

Blowing Bubbles

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The forecasts of individual investors, surveyed by Gallup/PaineWebber, imply that they believed that the market was in a bubble in the late 1990s and expected the bubble to continue to inflate; many investors thought that the stock market was overvalued in the late 1990s but many also thought that it was a good time to invest. The forecasts of institutional investors, surveyed by Business Week, imply that they too believed that the market was in a bubble in the late 1990s, but they expected the bubble to burst. Institutional investors were bearish in the late 1990s, but turned bullish after the stock market decline of 2000, while individual investors turned bearish.

Alan Greenspan, Chairman of the Federal Reserve Bank, was concerned about the irrational exuberance of investors on December 5, 1996, when the S&P 500 Index was at 744 and the Nasdaq Index was at 1,300. A year later Mark Geist, president of Montgomery Asset Management, was equally concerned. "More than the absolute numbers it's the pattern of those numbers that concerns us," he said in an interview with Wyatt, "If investors are expecting those kinds of returns and they don't achieve them, the danger is that they will have a knee-jerk reaction and pull money out of the market" (1997). The S&P 500 Index was at 967 on October 10, 1997, as the interview was published, and the Nasdaq Index was at 1,739.

The S&P 500 rose to 1,527 on March 24, 2000 and the Nasdaq rose to 5,049 on March 10, 2000, before they fell. The Nasdaq fell especially hard, to 1,639 by April 4, 2001. The rise of stocks, especially technology stocks, and their subsequent fall is often described as the inflation of a bubble and its deflation. But did investors think they were floating in a bubble? Were their expectations exuberant? We study the expectations of individual investors, institutional investors and finance academics in the late 1990s and early 2000s and answer these questions.

The forecasts of individual investors imply that they believed that the market was in a bubble in the late 1990s and expected the bubble to continue to inflate; many investors thought that the stock market was overvalued in the late 1990s but many also thought that it was a good time to invest. The forecasts of institutional investors, like those of individual investors, imply that

they believed that the market was in a bubble in the late 1990s, but they expected the bubble to burst. Institutional investors expected low returns in the late 1990s, much lower than historical returns. For example, institutional investors expected in December 1998 a mean S&P 500 Index return of 1.56% during 1999. However, by December 2000 institutional investors expected a mean of 19.20% during 2001.

The optimism of individual investors about achieving their short-term financial goals moved up and down with the stock market but their optimism about achieving their long-term financial goals remained unshaken. The decline in the stock market from December 1999 to April 2001 brought with it a 22 percentage point decline in the proportion of investors who were optimistic about reaching their investment targets during the next 12 months, from 75% in December 1999 to 53% in April 2001. But the proportion of investors who were optimistic about reaching their investment targets over the next 5 years declined by only one percentage point, from 80% to 79%. Individual investors are especially optimistic about their own fortunes. While individual investors expected a mean 15.3% return on the stock market during the 12-month following December 1999, they expected a mean 18.5% return on their own portfolios.

Surveys of Expectations

Gallup has been conducting the PaineWebber Index of Investor Optimism surveys since June 1998. The surveys were conducted each quarter in 1998 and each month since 1999. The April 2001 survey includes 1,003 investors aged 18 and higher, conducted from April 2nd through April 15. The range of questions in the Gallup survey is wide, from the outlook for unemployment to attitudes towards Social Security and to expectations about stock returns.

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Business Week has been conducting surveys of the expectations of institutional investors in December of each year since 1995. The December 2000 list includes 38 institutional investors representing institutions such as Salomon Smith Barney, J.P. Morgan and UBS Warburg. Institutional investors are asked to forecast the levels of the DJIA, S&P 500 and Nasdaq at the end of the following year. They are also asked to specify their preferred asset allocation, favorite stock sector and favorite stock.

Ivo Welch (2000, 2001) conducted three surveys of finance academics, one consisting of 114 respondents conducted from October 1997 to February 1998, another consisting of 112 respondents conducted from January 1999 to May 1999, and a third, consisting of 510 respondents in August 2001. Respondents were asked for their estimate of equity premia over horizons ranging from one to 30 years.

Expectations About Stock Returns

Question 16 in the Gallup survey asks for the return expectations of individual investors during the coming year. "Thinking about the stock market more generally,

what overall rate of return do you think the stock market will provide investors during the coming twelve months?" The Gallup survey does not specify the stock index that proxies for the "stock market," and we use the S&P 500 Index as a proxy.

The mean stock market return that individual investors expected in December 1998 was 12.10%, as presented in Table 1. That mean rose to 15.30% in December 1999, fell to 10.50% in December 2000 and fell further to 7.20% in April 2001. The medians of the expected returns of individual investors are lower than the means, indicating that the distribution of expectations is skewed to the right; a few investors with very high return expectations pull the mean higher. For example, while the mean expected return in December 1999 was 15.30%, the median was only 12.00%.

Dreman et al. (2001) conducted surveys of the expectations of individual investors in 1998 and in late March 2001 and reported higher expectations than those in the Gallup surveys. The mean expected return in 1998 in the Dreman et al. survey was 14.8%, higher than the 12.1% mean in the December 1998 Gallup survey. The median in the late March 2001 Dreman et al. survey was 11.4%, higher than the 7.2% mean in the April 2001 Gallup survey.

Table 1. *Expectations for Stock Market Returns by Individual Investors, Institutional Investors and Finance Academics*

	Expected Stock Returns			Realized Stock Returns	
	Institutional Investors	Individual Investors	Finance Academics	S&P 500 Index Returns During the Preceding 12 Months	S&P 500 Index Returns During the Following 12 Months
Dec-96					
mean	5.55%	NA	NA	27.86%	33.37%
median	9.44%	NA	NA		
Dec-97					
mean	6.56%	NA	NA	28.54%	28.58%
median	9.88%	NA	NA		
Dec-98					
mean	1.56%	12.10%	10.28%	23.67%	21.03%
median	3.20%	10.10%	10.48%		
Dec-99					
mean	7.22%	15.30%	NA	20.88%	-9.10%
median	8.34%	12.00%	NA		
Dec-00					
mean	19.20%	10.50%	NA	-4.21%	-11.89%
median	18.62%	10.00%	NA		
Apr-01					
mean	NA	7.20%	NA	-21.68%	NA
median	NA	6.00%	NA		
Aug-01					
mean	NA	8.20%	6.93%	-14.32%	NA
median	NA	7.00%	6.53%		

Note: Expected returns are for the S&P 500 Index and were calculated by adding the realized dividend yield of the year to the appreciation of the S&P 500 Index (except for expected returns during 2001, where the realized dividend yield of 2000 was added).

