coming? The review of historic articles indicates that evidence that all was not well was presented long before the crisis hit. At the same time, accurately predicting the timing and severity of an economic crisis is difficult, and evidence is often obscured by contradictory information. If one assumes present trends will continue then focusing on recent history can be misleading; but familiarity with long term history that covers several cycles can help temper enthusiasm in periods of strong expansion and despair in periods of sharp downturns.

1. Introduction

Predictions of boom and gloom make for big headlines. Since the early 1960s, the US has weathered eight recessions. The most recent recession, beginning in 2007, and perhaps troughing officially in 2009, reflects a crisis emerging from subprime lending and leading to a significant downturn in the housing market. The timing and unanticipated severity of the downturn has brought to the forefront a number of issues regarding coverage of the economy, real estate and the housing market in the press. First, it has illustrated the sizeable role fluctuations in real estate can play in influencing the broad economy. Second, the duration and depth of the current crisis appears to continually surprise observers, raising questions about the ability of economists and policy makers to accurately forecast asset bubbles and predict the path of major indicators such as unemployment, inflation, housing prices, and GDP. Third, the inability to anticipate change is a problem not just for economists but for policy makers and real estate investors, many of whom are asking, “Should we have known what was coming?”

Comparing cycles in the broad economy with that in real estate is important for understanding how much emphasis should be placed on the NBER’s official recession dating. Using a unique sampling of articles, we examine academic and media forecasts of the US macroeconomy and the real estate sector in particular. Our articles range in publication date from the late 1970s through 2009, with more than half published since 2000. We focus on answering the following questions: (1) How has real estate fared in the context of booms and busts in the broader economy? (2) How well are cycles understood and portrayed in the press? Which indicators do writers focus on? (3) Are any indicators particularly successful in identifying turning points? We contrast our findings with existing reviews of forecasting success and prominent theories of forecasting error in the academic literature.

This analysis highlights several key features of economic forecasting. Not surprisingly, studies commonly find that many forecasters tend to reflect naïve, extrapolative expectations - that the present or recent past will continue, underestimating the potential for change. Most studies find that forecasts are not successful in clearly identifying turning points, although a number of articles use techniques at different levels of sophistication, including analyzing interest spreads or deviations of cap rates from long term trends, in understanding when changes might occur. Our analysis supports these findings. In addition, we find evidence that forecasters are often limited by the nature of their endeavor and the availability of real time data. Relying on contemporaneous data limits the information available, as well as its reliability, and thus the accuracy of forecasters. When looking back, later observers, including members of the NBER who officially date recessions, benefit from new data and higher quality data which has been subjected to final revisions. Finally, some professional forecasters are compelled by their institutional position, publicity considerations or other incentives to simply “talk their book” – and thus misread the economy.

2. Background Section

Before we assess the effectiveness of general economic and real estate forecasting, it is useful to provide a brief overview of recent recessions in the United States. We first describe macroeconomic fluctuations in the United States since the early 1970s, focusing our discussion on periods defined by the National Bureau of Economic Research (NBER) as business cycles. In the context of these macroeconomic periods, we examine cycles in residential, commercial,

office, and retail real estate markets. Our real estate focus begins with the 1980 recession, as the real estate data is much sparser for earlier periods.

We attempt to address two main issues. First, what were some of the common characteristics preceding and during these crises? Second, to what extent were cycles in the macro economy interrelated with those in the housing sector? A number of economists have suggested that the role played by real estate, particularly fluctuations in the market for residential real estate, in leading and influencing recessions is sizeable (Reinhart and Rogoff, 2008; Leamer, 2007). Given the large impact of the housing sector in driving the current crisis, we explore the role played by real estate markets as a catalyst for aggregate macroeconomic contractions over the past eight recessions. We also explore the role broader macroeconomic trends play in driving real estate valuations.

Table 1 shows the relevant business cycle dates and durations as dated by the NBER business cycle dating committee. Table 2 presents summary statistics for a range of economic indicators over recent recessions. In each row the most extreme indicator value is highlighted in bold. For instance, of all eight recessions during the past half century, the current recession has seen the longest duration, the lowest 30 year mortgage rates, the lowest level of housing starts, and the largest decline in REIT valuations. These make sense give the massive size of the subprime crisis. Effects on the macro economy are also clear, with unemployment reaching 10.2% in October 2009, the highest national unemployment level since the peak of 10.8% in the 1981/1982 recession.

Table 1: NBER Business Cycle Expansions and Contractions

Reference Dates		Duration in Months		Cycle	Previous Peak to Cycle Peak
Previous Peak	Trough	Expansion Prior Trough to This Peak	Contraction Peak to Trough		
April 1960	Feb. 1961	24	10	34	32
Dec. 1969	Nov. 1970	106	11	117	116
Nov. 1973	March 1975	36	16	52	47
Jan. 1980	July 1980	58	6	64	74
July 1981	Nov. 1982	12	16	28	16
July 1990	March 1991	92	8	100	108
March 2001	Nov. 2001	120	8	128	128
Dec. 2007		73			

Source: <http://www.nber.org/cycles.html>

2.1 Macroeconomic Fluctuations: 1970-Present

Table 2 illustrates the widely ranging experiences of each economic cycle. In highlighting the linkages and the discontinuities between real estate and the broader macroeconomy, we focus on episodic events. Real estate cycles are less carefully monitored than macroeconomic cycles, making comparisons over long period of time difficult. Booms and busts in markets for residential real estate are often highly localized. Angell (2005) argues that when looking across MSAs and tracking OFHEO¹ home prices from 1978 to 2003, it is possible to

¹ The home price index published by the Office of Federal Housing Enterprise Oversight (OFHEO) is now published as the Federal Housing Finance Agency (FHFA) index.

identify individual housing price booms in over 63 different metropolitan areas and specific price busts (defined as a decline 15% or more in a 5 year period) in 142 metropolitan areas.² Real estate booms and busts which span a large portion of the national economy, as we will see below, are much less frequent.

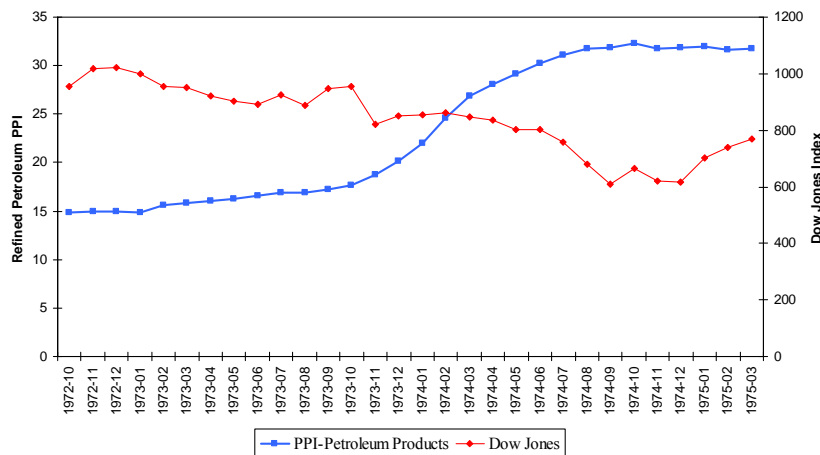
Table 2 Characteristics of US Recessions										
Indicators	60/61	69/70	73/75	80/80	81/82	90/91	01/01	07/?	Recession Average	Expansion Average
Duration (months)	10	11	16	6	16	8	8	16+	13.4	65.1
<i>General Indicators</i>										
Largest Y/Y GDP Decline	-5.2%	-1.9%	-4.8%	-8.0%	-6.6%	-3.0%	-1.4%	-6.5%		
Peak CPI Y/Y Ch*	1.7%	6.2%	12.3%	14.8%	11.0%	6.3%	3.6%	5.6%	7.7%	3.8%
Consumer Sentiment (Mich, 1966=100)				51.7	62	63.9	81.8	55.3	64.85	90.1
Peak % Unemp'd	6.9	5.9	8.6	7.8	10.8	6.8	6.3	10.2%	7.9	5.8
S&P Returns	7.0%	-0.8%	-0.9%	0.7%	0.1%	0.3%	-3.9%	-8.2%	-0.7%	0.4%
T-Bill Rate	2.5%	6.6%	7.4%	11.0%	11.8%	6.8%	3.2%	1.3%	6.3%	5.2
Fed Funds Rate	2.8%	7.5%	9.7%	13.2%	13.6%	7.4%	3.7%	1.8%	7.5%	5.6
<i>Real Estate</i>										
Resid. Price Ch. Pk-Tr (OFHEO)				4.5%	2.2%	1.4%	3.5%	≤-4..5%		
30 Yr Mtg Rate			9.1%	13.8%	16.8%	9.9%	6.9%	6.0%	10.4%	8.8%
Housing Starts (1000s) Lowest Point	1063	1085	904	927	837	798	1540	477	954	1601
REIT Returns (Avg Mo %Δ)			-3.2%	1.6%	0.7%	0.1%	0.7%	-4.6%	-0.8%	0.3%
RE Loans (Avg Mo %Δ)	0.1%	0.3%	0.8%	0.7%	0.5%	0.7%	0.6%	0.4%	0.5%	0.9%
Decline From Peak to Trough in Const. Emp.	-7.7%	-4.7%	-17.8%	-6.1%	-10.8%	-15.7%	-2.6%	-23.7%	-11.1%	4.8%
Sources: Duration (NBER), GDP, CPI, Michigan Consumer Sentiment, Unemployment, T-Bill Rate, Fed Funds Rate, FHA Mortgage Rates, Housing Starts, Real Estate Lending, Construction Employment (FRED, St. Louis Fed) Residential Prices (OFHEO), REIT Returns (NAREIT), S&P Returns (Shiller).										
*Highest month during peak to trough period.										