Expected stock returns of individual investors are from Question 16 of the Gallup survey: "Thinking about the stock market more generally, what overall rate of return do you think the stock market will provide investors during the coming twelve months?"

Expected stock returns of finance academics were calculated by adding the one-year equity premium in Welch's (2000, 2001) surveys to the risk free rate. The mean equity premium is 5.8% and the median is 6.0% for December 1998. The mean is 3.4% for August 2001, and the median is 3.0%. The risk free rate is estimated as the yield of 3-month U.S. Treasury bills (middle rate). Treasury bill data are from Datastream.

Source: Expected stock returns of institutional investors are from Market Forecast Survey, *Business Week* issues of Dec. 30, 1996—p. 81; Dec. 29, 1997—p. 93; Dec. 28, 1998—p. 99; Dec. 27, 1999—p. 123 and Dec. 25, 2000—p. 75.

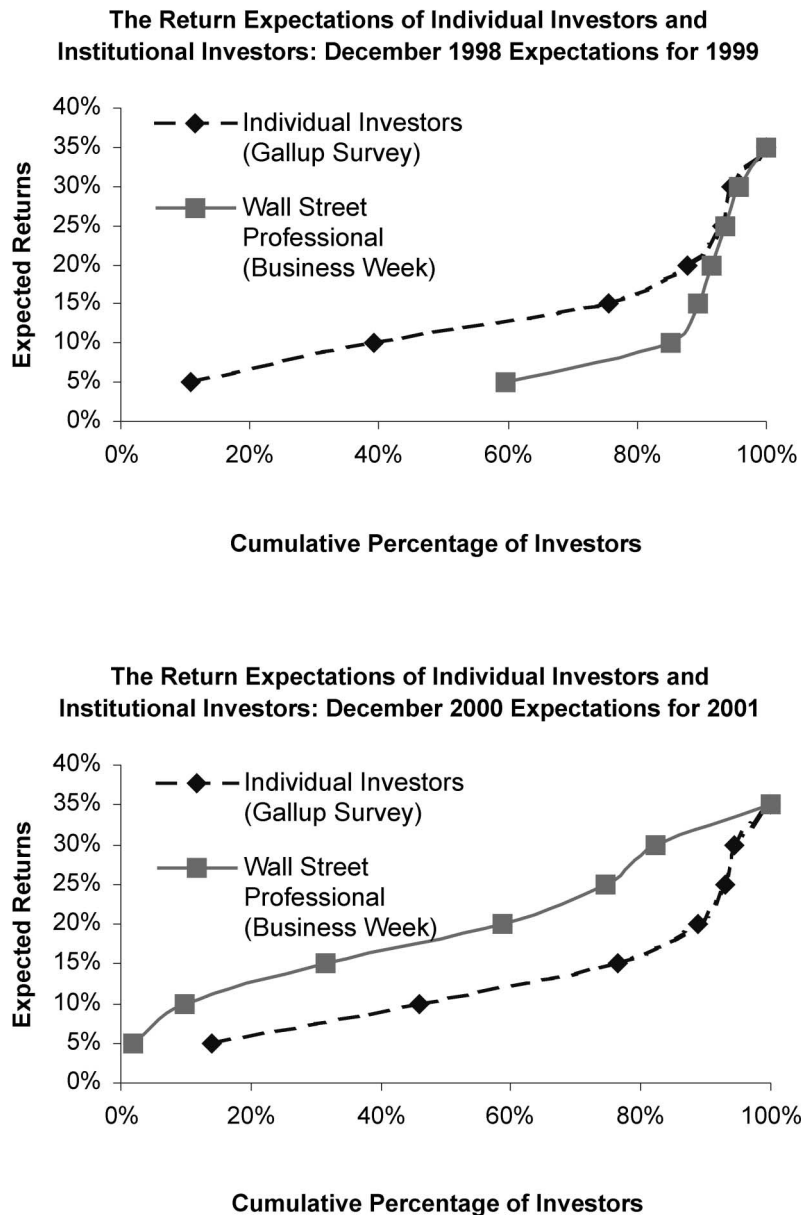
The expectations of institutional investors were much lower than those of individual investors in December 1998 and December 1999 but they were much higher than those of individual investors in December 2000. Institutional investors expected a mean 1.56% return on the S&P 500 Index in December 1998, much lower than the mean 12.10% expected by individual investors. Figure 1 presents the distribution of the expectations of individual investors and institutional investors in December 1999 and December 2000.

The mean return expected by institutional investors rose to 7.22% in December 1999, still lower than the

15.3% mean return expected by individual investors, but the relationship was reversed by December 2000. While individual investors expected a mean 10.50% return for the next 12 months, institutional investors expected a mean 19.20% return.

Finance academics in the Welch (2000, 2001) surveys provided their expectations of the equity premium. The mean one-year equity premium was 5.8% and the median was 6.0% in the 1997–1999 surveys. The mean one-year equity premium fell to 3.4% and the median fell to 3.0% in the August 2001 survey. We calculated stock returns expected by finance academ-

FIGURE 1
The Return Expectations of Individual Investors and Institutional Investors



Note: The expectations of institutional investors are for S&P 500 returns. The expectations of individual investors are for stock market returns.

ics by adding the equity premium to the risk free rate, proxied by the yield on 30-day Treasury bills. We centered the expectations of 1997–1999 on December 1998.

The mean stock market return expected by finance academics was 10.28% in December 1998, composed in a 4.48% T-bill rate and a 5.8% equity premium. The median was 10.48%. These expected returns are similar to the returns expected by individual investors in December 1998, a mean of 12.1% and a median of 10.1%. The expectations of finance academics dropped by August 2001, in line with the drop in expectations of individual investors. The mean return expected by finance academics in August 2001 was 6.93%, not much different from the mean 8.2% expected by individual investors. The median expected return by finance academics in August 2001 was 6.53%, not much different from the 7.0% median return expected by individual investors.

Bubbles

Stock market bubbles exist when stocks trade at prices much higher than their value. But bubbles are difficult to detect since value is difficult to measure; what is the value of Amazon.com? What is the value of Nasdaq? We learn about bubbles in field stocks, such as Amazon.com, traded in field markets, such as Nasdaq, from bubbles in laboratory markets, where values are set and trading conditions are controlled. Calginap, Porter and Smith (2000) provide a review of the evidence on bubbles in laboratory markets and add to that evidence.

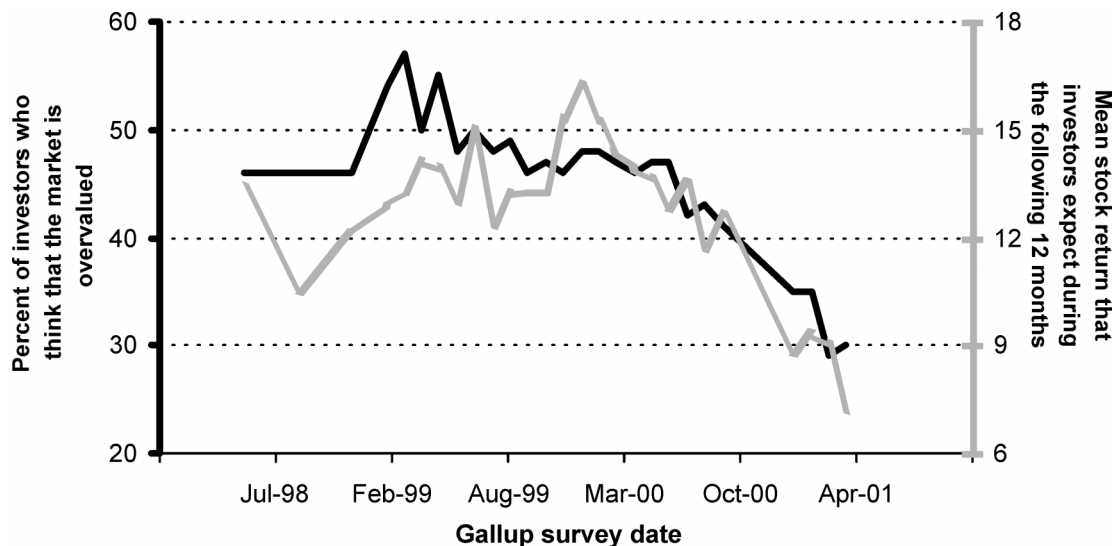
Smith, Suchanek and Williams (1988) were the first to observe bubbles in laboratory markets. The inflation of these bubbles resembles the familiar greater fool theory of investment. Investors buy stocks at prices higher than their value as if they expect to sell the stocks to greater fools at even higher prices. But bubbles occur even when the greater fool theory cannot hold. Lei, Noussair and Plott (1998) show that bubbles occur in markets where traders are restricted to buy or sell only once and, therefore, cannot hope to trade later with greater fools.

Almost half of individual investors thought that the market was in a bubble in December 1999. Question 22 of the Gallup survey is, in effect, a question about bubbles, since bubbles exist when markets are overvalued; “Do you think that the stock market is overvalued, valued about right, undervalued, or are you unsure?”

Forty six percent of investors thought that the stock market was overvalued in December 1999 while only 5% thought that it was undervalued. Another 26% percent of investors thought that the market was valued about right and 23% refused to answer the question or did not know the answer.

Investors believe that bubbles will continue to inflate. When investors believe that the stock market is in a bubble they also believe that future returns will be high. Figure 2 shows that the proportion of investors in the Gallup survey who thought the market was overvalued decreased from 46% in December 1999 to 30% April 2001. Figure 2 also shows that investors expected lower returns in the 12 months following April 2001 than in the 12 months following December 1999. The mean return expectation for the 12 months following April 2001 was 7.2%, less than one half of the mean

FIGURE 2
The Relationship Between the Proportion of Investors Who Think That the Stock Market Is Overvalued and the Mean Stock Market Return That Investors Expect During the Following 12 Months

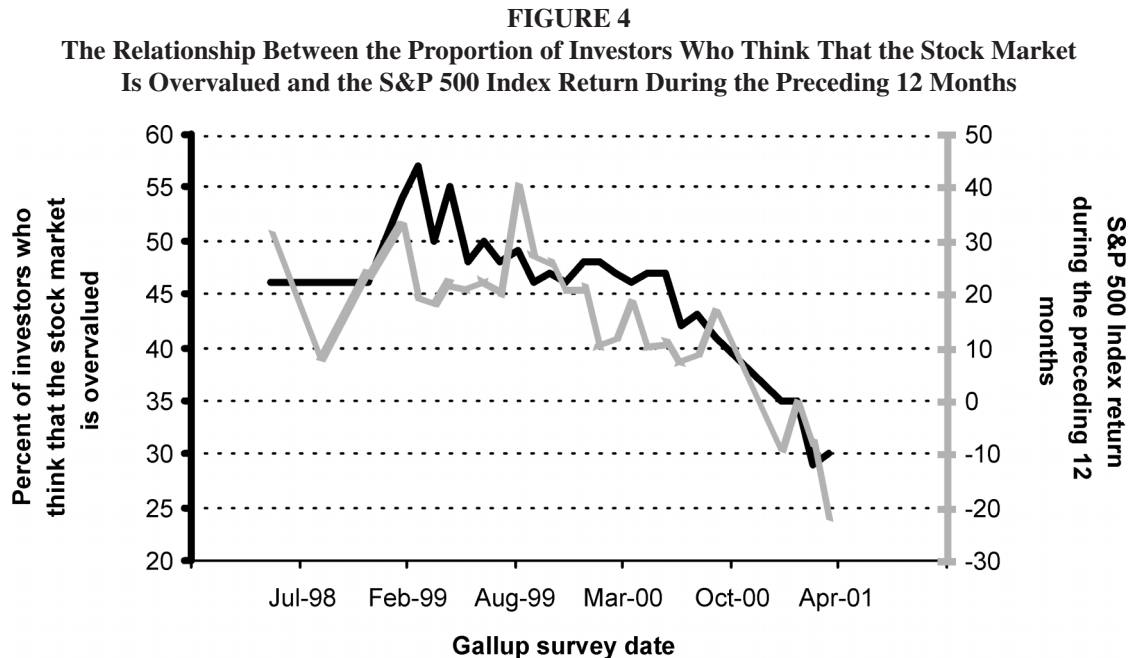
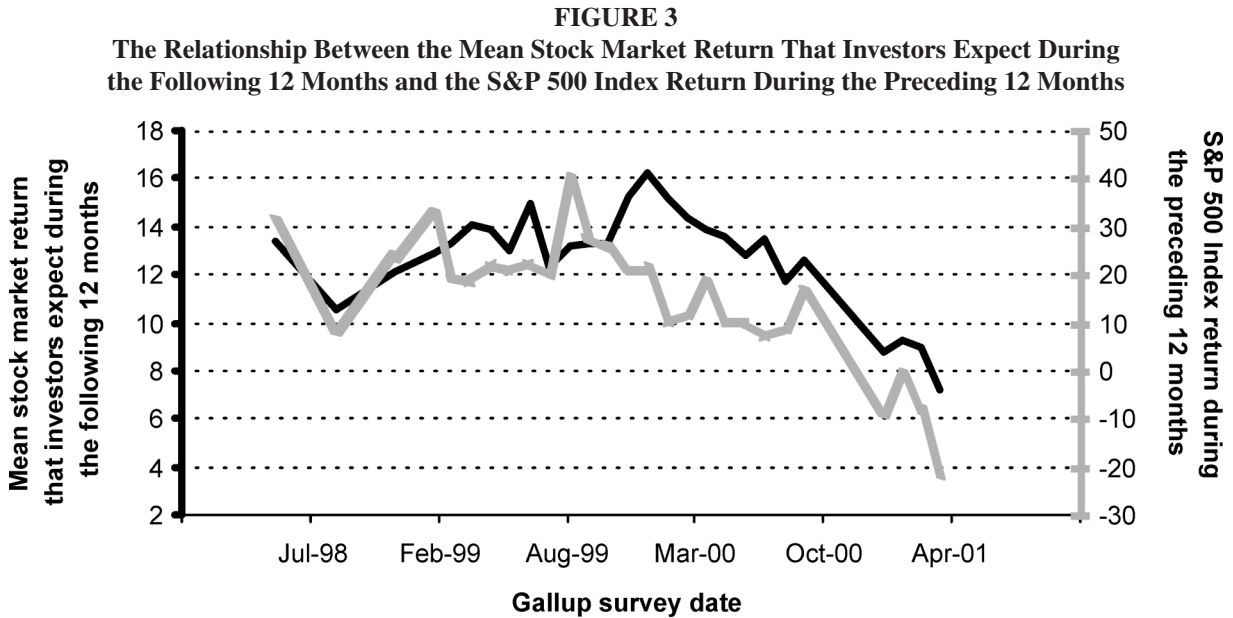