² Among the most prominent were the collapse of Houston home prices in the 1980s (dropping an estimated 25 percent from their peak) following a sharp decline in oil prices, the deflating of a housing bubble in Boston in the late 1980s to the early 1990s (with a price decline of 12 percent that took 9 years to recover, and the 21 percent loss in value in the Los Angeles area during the 1990s recession (another housing market with a very long recovery period).

2.2 Recession 1973-1975

More so than in other decades, the US economy during the 1970s was strongly influenced by changes in the price of oil. The October War in 1973 brought with it an OPEC oil embargo. Fears over supply in the face of both war and embargo materialized into the 1973 Oil Crisis with shortages and a doubling in the real price of oil in late 1973. Within months of the oil shock, concerns over inflation, war, and general economic weakness spilled over into global financial markets. From November 1973 to October 1974 the Dow Jones suffered a protracted decline, closing down nearly 40% for the year (see Figure 1).

Figure 1
Monthly Producer Price Index, Refined Petroleum,
and Dow-Jone Industrial Average Q4 1972- Q1 1975



Source: Authors from US Bureau of Labor Statistics and Yahoo.Finance.

Declining asset prices hampered bank lending and consequently affected the market for residential real estate. Prospective borrowers suffering portfolio declines suddenly found themselves with less collateral, appearing riskier to lenders. Banks began to suffer loan losses, both on residential lending and on loans to non-oil producing nations. This led to a rash of bank failures in 1974, including Franklin National, the 20th largest bank in the nation in October of 1974 (Mishkin and White, 2002). Economists continue to debate the extent to which oil prices were the catalyst for the contraction in overall economic activity, the subsequent stock market crash, and the overall weakening of demand. Broad economic growth would not regain steam until March of 1975 (Barsky and Kilian, 2004). The recession was notable for giving rise to stagflation – both inflation and an economic downturn at the same time, an occurrence previously thought unlikely.

2.3 Recession 1980, Recession 1981-1982

The influence of OPEC waned in the mid 1970s and the economy returned to positive growth, but general economic tranquility was short lived. A confluence of events in the late 1970s and early 1980s culminated in two official recessions, sometimes thought of as one protracted slowdown, one briefly in 1980 and a second spanning from July 1981 to November

1982. As with the 1973 recession, a run up in commodity prices is often given a portion of the blame.

Following the 1979 Iranian Revolution and the Iran-Iraq war in 1980, oil spiked a second time, pushing up general price levels with it (Barsky and Kilian, 2004). Coupled with declining employment conditions, policymakers were faced with a dilemma on how to confront stagflation. Peak year over year changes in inflation approached 15% and unemployment rose to 7.8% in 1980. The Federal Reserve under then newly appointed chairman Paul Volcker chose to raise interest rates sharply, hiking the Federal Funds rate above 20% by mid 1981. The Fed's course of contractionary monetary policy is widely credited with a taming of inflationary pressure, but is also associated with a significant bout of unemployment, which reached double digits, peaking at 10.8% in November of 1982.

2.4 Real Estate Swings Between Cycles

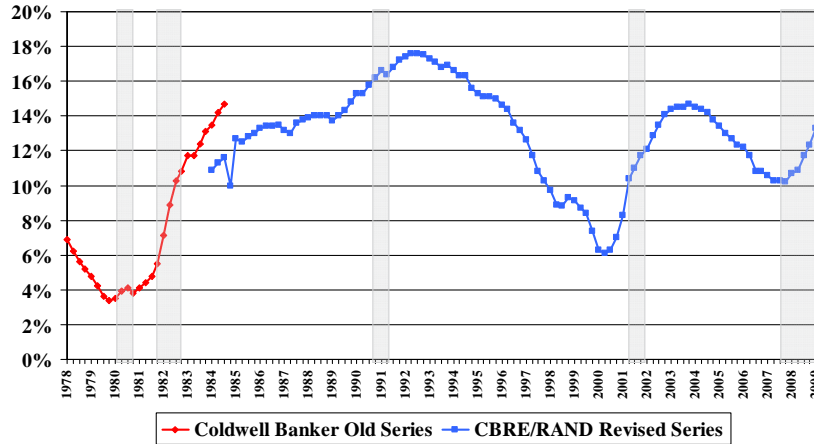
Prior to the current Subprime Crisis, the most extensive real estate boom and bust cycle occurred in the 1980s, between two downturns, triggered in part by policy changes. The early 1980s witnessed a number of regulatory changes regarding Savings and Loan institutions. In addition to a general relaxation of regulatory demands, this included the passing of the Depository Institutions Deregulation and Monetary Control Act (DIDMCA) in 1980, which removed the ceiling on interest rates that could be paid on deposits, and the Tax Reform Act of 1981, which created a new set of tax incentives for investment in residential real estate (FDIC, 2002). DIDMCA and the Depository Institutions Act of 1982 (the Garn-St.Germain Act) freed savings institutions from the restriction to invest only in housing related products (Library of Congress summaries of HR 4986 and HR 6267).

With this changing regulatory climate, more lending institutions were eager to enter new markets, and real estate investors were drawn into new ventures by the favorable tax climate. During the early 1980s, "developers poured money into condominiums and single family homes" (Bartlett, 1988), especially in the Northeast. Savings and Loans began to finance (and overfinance) developers such as Trammell Crow, for example, that focused on development in oil-rich Texas and the Southwest, the Northeast, and California, counting on continuing demand due to population growth, investments, and the robust economy. Commercial and home construction boomed. As supply increased and demand conditions worsened, office vacancies rose in 1986 to levels not seen since the Great Depression (see Figure 2).

"Today's market for commercial real estate is the worst since the Depression," declares Stephen E. Roulac, the president of a San Francisco real-estate consulting firm bearing his name. Adds Charles Froland, the director of research for Grubb & Ellis Co., a national real-estate company: "In the last six years, we've seen the biggest construction boom this century. Now it's all coming home to roost." But while the debacle is spreading across the Southwest, the Rocky Mountain states and the West, it hasn't hit many parts of the Midwest, the Northeast and the Middle Atlantic states. Even in glutted markets, certain kinds of real estate -- industrial buildings or fully occupied offices with long-term leases -- retain their value. In San Francisco, for example, office-building values have generally held steady despite a 25% to 40% drop in rents because buyers expect legislated curbs on growth to quickly cure oversupply.