15.3% return expectation for the 12 months following December 1999.

Individual investors form expectations about future stock returns as if they extrapolate past stock returns; they expect high stock market returns following high stock market returns and low returns following low stock market returns. Figure 3 shows that investors in the Gallup survey expected a mean 15.3% stock market return in the 12 months following December 1999, following a 20.88% S&P 500 Index return in the preceding 12 months, but they expected only a mean 7.2% stock market return in the 12 months following April 2001, following a 21.68% S&P 500 Index loss in the preceding 12 months.

Individual investors associate high past stock market returns with bubbles. Figure 4 shows that 46% of investors in the Gallup survey thought that the stock market was overvalued in December 1999, following a 20.88% S&P 500 return during the preceding 12 months but only 30% thought so in April 2001, following the 21.68% S&P 500 loss during the preceding 12 months.

The Gallup survey paints a picture of individual investors who believe the greater fool theory of investments. Investors believe, in effect, that inflating bubbles will continue to inflate and deflating bubbles will continue to deflate. The picture of investors as believers in the greater fool theory is focused further by the relationship between the proportion of investors who think that



the stock market is overvalued and the proportion of investors who think that now is a good time to invest. Figure 5 shows that while 46% of investors in the December 1999 Gallup survey thought that the market is overvalued, 75% of investors thought that “now is a good time to invest in financial markets.” The proportion of investors who thought that the market was overvalued in April 2001 decreased to 30% and that decrease is accompanied by a decrease in the proportion of investors who thought that now is a good time to invest in financial markets, from 75% in December 1999 to 65% in April 2001.

Continuations and Reversals

Individual investors form expectations about stock returns as if they believe that bubbles will inflate; they form expectations about stock returns as if they believe that future returns will continue the trend of recent returns. But that belief is not grounded in fact. In fact, there is little association between past stock returns, as represented by the S&P 500 Index, and future stock returns over periods extending from a month to a year, as demonstrated by McQueen, Pinegar and Thorley (1996), and others. The biased expectations of individual investors conform to the representativeness heuristic.

People who follow the representativeness heuristic place too much emphasis on singular information, such as an up trend in recent stock returns, and too little emphasis on base-rate information, such as the lack of systematic relationship between past stock returns and future stock returns. Individual investors fall prey to the representativeness heuristic by concluding, in error, that high returns in the past will be followed by high returns in the future, while the correct conclusion

is that past returns tell us nothing about future returns. It turns out that institutional investors also follow the representativeness heuristic as they form expectations about stock returns, but while individual investors expect continuations of recent stock returns, institutional investors expect reversals. This is the gamblers’ fallacy form of representativeness and it is equally wrong.

Institutional investors in the December 1999 BusinessWeek survey expected a mean S&P 500 Index return of 7.22% for 2000, following a 20.88% S&P 500 return during the preceding 12 months, but in December 2000 they expected higher returns, a mean 19.20%, for 2001, following a *negative* 4.21% S&P 500 return during the preceding 12 months (see Table 1).

The tendency of individual investors to expect continuations of returns is also reflected in the surveys of the American Association of Individual Investors (AAII) and the tendency of institutional investors to expect reversals of stock prices is also reflected in the Merrill Lynch surveys of Wall Street market strategists. Figure 6 shows a positive relationship between S&P 500 Index returns in the past three and six months and the bullishness of AAII investors about future returns. Figure 7 shows a negative relationship between the same past returns and the bullishness of Wall Street strategists. However, the relationship between past returns and bullishness about future returns is stronger for AAII investors than for Wall Street strategists. It turns out that both individual investors and institutional investors are generally wrong. Fisher and Statman (2000) found a negative and statistically significant relationship between the sentiment of both groups and subsequent returns.