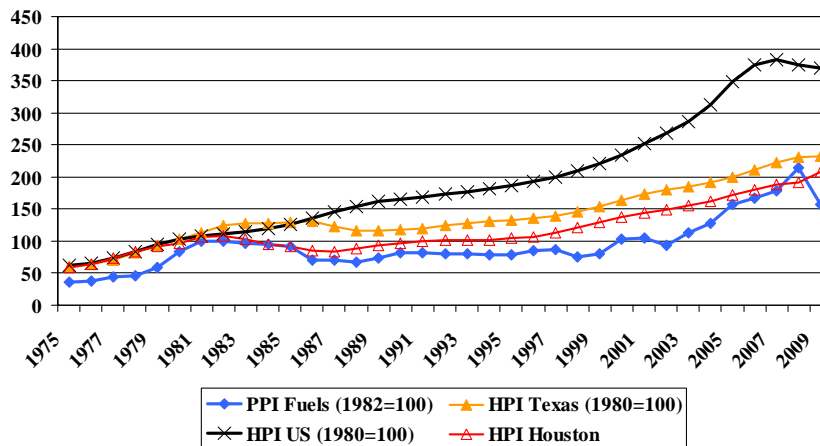
Waldman and Cellis (1986), *Wall Street Journal*. p.1.

Figure 2
 US Downtown Office Vacancy Rates Over the Course of
 Business Cycles 1978Q4-2009Q3



Source: Authors from CB Richard Ellis, RAND California Data Base, and NBER.
 Note: Shaded areas mark approximate peak to trough period for each cycle.

Figure 3
 Oil Prices and Southwest Home Prices



Source: Authors from US Bureau of Labor Statistics and Federal Housing Finance Agency.

Regional housing and commercial markets began to decline in 1986: first in the Southwest, then New England and eventually the West. Angell (2005) estimates that in San Antonio and Houston, housing valuations were increasing at double digit rates in the early 1980s. A 46% decline in oil prices in 1986 led to unemployment and out-migration, and declines of 20-30% in housing prices for many oil producing regions of the Midwest from the mid 1980s to early 1990s. The oil crunch and the Tax Reform Act of 1986 caused the overbuilt Houston

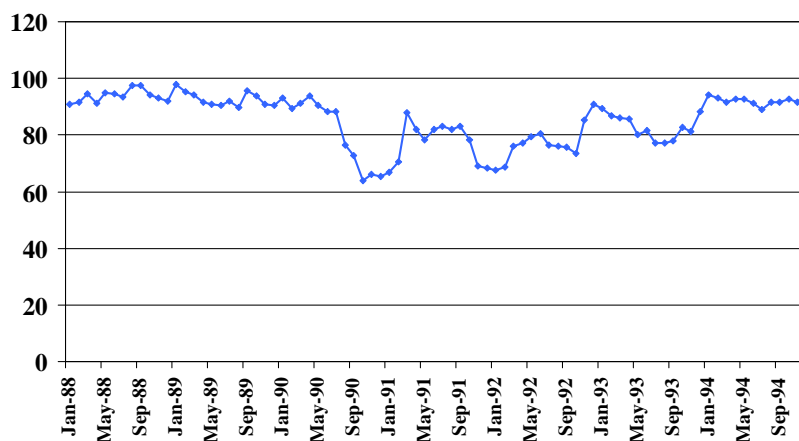
market to decline sharply, as shown in Figure 3 (Harlan, 1990). “But the new sugar daddies of commercial real estate, U.S. pension funds (with \$122 billion invested) and foreign investors (with \$90 billion), continue[d] to pour in money because they believe[d] that demand [would] eventually catch up and that bargains [could] be found” (Light, 1989).

2.5 Recession 1990-1991

While the early 1980s saw the failure of a few banking institutions, a fall in interest rates returned most thrifts to temporary health such that the full extent of the crisis would not be felt until the mid 1980s. Nonetheless, as general prospects for real estate worsened, so did the picture for the institutions providing the loans to support it. In what would become termed the Savings & Loan Crisis, from 1986 to 1995, over 1,000 thrift institutions with assets totaling over \$500 billion failed, resulting in large costs to the taxpayer to deal with delinquencies (Curry and Shibut, 2000).

While, the Savings and Loan Crisis effectively weakened the economy during much of the 1980s, the recession would not occur until the 1990s, with a host of other factors playing a role. The broader economy weathered Black Monday (a nearly 23% decline in the Dow Jones Industrial Average in 1987) without succumbing to an economic downturn, and general economic malaise really began to take hold in the early 1990s, with the recession formally beginning in July of 1990.

Figure 4
University of Michigan Consumer Sentiment, 1988-1994



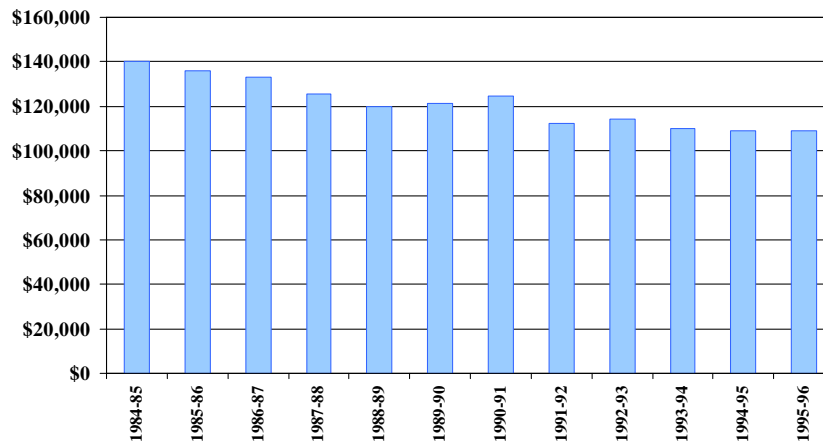
Source: Survey Research Center, University of Michigan, drawn from FRED database.

In some ways, the 1990-1991 recession differed from its predecessors. Blanchard (1993) argues that unlike previous recent recessions, fluctuations in GDP during the 1990-1991 recession was driven in large part by declines in consumer confidence and consumer spending

(See Figure 4). He concludes that the Iraqi invasion of Kuwait was detrimental to expectations and cites an advance decline in the index of leading indicators, the Consumer Confidence Index, the Michigan Survey of Consumers, and in commercial forecasts of output.

A number of other factors likely played a role in slowing the economy in the early 1990s. The S&L debacle, coupled with a moderate rise in oil prices, were likely proximate causes for the 8 month long recession. Another possible cause that has been cited is a reduction in government expenditures. Specifically, in the early 1990s, the economy absorbed a large cutback in defense spending associated with the end of the Cold War (Atkinson, 1993) (See Figure 5).

Figure 5
US Defense Prime Contracts, 1984-1996
(\$Millions)

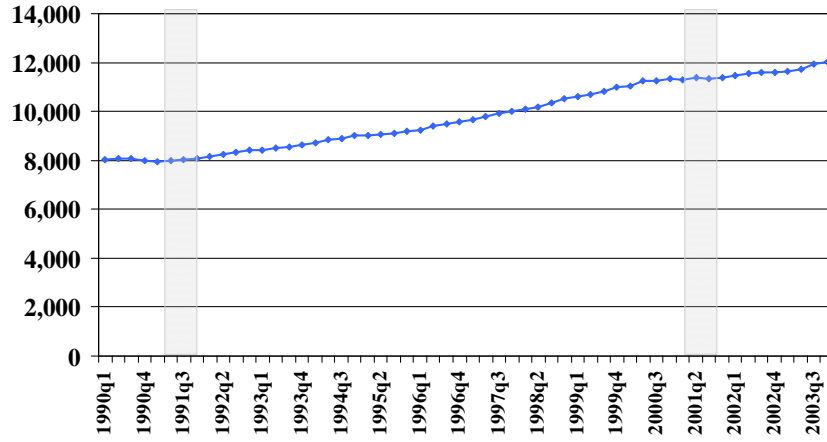


Source: Authors from California Department of Finance, Economic Indicators.