The pattern of expectations of finance academics is especially interesting since finance academics claim to

FIGURE 5
The Relationship Between the Proportion of Investors Who Think That the Stock Market Is Overvalued and the Proportion of Investors Who Think That Now Is a Good Time to Invest

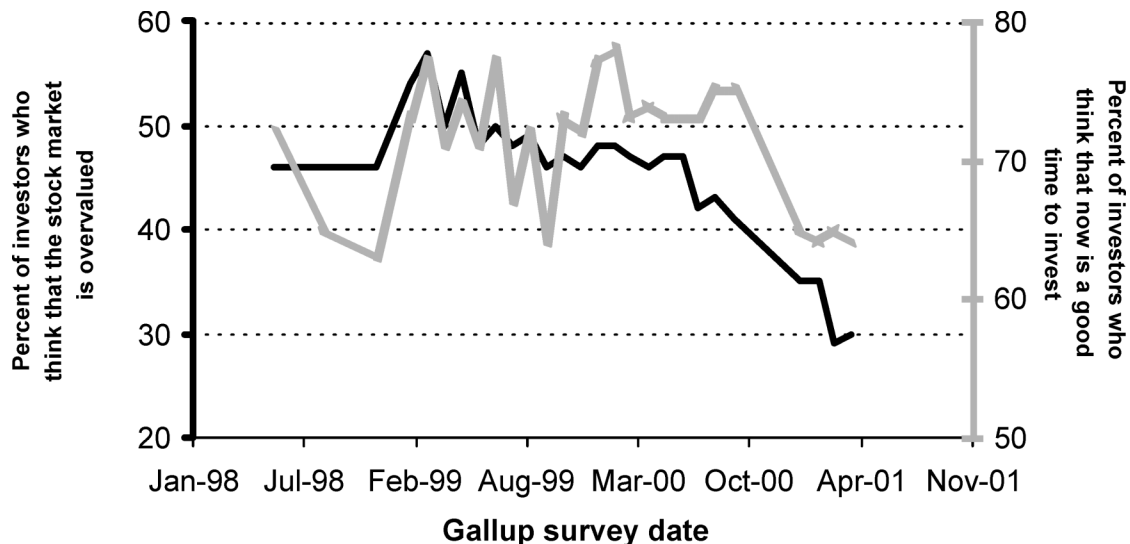
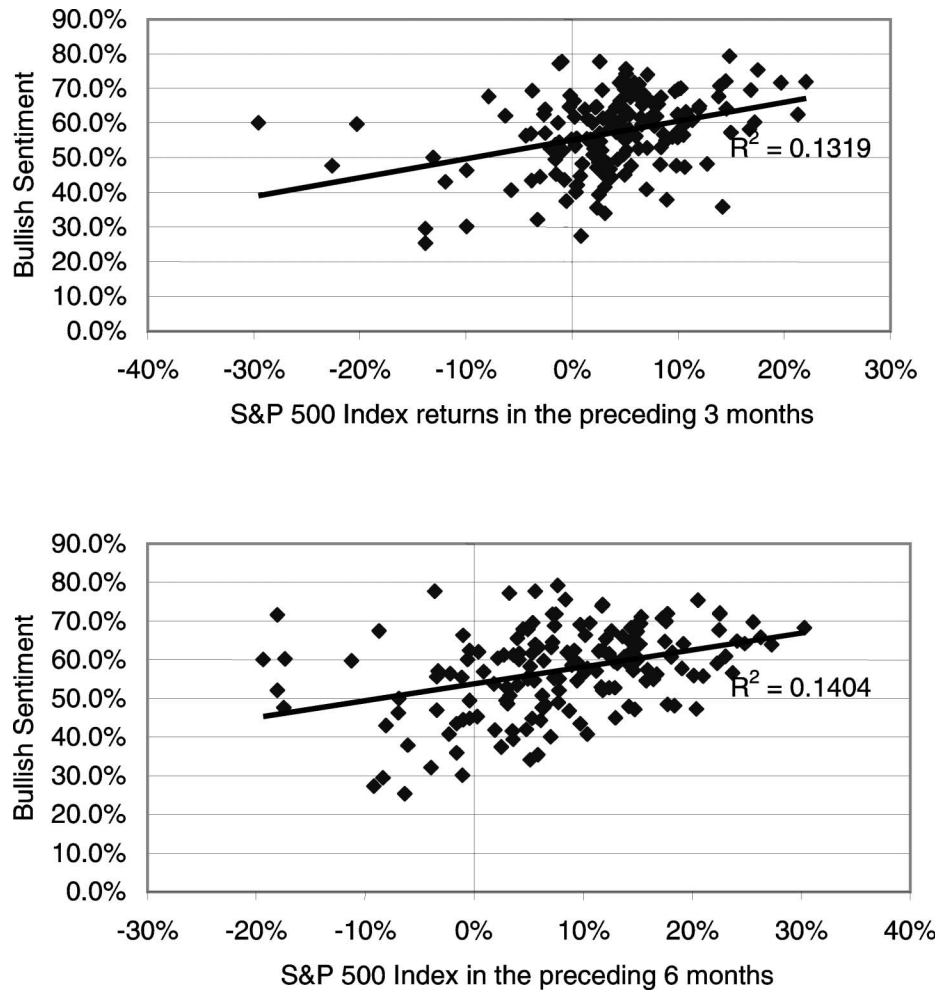


FIGURE 6

The Relationship Between the Sentiment of Individual Investors and S&P 500 Index Returns in the Preceding 3 Months and in the Preceding 6 Months



expect reversals while their actual expectations reveal them as ones who expect continuations. As Welch (2001) noted, respondents to the 1997–1999 surveys claimed, on average, that bull markets lead them to lower their forecasts of the equity premium while bear markets lead them to raise them. Yet finance academics *lowered* their forecasts of the equity premium in the wake of the 2000 and 2001 bear market.

Perhaps finance academics lowered their expectations of the equity premium in the 2001 survey because they were convinced by Fama and French (2001) that the old expectations were too high. Or perhaps finance academics lowered their expectations because they, like individual investors, forecast continuations.

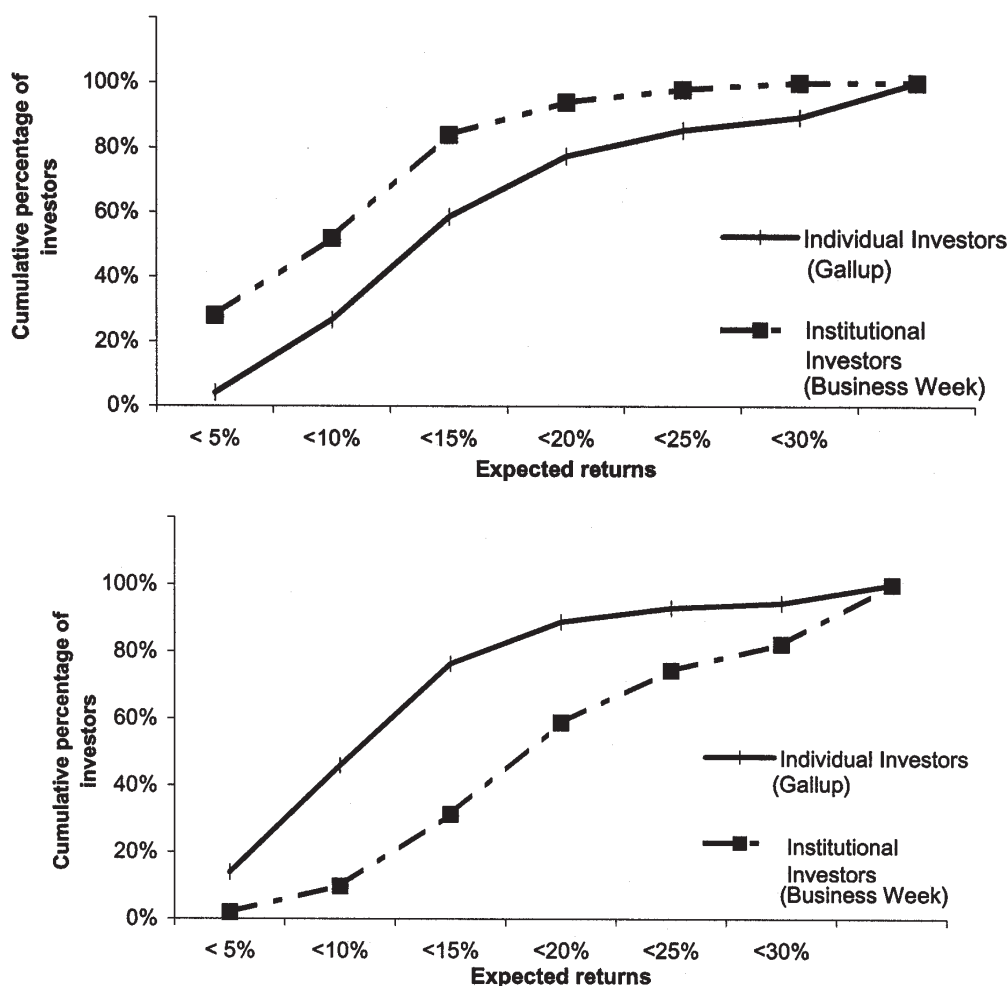
The difference between the patterns where individual investors expect continuations of returns while institutional investors expect reversals is not likely to be due to differences in financial education. Finance academics are as well educated as institutional investors yet the pattern of the expectations of finance academics resembles that of individual investors, not institutional

investors. Alternatively, it might be that the difference between the pattern of expectations of individual and institutional investors is due to business considerations that affect institutional investors but do not extend to individual investors or finance academics. The effect of business considerations is noted in studies, such as the one by Chevalier and Ellison (1997) who found that mutual fund managers respond to the business need to attract investors by modifying the risk of their funds.

Exuberance

Historical returns are one yardstick by which return expectations can be judged but such returns vary by period and by index. The mean annual return of the S&P 500 Index was 12.98% during the 1926–2000 period while the median was higher, at 16.48%. Returns before 1926 were lower, on average, than returns after it; the mean annual return during the 1872–2000 period was 10.66%, while the median was lower, at 7.99%.

FIGURE 7
The Return Expectations of Individual Investors and Institutional Investors:
December 2000 Expectations for 2001 and December 1999 Expectations for 2000



Note: The expectations of institutional investors are for S&P 500 returns. The expectations of individual investors are for stock market returns.

The mean equity premium of the S&P 500 Index during the 1926–2000 period was 9.12% and the median was 9.93%.

The expectations of individual investors can hardly be described as exuberant when compared to historical returns. The mean 15.30% expected return in December 1999 is at the high end of average historical returns, but the 12% median expected return on that date is much closer to the middle of the range of historical returns. At other times expectations were lower than historical returns. The mean 10.5% return expected in December 2000 and the median 10.0% on that date are lower than all historical benchmarks other than the 7.99% median of 1872–2000. The 7.2% mean expected return and the 6.0% median of March 2001 are lower than all historical benchmarks.

While the expectations of individual investors during the late 1990's are within the range of historical

returns, the expectations of institutional investors in 1996–1999 seem almost depressed when compared to historical benchmarks. The mean expected return on the S&P 500 Index was 5.55% in December 1996, 6.56% in December 1997, 1.56% in December 1998 and 7.22% in December 1999. The mean expected returns for the Nasdaq were generally lower, 1.33% in December 1996, 7.60% in December 1997, a 4.75% loss in December 1998 and a 6.30% loss in December 1999. However, institutional investors were exuberant in December 2000, expecting a mean 19.20% S&P 500 return for 2001, and an astounding 45.20% mean Nasdaq return for that year.

The returns realized during the 1926–2000 period and the even the longer 1872–2000 period might have been higher than the returns that could have been reasonably expected. Fama and French (2001) estimated the expected equity premium during the 1951–2000 at

2.55% by dividend growth and at 4.32% by earnings growth. The Fama and French estimates of equity premia imply expected returns of 7.55% and 9.32%, assuming a risk-free return of 5%.

Individual investors were exuberant in the late 1990s if their expectations are judged by the benchmarks of Fama and French. The expectations of institutional investors were in line with the Fama and French benchmarks except in December 1998 when their 1.56% mean expectation was well below the risk-free rate and in December 2000 when their 19.20% mean expectation was high even when compared to historical returns.

Returns realized subsequent to expectations are another benchmark by which expectations can be judged. The expectations of individual investors were quite modest relative to subsequent realizations in the late 1990s and the expectations of institutional investors were downright depressed relative to these realizations. Realized returns exceeded the expectations of institutional investors by wide margins each year from 1996 through 1999. For example, while the mean expectation of institutional investors for the S&P 500 Index during 1997 was 5.5%, the realized return was 33.37%, and while the mean expectation of institutional investors for the Nasdaq Index during 1999 was a 4.75% loss, the realized return was an 85.59% gain. However, realized returns fell short of the expectations of institutional investors in 2000. The realized S&P 500 Index return was a 9.10% loss, much worse than the mean expectation for a 7.22% gain, and the realized return of the Nasdaq Index was a 39.29% loss, much worse than the mean expectation of a 6.30% loss. Realized returns exceeded the expectations of individual investors in 1999, but by smaller margins than they exceeded the expectations of institutional investors. While individual investors expected a mean 12.1% stock market return in 1999 the realized S&P 500

Index return was 21.03%. The expectations of individual investors for 2000, like the expectations of institutional investors, seem exuberant when judged by the returns realized that year. Individual investors expected a mean 15.3% gain, while the S&P 500 Index realized a 9.10% loss.