2.6 Recession 2001

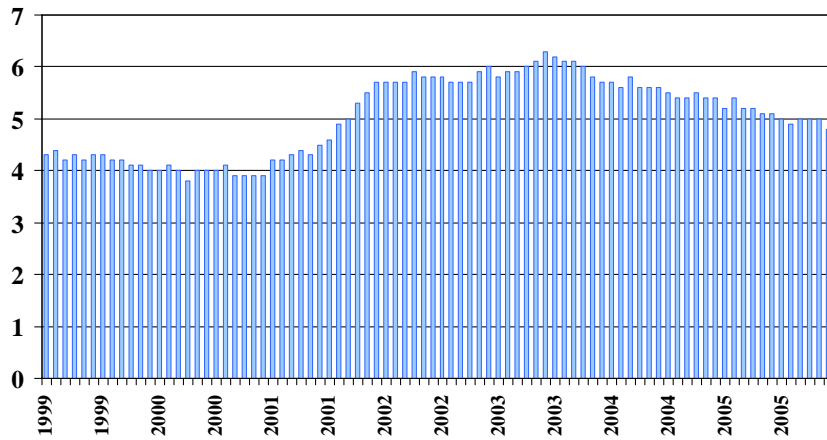
The recession beginning in March of 2001 and lasting until November was unique in several ways. First, it followed the longest period of economic expansion classified by the NBER, spanning just over a decade, as shown in Figure 6. Second, it was brief, lasting just 8 months, and shallow, with unemployment never rising above 6.3% (Figure 7), and real GDP expanding a moderate 0.2% from the first quarter of 2001 to the fourth (Kliesen, 2003). Yet, stock prices were as volatile as in the 1980s (Figure 8). Indeed, the bursting of the dot-com bubble, as evidenced in stock prices, heralded the start of this recession. One factor often cited as a mitigating factor during the 2001 recession is real estate. While the broad economy contracted, housing remained rather robust (Duca, 2006).

Figure 6
 Real GDP, 1990Q1 to 2003Q4
 (Chained 2005 Dollars, Billions)



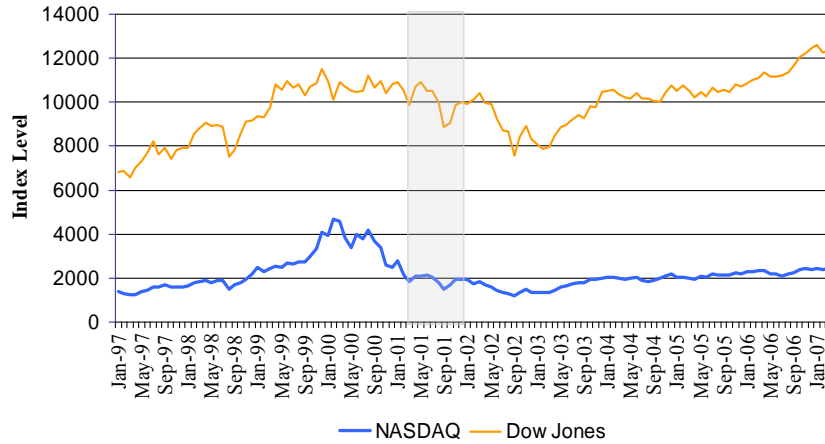
Source: US Bureau of Economic Analysis.

Figure 7
 US Unemployment Rate, Monthly, 1999-2005



Source: US Bureau of Labor Statistics.

Figure 8
NASDAQ and Dow Jones Stock Indices
Monthly, 1997- March 2007



Source: Authors using NASDAQ and Dow Jones data taken from Yahoo!Finance.

2.7 Recession 2007-Present

The economic crisis that began in 2007 exceeded previous US recessions in magnitude along a number of measures. The losses in stock and housing value were greater than the losses logged in any of the other recessions, as shown in Table 2. The threat to the financial sector and the spread to the global economy have been far more serious than in any previous post-WWII recession.

As with many of the recessions we have just explored, the current recession was preceded by a sharp bubble in asset price valuations and a subsequent collapse. This was most evident in housing prices, which, bolstered by lax regulation and a prolonged environment of low mortgage rates, rose rapidly, only to fall over 25% between mid-year 2006 and fourth quarter 2008 (Jones, 2009).³ According to the Case-Shiller U.S. 10-City monthly housing index, appreciation averaged roughly 10% from 1996 to 2006, tripling housing prices, with the largest gains experienced in coastal regions (Jones, 2009). At the same time, lax regulation, increased securitization, global imbalances and investors seeking higher returns in an overall environment of cheap credit led to risky investments in exotic instruments and built up a stock of subprime mortgage borrowers with ARMs.

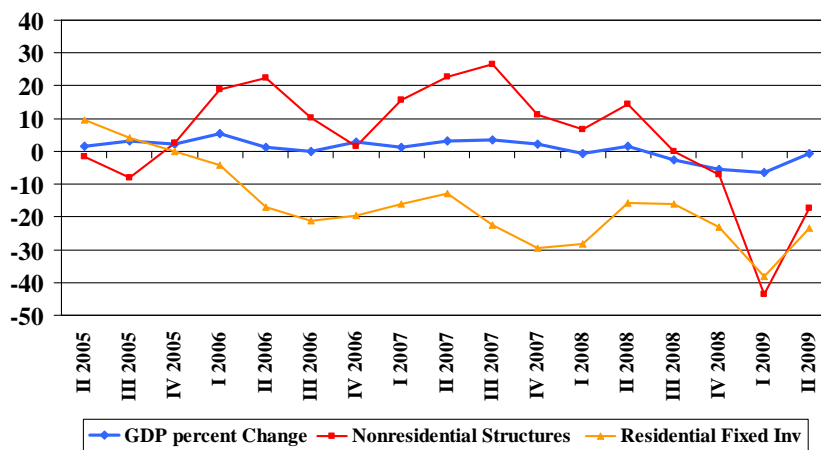
Initially, as housing valuations increased, prices for a range of basic commodities including oil, metals, and crops began to rise, fostering fears that inflationary pressures would spillover into the broader economy and that the US was in danger of runaway inflation. Responding to fears of inflation the Federal Reserve began to raise interest rates in mid 2004,

³ Jones' figures are based on the Case-Shiller index, which reached a trough in April 2009 at 33 percent below the peak in 2006, based on the composite 20 city index. The FHFA index, which tracks sales throughout the US, but only covers conforming loans, showed a drop of 9 percent from the peak in these core-value properties following an average annual rate of change for the previous ten years of 6.5 percent (and a doubling in home value).

raising the Federal Funds rate 4% in two years time, from 1.25% to 5.25%. Rising short-term rates, coupled with growing expectations that commodity prices in the wake of the Second Persian Gulf War were beyond the Federal Reserve's control, sent long-term interest rates and consequently mortgage rates higher.

The resulting rash of foreclosures and shrinking housing valuations spilled over into the broader economy. Figure 9, for example, shows the contribution of residential real estate, and eventually nonresidential structures to the slowing of the economy.

Figure 9
Real Percent Change in GDP, Total and Real Estate Related
2005Q2 to 2009Q2



Source: Authors from Bureau of Labor Statistics data.

Reinhart and Rogoff (2008) explore the extent to which the Subprime Crisis is typical of recent financial crisis around the world. Arguing that the full extent of the crisis has yet to be felt, the authors make the case that there are a striking number of similarities between the current recession and earlier crises in other countries since WWII. Large capital inflows and a bubble in both residential real estate and stock market valuations appear to be common phenomenon for the 18 large post-WWII crises examined. The following section takes a systematic look at the role of real estate in business cycles.

3. Relationship between Real Estate and Macroeconomic Cycles

Economists have extensively studied economic fluctuations and business cycles in the US. One area of focus has been on the linkages and co-movements between various sectors of the economy. The current economic crisis has brought to the fore the potential importance of real estate in driving overall volatility. However, as we saw in the previous section, the impacts vary widely over time and are sometimes qualitatively different for different business cycles. Leung (2004) provides a broad review of the existing literature examining the linkages between the housing market and the macroeconomy and finds that residential and nonresidential real

estate both exhibit comovement with GDP, although the timing differs between the two. He also highlights real estate wealth effects that may vary over the business cycle.

Examining the US economy since WWII, Leamer (2007) makes the bold claim that eight of the ten post-war recessions were preceded by weakness in the housing market. Performing a volatility decomposition, he suggests that around one-fourth of overall weakness in GDP during the year before a recession can be attributed to deviations in residential investment. Two years into the recession nearly one fifth of GDP fluctuations can be attributed to residential investment.

On the other hand, there is research suggesting that the role of real estate in driving overall economic fluctuations is rather small. For example, Ghent and Owyang (2009), using a sample of MSA housing markets from 1982 to 2007, find that increases in permits have no consistent relationship with the path of unemployment. Furthermore, they find that housing prices are a poor leading indicator of overall economic activity, and once they control for financial factors, find little support for the view that housing has a significant impact on the business cycle.

Others suggest that the relationship between real estate and the rest of the economy is different for each specific real estate market sector. For instance, Davis and Heathcote (2003), find that residential investment tends to lead GDP, while non-residential investment tends to lag GDP. Furthermore, they find that residential investment has two times the volatility of non-residential. Wheaton (1999) looks at trends in the office, industrial, apartments, and retail market spanning the period 1968 – 1996 (the research findings address the effects of the economy on real estate, rather than the role of real estate in creating economic changes). He finds that the market for multi-housing apartments and industrial space exhibit a strong correlation with employment conditions in their given markets. Both markets suffered during recessions in 1969, 1975, 1981 and 1991. Similarly, both markets recovered along with the general economy. He attributes this to a short development lag of around one year for these two markets. In contrast, office and retail building contracts can take 4 to 10 years to reach fruition and thus exhibit a much weaker relationship with contemporary changes in the general economy. Generally speaking, the long gestation period in real estate makes for a relatively inflexible and slowly responsive supply, leading to the characteristic boom and bust cycle.

Anecdotal evidence is generally supportive of the view that declines in the housing sector can spill over into the broader economy. For instance, both during the 1990 recession as well as during the current subprime crisis, some economists argued that the housing sector was an important and often overlooked risk factor.

Kenneth Rosen, the usually optimistic economist and chairman of the Center for Real Estate and Urban Economics in Berkeley, Calif., predicted even before the report on October activity that nationwide housing starts will fall next year to 925,000 units, the lowest since 1946. “The worst has yet to come,” he said. And Dennis Jacobe, chief economist for the U.S. League of Savings Institutions, comments: “This won’t be like cyclical recessions of the past. We are so overbuilt that the correction is going to be dramatic.”

Carlton (1990). *Wall Street Journal*. p.1.

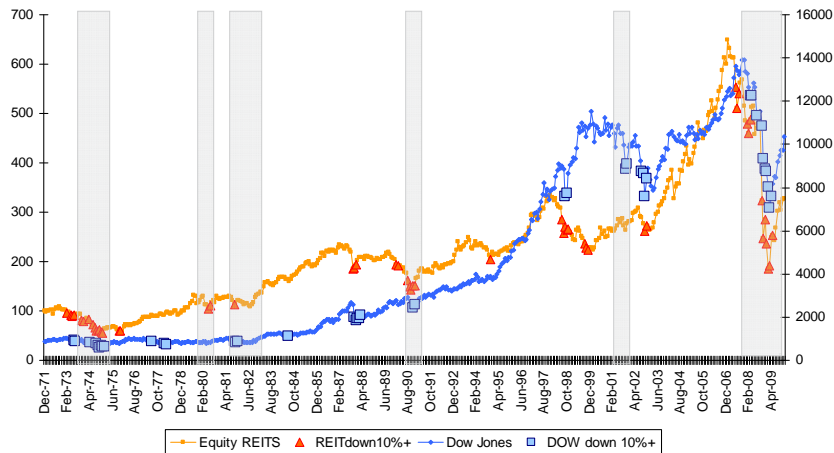
A review of articles prior to the beginning of the 2007 recession highlights concern over the possible impact of a housing correction on the larger economy.

Going forward, many economists say, the biggest question is whether the orderly real-estate slowdown the Fed has engineered thus far will continue. “Outside the threat of surging energy prices,” Mr. Zandi said, “the most significant threat to the [economic] expansion is that the housing correction turns into a housing crash.”

Bajaj and Leonhardt (2006). *New York Times*, p. A1.

Beyond anecdotal evidence, a key question is whether turning points in the economy can be anticipated, and if so what evidence is most helpful in identifying the potential for economic change. Efforts to predict economic swings from historic data have been only moderately successful, a fact noted by Paul Samuelson in 1966, while observing the stock market: “To prove that Wall Street is an early omen of movements still to come in GNP, commentators quote economic studies alleging that market downturns predicted four out of the last five recessions. That is an understatement. Wall Street indexes predicted nine out of the last five recessions! And its mistakes were beauties” (Samuelson 2006). Taking this a step further, for a more recent period and putting it in the context of real estate swings as well, we see that real estate equities, as measured by the NAREIT index, were more volatile than either the stock market or the economy, as shown in Figure 10. The NAREIT Equity price index, for example, reached at least a 10 percent 6-month decline within a year preceding three of the last six recessions, and dropped at least 10 percent relative to the previous 6 months in concert with two other recessions. However, similar downturns could also be seen in 1987, 1994, and 1997, giving as many false positives as true indicators. The Dow Jones Industrial Average gave false positives in 1978, 1984, 1987, and 1998, and during recessions, significant sustained slowing generally coincided with rather than preceded recessions.

Figure 10
The Stock Market, Real Estate, and Business Cycles,
December 1971- December 2009



Source: FTSE NAREIT US Real Estate Index Series; Yahoo finance--Dow Jones index.

This data suggests that the relationship between real estate and the broader economy is complex and challenging when used as material for predicting future trends. The following section reviews systematic studies evaluating forecasting efforts.

4. Academic Literature on Forecasting

This section reviews briefly the academic literature on economic forecasting. Economists define an efficient or rational forecast as one in which the aim is to minimize expected forecast errors. Frequently, it is found that individual forecasters appear to deviate from this aim. Over the last few decades, macroeconomic forecasters have been challenged both in terms of their effectiveness and their impartiality.

Researchers have found that forecasting is prone to pitfalls including: error, herd behavior, bias, and even corruption (Jansen and Kishan, 1996; Pons, 1999; Loungani, 2001; and Ashiya 2006). For instance, Spiwooks et al. (2008) analyze 136 forecast time series and find none that are unbiased. The forecasts examined exhibited a strong tendency to predict a simplistic continuation of recent trends. In addition to naïve expectations there is considerable resorting to adaptive expectations, in which expectations are formed about the future in part based on how expectations have worked out in practice. For example, if inflation has been higher than expected, then there is an error adjustment in expectations for the future.

Davies and Lahiri (1995) analyze the Blue Chip Survey of Professional Forecasts from July 1976 through May 1992, and conclude that over half of the Blue Chip forecasts for both inflation and real GNP growth showed significant bias.⁴ In addition, they find that bad news affects volatility significantly more than good news of equal size, citing the high volatility during the early eighties, peaking during the October 1987 stock market crash and in January 1991 just before the March 1991 turning point.

Some studies contend that even rational forecasters may have other motivations, such as harboring wishful expectations, pursuing strategic behavior to maximize publicity, or simply following the herd to minimize the personal cost of forecasting errors. One potential explanation for forecasting bias is the publicity hypothesis. Extreme forecasts make great headlines, and in the remote possibility that they occur, may garner a forecaster great fame or novelty. Laster et al. (1999) develop a model of rational forecasting bias in which economic forecasters sacrifice accuracy in order to gain publicity, predicting that, “the more the forecasters’ wage depends on publicity, the more extreme and the less accurate the forecast is.”⁵ Ashiya (2009) develops an improved version of the Laster et al. model, providing more evidence confirming the publicity hypothesis. While the market may not reward consistent failure, the negative fallout of intermittent inaccuracies is more than overcome by the advantages of publicity accruing from flamboyant forecasts.

A second concern is that individual motivations and personal reputation come into play when evaluating economic data. For instance, Lamont (2002) suggests that forecasters with more experience and prestige will make more radical forecasts, deviating further from the

⁴ Davis and Lahiri measure bias as the deviation from predictable changes in the economy given observable data at the time, in other words, bias due to idiosyncratic factors (such as measurement error and personal information).