Optimism

Individual investors were optimistic about economic growth from 1997 until 1999 but their optimism declined afterwards. Table 2 shows that 66% of investors were somewhat optimistic or very optimistic about economic growth in December 1997. Optimism increased to 74% in December 1999 but declined to 42% by April 2001. Optimism about unemployment and inflation went up and down in parallel with optimism about economic growth but optimism about interest rates remained stable throughout the period. Fifty seven percent of individual investors were optimistic about interest rates in December 1997 and an almost identical 58% of investors were optimistic about interest rates in April 2001.

Individual investors were generally optimistic about achieving their investment and retirement goals. Eighty percent of the (non-retired) investors in the April 2001 survey were somewhat optimistic or very optimistic about achieving their retirement goals. Table 3 shows that the proportion of optimistic investors in April 2001 is similar to the proportion of optimistic investors in December 2000, December 1999 and December 1998 and higher than the 74% proportion in December 1997.

The ups and downs of the stock market and the economy affected the optimism of individual investors about their short-term financial future, but these changes had

Table 2. *The Optimism of Individual Investors About the Economy and the Stock Market*

	Percentage of Investors Who Are Optimistic About:					S&P 500 Index Return During the Preceding 12 Months (%)
	Economic Growth	Unemployment Rate	Performance of the Stock Market	Inflation	Interest Rates	
Dec-97	66	62	61	56	57	28.54
Dec-98	61	60	52	53	65	23.67
Dec-99	74	65	68	57	57	20.88
Dec-00	46	47	42	41	47	-4.21
Apr-01	42	37	28	37	58	-21.68

Note: These are the sum of the percentages of investors who identified themselves as very optimistic or somewhat optimistic on Question 7 of the Gallup survey.

Question 7. Now I would like to ask you to think about the factors that could affect the overall investment environment OVER THE NEXT TWELVE MONTHS. On the same five-point scale, as far as the general condition of the economy is concerned, how would you rate *a-e* OVER THE NEXT TWELVE MONTHS?

- Economic growth.
- Unemployment rate.
- Performance of the stock market.
- Inflation.
- Interest rate.

Table 3. *The Optimism of Investors About Achieving Their Financial Goals*

	Percentage of Investors Who Are Optimistic About:				S&P 500 Returns During the Preceding 12 Months
	Achieving Their Investment Targets Over the Next 12 Months	Achieving Their Investment Targets Over the Next 5 Years	Their Ability to Maintain or Increase Their Current Income Over the Next 12 Months	Achieving Their Retirement Goals	
Dec-97	72	80	73	74	28.54%
Dec-98	70	80	78	81	23.67%
Dec-99	75	80	80	81	20.88%
Dec-00	62	78	68	80	-4.21%
Apr-01	53	79	68	80	-21.68%

Note: These are the sum of the percentage of investors who identified themselves as very optimistic or somewhat optimistic on Questions Q3, Q4, A4a and C.

Q3: Overall, how optimistic or pessimistic are you that you will be able to achieve your investment targets over the next TWELVE MONTHS?

Q4: Overall, how optimistic or pessimistic are you that you will be able to achieve your investment goals over the next FIVE YEARS?

Q4a: Thinking now about your own household, and the things that impact on your ability to invest OVER THE NEXT TWELVE MONTHS, how would you rate your ability to maintain or increase your current income OVER THE NEXT TWELVE MONTHS?

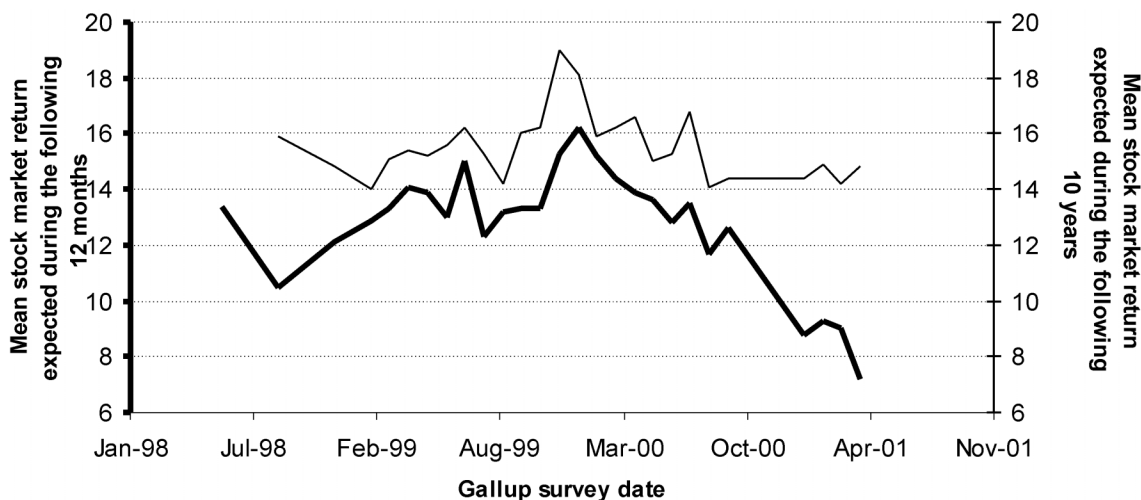
Q5: (If not retired) Overall, how optimistic or pessimistic are you that you will be able to achieve your RETIREMENT goals?

weaker effects on optimism about their long-term financial future. The proportion of investors who are optimistic about reaching their investment targets during the next 12 months declined 22 percentage points, from 75% in December 1999 to 53% in April 2001, in the wake of the decline in the stock market. But the proportion of investors who were optimistic about reaching their investment objectives over the next five years decreased by only one percentage point, from 80% in December 1999 to 79% in April 2001. Similarly, while the proportion of investors who were optimistic about increasing or maintaining their current income in the next 12 months decreased by 12 percentage points, from 80% in December 1999 to 68% in April 2001, the proportion of investors who are optimistic about achieving their

(long-term) retirement goals decreased only one percentage point, from 81% to 80%.

The optimism of individual investors about the long term is also reflected in their expectations for higher returns during the long term than during the short term. The greater optimism about the long term is also evident in the Dreman et al (2001) surveys of individual investors and in the Welch (2000, 2001) surveys of finance academics. Figure 8 shows that while individual investors expected a mean 15.3% return on the stock market in the 12-months following December 1999, they expected a mean annualized return of 19.0% in the following 10 years. And while they expected a mean 7.2% on the stock market over the 12 months following April 2001, they expected a mean annualized return of

FIGURE 8
The Relationship Between the Mean Stock Market Return That Investors Expect During the Following 12 Months and the Mean Stock Return Expected During the Following 10 Years



14.8% in the following 10 years. Moreover, recent returns affect expectations for short-term returns more than they affect expectations for long-term returns. While the decline in the stock market between December 1999 and March 2001 is associated with a decline from a mean of 15.3% to a mean of 7.2% in the expectations for 12-month returns, it is associated with a smaller decline in expectations of 10-year returns, from 19.0% in December 1999 to 14.8% in April 2001 compare to academics.