⁵ The publicity hypothesis stands in contrast to Keane and Runkle (1990) who argue that professional forecasters would be motivated to produce accurate predictions to prevent a loss of reputation and livelihood.

consensus in order to distinguish themselves and obtain a greater number of clients and revenue, supporting empirical evidence with the anecdotal cases of A. Gary Shilling and Henry Kaufman, both prestigious economic forecasters. However, the empirical findings of Pons-Novell (2003) are not supportive of the reputational hypothesis. Other economists such as Ashiya and Doi (2001) argue that forecasters can signal their ability by making unique predictions and deviating from the consensus expectation.⁶ Ehrbeck and Waldmann (1996) present various signaling models that might explain biases in forecast revisions. However, their models are empirically rejected by Loffler (1998), and Ashiya (2003). Ashiya (2009) again tests the signaling hypothesis, controlling the publicity effect, and rejects the signaling hypothesis.

Pons-Novell (2003) finds that different groups of participants in the Livingston Survey have incentives to forecast differently. Specifically, those who deviate from the consensus, generally investment bankers and “others” may be engaging in strategic behavior, since they may be maximizing publicity, revenue, or prestige, while forecasters who follow the consensus generally belong to the nonfinancial business category, which suggests a herding mentality. The evidence on academic institutions and commercial banking are inconclusive in either respect.

An additional source of bias in forecasting is that professional forecasters may be motivated to make predictions which could benefit their employer or themselves. For example, Ito (1990) analyzes the yen-dollar exchange rate forecasts and finds that forecasters predict what is best for their employers, rather than minimizing forecast errors. “Talking your book,” as we mention earlier, is a common and rational strategy for a forecaster for professional reasons (after all, a principled forecaster cannot take one position publicly and another privately). If this is consistent with the forecaster’s interests then it is so much icing on the cake. However, Laster et al. (1999) examine a set of growth rate forecasts and fail to find evidence to support this phenomenon, dubbed the wishful expectations hypothesis. Similarly, Ashiya (2009), using a 26-year panel of annual GDP forecasts, finds no evidence to support this hypothesis.

Fildes and Stelker (2002) find that most forecasters fail to predict recessions and sometimes even fail to recognize them as they occur. Generally, they 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. Even so, Fildes and Stelker note that nearly all forecasts are better than those obtained from naïve models and time series approaches. Koenig, Dolmas and Piger (2003) note that developing models using real-time data, the most popular method, leads to inaccuracy. To remedy this, they suggest using current-vintage data.⁷

A number of other studies are more amenable to the possibility that forecasters can be effective, unbiased, and efficient (see for example: Mahmoud, 1983; Oller and Barot, 2000). Keane and Runkle (1990) use the price-forecast data from ASA-NBER survey of professional forecasters, assuming that they would have an economic incentive to maximize their accuracy, and that their survey responses accurately reflect their expectations. Though Victor Zarnowitz (1969 and 1985) and most other researchers find that price forecasts are not rational, Keane and Runkle, using individual survey response data to avoid aggregation bias, adjusting for systematic

⁶ On the other side of the coin, they can also try to avoid making radical errors by simply mimicking other forecasters.

⁷ Real time data is data released or available at the time of the event (for example, preliminary and “first-final” GDP releases). Current-vintage data includes the most recent revisions for all years.

data revision, and developing a model that accounts for data lags and aggregate shocks find strong evidence that shows that professional forecasters are rational.

5. Real Estate and Macroeconomic Cycle Forecasts in The Press

Economic forecasters are a fatalistic lot. For more than a year, even the most optimistic of them have insisted that a recession is inevitable. But they keep postponing the starting date...The new starting time is early 1990—maybe. “They keep shoving the recession into the future,” said Robert J. Eggert, the head of the Blue Chip Economic Indicators..., “There is so much uncertainty.”

Uchitelle (1988). *New York Times*. p. D1.

(According to the NBER, the recession would officially begin in July 1990.)

The media frequently focus on economic forecasts, and rightly so. Individuals are concerned about their employment prospects, their businesses’ sales, and their home mortgages, so being properly informed is an important concern. The media is different and important in a significant context. To some extent it reflects public opinion and perhaps even a social consensus, in addition to helping mould one. This can lead, as we shall see in the next section, self-fulfilling prophecies, and what Akerlof and Shiller call “animal spirits.” On the other hand, it is not immune from some of the very motivations and incentives that afflict academic researchers and forecasters. How effective have contemporary media analysts been at predicting swings in the US economy and in real estate in particular?

This section employs a unique set of articles spanning the period 1970 to the present, to provide a broad set of anecdotal evidence on some of the successful prophesying and some of the most grievous missteps. Our data comes from two sources. The first is a large collection of print articles spanning the period 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 *Wall Street Journal*.

While some forecasts were spot on, several patterns emerge when looking at forecasts that miss the mark. 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 are often simply a continuation of the trend and may reflect wishful thinking that good times will continue. Third, we notice a general reluctance to make negative predications. At the same time, some precursors existed for most major economic changes, including the 2007 housing disaster. Yet the prescient comments reported in articles were often accompanied by contradictory observations to counterbalance the forward-looking point of view.

5.1 The effect of data revision and the benefits of hindsight

Both the quality and timeliness of economic data are essential for forecaster success. Some evidence suggests that in an economy with rapid structural change, timeliness of economic indicators may not be keeping pace. Even major indicators of economic growth such as GNP or GDP can be subjected to large revisions. In August 1986, the annual growth rates for each of the

four quarters ending with first quarter 1986 were revised up by 0.9% to 1.4%, and first quarter growth was increased to a lofty 3.8%. *Business Week* reports on the large revisions:

“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.”

Why such large changes? 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.”

Koretz (1986). *Business Week*. p. 16.

In addition to data revision, new data may simply not be available in time to make reasonable predictions.

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. “We are seeing them creep up, but not to the point of order cut backs.”

Uchitelle (1989). *New York Times*. p. 36.

One of the features that makes the recession of 2001 unique is that it appears to have taken most observers by surprise. One possible explanation for this is that forecasters lacked the benefit of hindsight, whereas during the following year the NBER recession dating committee did not. Specifically, real-time economic data available at the time was later revised downward, essentially rewriting history to look worse than initially thought (Kliesen, 2003).

Anecdotal evidence suggesting that hindsight is 20/20 is obvious and abundant. In addition, it appears that in many cases a number of different forecasters faced the same limitations, including the federal government.

Why is the Administration’s record so regularly and roundly condemned? Mainly because, in preparing its first economic forecast, the Administration failed to foresee the 1981-1982 recession. In March 1981, the Administration predicted 4.2 percent real growth for 1982; in fact, real growth dropped by 2.5 percent.

That is obviously a big error, but it was not unique. Almost without exception, other forecasters in early 1981 also expected 1982 to be a year of economic growth; after all, the country had just weathered the 1980 recession and the first results for 1981 looked promising.

Wright and Sprinkel (1989). *New York Times*. p. A27.

5.2 Inertia in Predictions, Continuation of Trend

Even models more sophisticated than simple time series rely largely 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. In addition, the forecaster's past experience is often limited by the analyst's field of study. Thus, for example, Bezemer (2009) argues that macroeconomic models of the economy lacked the insights on growing imbalances that accounting models could have provided (and did provide for some analysts). Adjustments to models, once errors are discovered, are also based on past experience, as Gary Schilling states:

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.

Inc. (1986)

Readers may be satisfied with this approach, as the individual's experience may lag behind the official assessments over 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.

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.

Wessel (1991). *Wall Street Journal*. p. A4.

5.3 Reluctance to Make Negative Predictions

Section 4 examined theoretical motivations behind forecasting behavior as suggested in the academic literature. While we cannot shed light directly on the authors' motivations, our articles generally support the view that while some pundits stand out as perennial bears, the general community of forecasters appears reluctant to predict bad news.

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.

Richard Curtlin, director of the University of Michigan's Consumer Survey, quoted in Uchitelle (1989). *New York Times*. p. 36.

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 reporters were 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 on consumer confidence, home values and construction, especially when many companies and consumers are awash with debt.

Carlton (1990). *Wall Street Journal*. p.1

Bad news is often unwelcome, as when University of California-Berkeley economist Ken Rosen, Chair of the Fisher Center for Real Estate and Urban Economics presented a “dire prediction that an impending dot-com collapse would flood the city with space and push down rents” (Levy, 2001). When the market turned, reporters reminded readers that:

Mr. Rosen was slammed for scaremongering last April when he predicted that 80 percent of dot-coms 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

Materna and Ginsberg (2002). *San Francisco Business Journal*.

This tendency also preceded the most recent recession. Newspapers from 2006 are full of examples of predicting the positive in the face of troubling indicators. During July 2006, 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 want to offer a glimmer of hope: Edward Yardeni, chief investment strategist at Oak Associates, a money management firm, predicts, “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.” (Bajaj and Leonhardt, 2006)

In the current recession, even as the scope of housing issues began to emerge, news articles showed great reluctance to forecast serious problems. In August 2007, the *New York Times* reported that most people who analyze the mortgage market believe that the housing bust will 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 points to the positives, noting that while consumer spending had “slowed recently,” it was “still fairly strong. Corporate balance sheets and the job market seem[ed] fine.” The article concludes with optimism with 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, especially when there are still so many mortgages that are about to get a lot more expensive.

Leonhardt (2007). *New York Times*.

5.4 Forecasting Errors

Forecasting errors come in several varieties. Extreme forecasts are very often wrong but attract attention. Yet even if largely in the wrong, there may be a kernel of truth embedded in the forecast that appears to validate the claim. Thus, the following *San Jose Mercury News* article in 1989 was at the same time totally wrong about trends and yet appears in hindsight 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.

San Jose Mercury News, July 29, 1989

Nevertheless, we should note that while US 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.

6. Textual Analysis

In order to more rigorously evaluate forecasting endeavors, we employ a couple of different approaches. First, using our selected sample of print articles, we identify forecasting successes and errors and tabulate summary statistics. Second, we employ textual analysis software to carry out a selective search of the complete Lexis Nexus database of digitized US newspapers looking for patterns in media forecasting behavior.

6.1 Forecasting Successes and Errors—Example from the 1990/1991 Recession

The results from the first exercise are presented in Table 3. We focus on a number of articles around the 1990 recession. We were able to identify 38 unique articles making clear forecasts for this time period. Of these, 24 were correct. Of those forecasts predicting a slowdown or recession only 50% (7 out of 14) were correct, and of those made about growth 71% (17 out of 24 were correct). This could be because slowdowns are harder to predict (as seen by the lower success rate), or it could be due to the fact that the economy is more often growing than in recession.⁸ In addition we see from Table 3, that academic and trade journal forecasts in our sample were significantly more accurate than those made in the regular news media (91% vs. 52%).

⁸ If in fact recessions are harder to predict than recoveries, this would fit with a loss aversion theory suggesting that forecasters may protect their reputation by only making concrete predictions during periods of expansion.

Table 3: Forecasting within Sample Articles

	Prediction			Source	
	Total	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

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

For a complete list of article sources, see Appendix A.

Expansion includes a prediction of economic growth or recovery from recession.

Contraction includes a prediction of economic decline or descent into recession.

6.2 Sifting Forecasts from the News Media

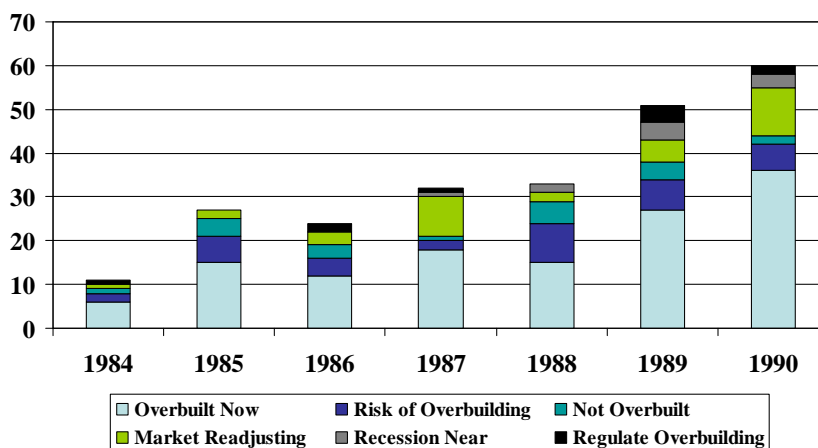
Our second exercise limits the risk of our printed articles sample selection biasing the results. We employ the following methodology to analyze patterns in forecasting behavior. Using the subset of NBER “turning points,” we search the Lexis Nexus database of US newspapers and wire articles for specific key words, focusing particularly on articles from the *New York Times*, *Washington Post*, related publications and news wires. The aim is to see if the number of articles with specific key words changes dramatically just before or after a “turning” point and to examine how the terms are 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 article by article 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 shown in Appendix B (the 1984 to 1990 office market articles) and Appendix C (2005 housing bubble articles only).

The Office Market in the 1980s

Figure 11 charts articles on the topic of the possibility of overbuilding in the office market, during the period when deregulation allowed the thrift industry to greatly expand investment outside of the housing sector. As shown in Figure 8 earlier, more than a half-decade of expanding office space and rising vacancies grew in part out of this 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 over

building was first raised in 1985, when the economy was expanding. The number of relevant articles increased and the tenor of most articles was that either the market was already overbuilt, or there was risk 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 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.⁹

Figure 11
Timeline of Articles on Office Overbuilding 1984-1990 (190 Articles)



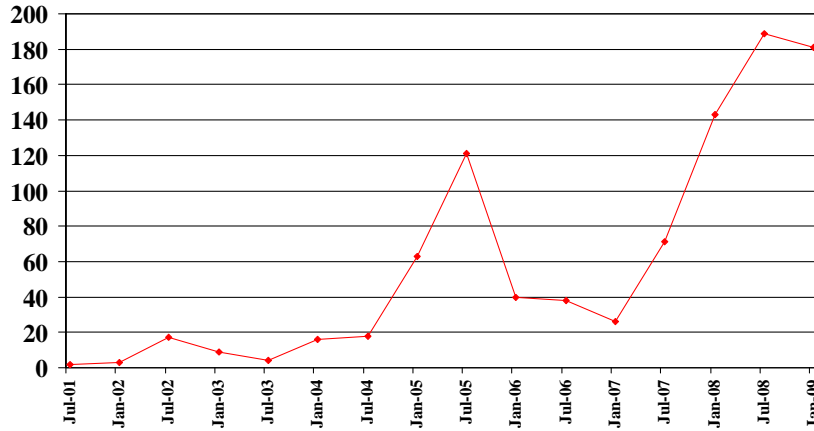
Source: Authors from articles drawn from Lexis-Nexis search conducted December 2009.

Foreshadowing the Housing Bubble in 2005

Major newspapers began covering the possibility of a housing bubble well before the crisis became widely recognized in late 2007. Indeed, there was a small bubble of articles in 2005 on the topic. Of the 940 articles drawn from Lexis-Nexis in the New York Times, Washington Post, and AP wires on the topic of a housing bubble, 180, or about 20 percent, were published in 2005, as shown in Figure 12. Figure 13 disaggregates the 2005 articles by tenor of the article. A series of articles first emerged in the second quarter of the year. At that time, very few suggested a bubble now 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.

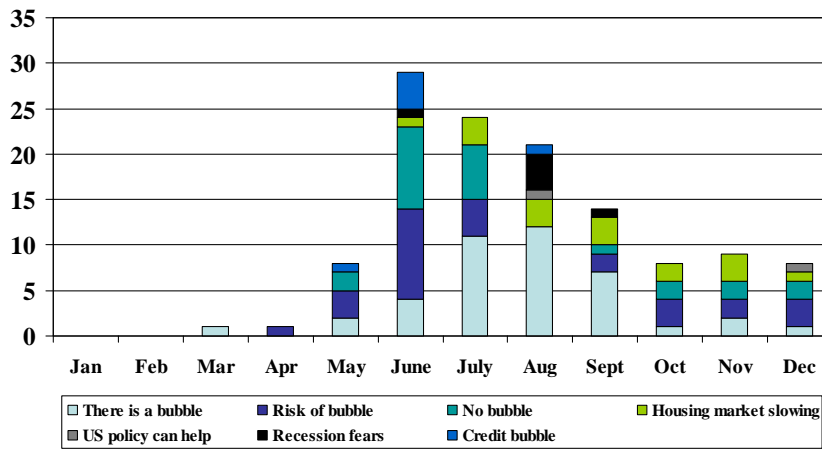
⁹ We have not normalized the number of articles by adjusting the levels as a share of all business or news articles. By keeping articles to a limited number of sources (New York Times, Washington Post, and AP News Wire), and culling out AP News Wire articles that were repeated in several sources, we restricted the effects on article numbers from the explosion of news media that has occurred in the last few decades.

Figure 12
 “Housing Bubble” Articles (New York Times, Washington Post, AP) 2001-2008



Source: Authors from articles drawn from Lexis-Nexis search conducted December 2009.

Figure 13
 Tenor of Housing Bubble Articles in 2005 (123 Articles)



Source: Authors from articles drawn from Lexis-Nexis search conducted December 2009.

By third quarter, a far larger number were asserting that a housing bubble existed, while other articles pointed to the housing market slowing.

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 M. 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."

Porter (2005). *New York Times*, Section 3, p.1.

Yet by fourth quarter of the year, the whole discussion had tapered off. A December 2005 article noted:

Rising interest rates, slowing home sales and cautious forecasts from some of the nation's biggest homebuilders are signs that a long-expected slowdown in the housing sector is under way.

But 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.

Chu (2005). *AP Financial Wire*.

Although a few articles continued to voice concerns about the housing market and its possible repercussions, a major up-tick in coverage only reemerged in much more severe terms in late 2007.

Most real estate experts still consider a crash — say, a 20 percent decline — to be unlikely, even in California. But 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.

Leonhardt (2006). *New York Times*.

6.3. Public Opinion, Animal Spirits and Self-Fulfilling Prophecies

One of the salient impacts of both academic output and media reports is the molding influence it has on public opinion. Our previous sections asked the questions – what do academic economists, professional forecasters, policymakers think is going to happen in the economy and the housing market? What consensus do the media reflect as in aggregating these forecasts? Here we ask ourselves the question – what does public opinion think will happen, or, what are its concerns and fears, both as a result of dissemination of informed opinion and social psychology?

Markets, after all, are a social construct, based on the collective action of multitudes. Keynes first proposed the term “animal spirits” to describe collective emotion, mania, panic, hysteria, etc., reflected in consumer confidence, or its lack thereof, that generates a spontaneous urge to action. The nurturing of sustained pessimism, for example, can generate self fulfilling prophecies; i.e. a prediction that is socially accepted can directly or indirectly be rendered true in reality due to positive feedback between belief and behavior, and network externality effects. If a

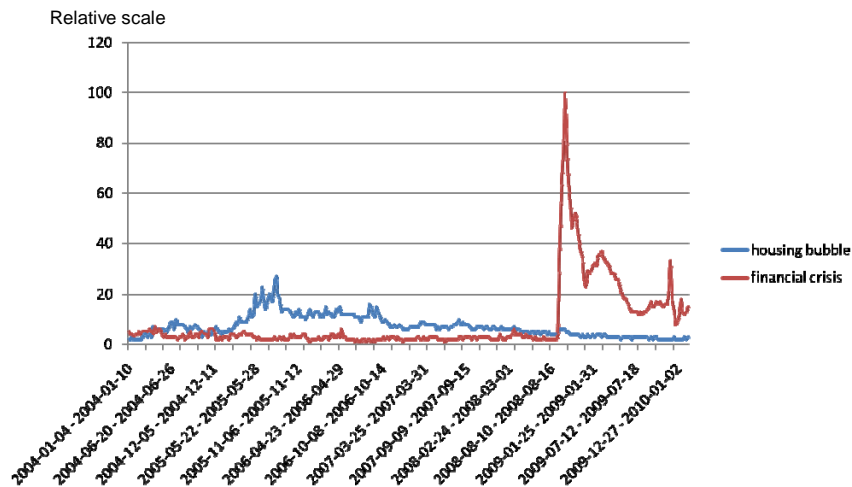
sizeable number of people think there is a housing bubble, and a critical mass are moved to start the sell-off, the resultant price decline may further stimulate sales, thus confirming the prophecy.

There has been increasing recognition of the role of social psychology and animal spirits in the generation of economic (more specifically macro-economic) outcomes, for example in the recent book by Akerlof and Shiller (2009). The failure of traditional economic models to adequately forecast and explain the recent crisis, particularly the housing bubble euphoria and now the collective doom-and-gloom ethos, has been part of the motivation. In the words of Akerlof and Shiller, it is the stories that people tell each other and the phrases and metaphors that are widely prevalent that end up having real effect.

Our interpretation, in a very limited way, is to look at the impact of a couple of phrases on the housing market. The working hypothesis is: Can we show that there was 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?

In the news media section we turned to Lexis-Nexis database to gauge the frequency of relevant articles. We now turn to a relatively recent tool introduced by Google – Google Insights for Search - which helps analyze the timeline of historic internet Google searches carried out by people all over the world.

Figure 14
Web Search Statistics: Housing Bubble vs. Financial Crisis

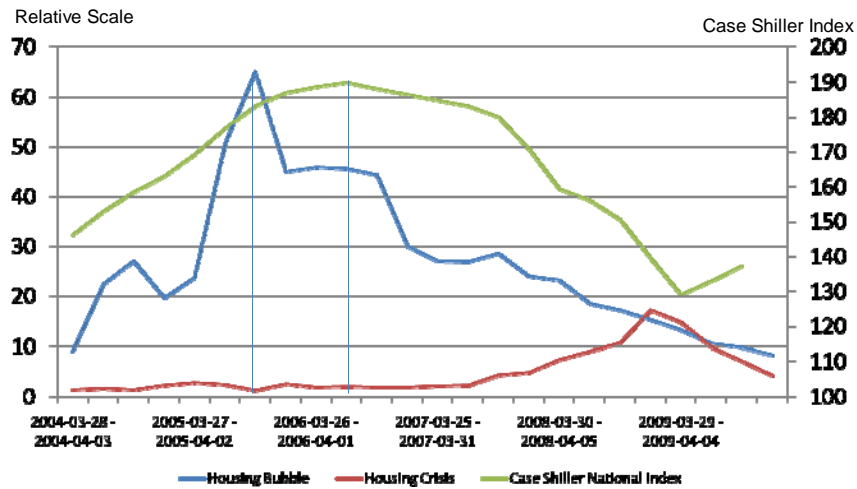


Source: Google Insights for Search

Figure 14 shows the relative frequency of the phrases “housing bubble” vs. “financial crisis” between 2004 and 2010. The former searches peaked (relative to total searches) in 2005, a full two years before the crisis. Figure 15 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 Lexis-Nexis, also shows a peak frequency of “housing bubble” related articles in

2005). Superimposing the Case-Shiller national index on the graph, we see the “housing bubble” search peaking about a year before prices peaked.

Figure 15
Web Search Statistics:
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, we believe that “social” forecasting, in the sense of a self-fulfilling prophecy is worth studying. Future work will revolve around identification of key metaphors, phrases and stories that gripped the imagination in the housing bubble runup; relating the “count” to subsequent impact and figuring out a way to gauge the critical tipping point – when a story acquires “legs.”

7. Conclusion

Returning to the question of “Should we have seen it coming?” a review of historic articles suggests that there is often a series of warnings before a major shift occurs. Internet-based evidence on the “housing bubble” story doing the rounds also supports this premise. In some ways, however, the warnings are similar to earthquake predictions. There is ample evidence that the conditions exist for a major shake-up, but it is difficult to predict just when, how strong, and what form the event will take. This makes decision making tricky on specific investment actions. Someone who sold out their real estate holdings in 2005 might well have watched the growth over the next two years and have felt they made a foolish decision. Yet further hindsight would have proven that they were far better off than someone who entered the market in 2005.

However, the analogy does not stretch too far. Major shifts in the economy occur much more frequently than do earthquakes, and appear to take place with greater certainty. A rule of thumb might be that if a market trend seems too good to be believed, then do not expect it to

continue indefinitely. Similarly, an economy that appears to be collapsing may still recover. Putting it somewhat differently, beware of public euphoria or hysteria. A second word of caution is that since business cycles are an integral part of a market economy, a consistently held forecast will turn out to be right at some point. Finally, while recent history is not always a good predictor of future trends, it can be very useful to be familiar with long term history that covers several cycles. This knowledge would remind those using risky investments for high returns that what goes up also comes down. Our review shows how difficult it is to have any reliable forecast, but that good information weighed by experience can help to temper uncertainty.

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