Some of the optimism of individual investors is surely unrealistic optimism; investors expect, on average, to be above average. Figure 9 shows that while investors expected a mean 15.3% return on the stock market in December 1999, they expected a mean 18.5% return in their *own* portfolios. And while investors moderated their expectations by April 2001, expecting a mean 7.2% return on the stock market in April 2001, they expected a mean 8.7% on their own portfolios.

Bursting Bubbles

“The U.S. market may be in an incipient bubble,” said Paul Samuelson in an interview with McGough (1999), but economists “have no theory of how long a bubble will last.” Indeed, it is easier to refute the wrong answers to the bubble question than to find the right answer.

High stock valuations have been offered as precursors to bubble bursts but valuation measures are hardly reliable at the task. While there is a negative relationship between valuation measures, such as P/E ratios and dividend yields, and subsequent 10-year returns as demonstrated by Campbell and Shiller (1998) and Shiller (2000), there is no statistically significant re-

lationship between these valuation measures and one-year or two-year returns, as demonstrated by Fisher and Statman (2000).

Exuberant expectations have been offered as precursors to bubble bursts but the return expectations of individual investors in the late 1990s were not high by historical benchmarks of returns and they were low by the benchmarks of subsequent realized returns. Moreover, the return expectations of institutional investors in the late 1990s were low by the historical benchmarks of returns and depressed by the benchmarks of subsequent realized returns.

Bubbles might inflate when news about the economy exceeds expectations and they might burst when news falls short of expectations. The first half of the conjecture is consistent with the evidence. Economists, surveyed by BusinessWeek, were too pessimistic about the economy at the end of each year from 1995 through 1998. For example, Table 4 shows that the mean 1.9% forecasted growth of GDP during 1999, made in December 1998, was much lower than the 4.2% realized growth. The S&P 500 Index was up a healthy 21.03% during 1999, perhaps catching up with the surprising good economic news. But the second half of the conjecture is not consistent with the evidence. The 3.1% mean forecasted growth of GDP during 2000, made in December 1999, was also pessimistic relative to the 5.0% realized growth and yet the S&P 500 Index was down 9.10% during 2000.

Perhaps the bubble was inflated by the exuberance of investors about particular stocks, not the market as a whole. Individual investors in the Gallup survey had higher expectation for their own portfolios than for the market as a whole. This is consistent with De Bondt’s (1998) survey evidence. The conjecture that the bubble was inflated by the exuberance of investors about par-

FIGURE 9
The Relationship Between the Mean Return That Investors Expect From the Stock Market During the Following 12 Months and the Mean Return They Expect From Their Own Portfolios

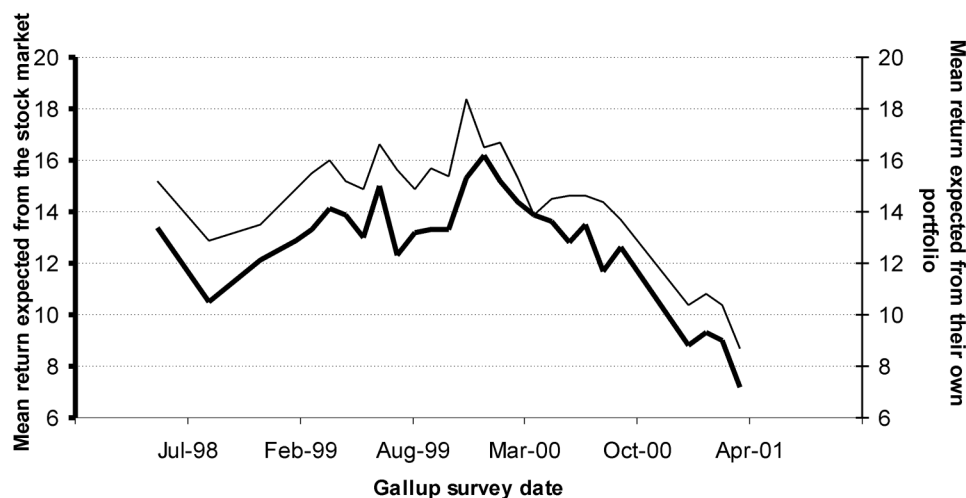


Table 4. *Forecasts of Stock Returns and Economic Variables by Institutional Investors and Institutional Economists and Realizations of Their Forecasts*

	1996	1997	1998	1999	2000
Forecasts of S&P 500 Index returns					
mean	8.69%	5.55%	6.56%	1.56%	7.22%
median	10.05%	9.44%	9.88%	3.20%	8.34%
Realized change	23.07%	33.37%	28.58%	21.03%	-9.10%
Forecasts of change in GDP					
mean	1.9%	2.1%	2.2%	1.9%	3.1%
median	2.1%	2.2%	2.3%	2.0%	3.1%
Realized change in GDP	3.6%	4.4%	4.4%	4.2%	5.0%
Forecasts of change in CPI					
mean	2.8%	3.0%	2.3%	2.1%	2.4%
median	2.8%	3.0%	2.5%	2.2%	2.5%
Realized change in CPI	3.3%	1.7%	1.6%	2.7%	3.4%
Forecasts of jobless rate					
mean	5.7%	5.4%	4.9%	4.9%	4.2%
median	5.7%	5.5%	4.9%	4.9%	4.2%
Realized jobless rate	5.4%	4.7%	4.4%	4.1%	4.0%

Source: For forecast of change in GDP, change in CPI and the jobless rate: *Business Week*, Economic Forecast Survey (Dec. 25, 1995—p. 65; Dec. 30, 1996—p. 73; Dec. 29, 1997; Dec. 28, 1998—p. 83; Dec. 27, 1999—p. 85 and Dec. 25, 2000—p. 67). For Realized change in GDP: Department of Commerce, Bureau of Economic Analysis. For Realized change in CPI: Department of Labor, Bureau of Labor Statistics. For Realized jobless rate: Department of Labor, Bureau of Labor Statistics.

titular stocks rather than the market as a whole is supported further by the fact that increases and decreases in stock prices were most pronounced in technology stocks, especially Internet stocks.

Conclusion

Economists “have no theory about how long a bubble will last,” said Paul Samuelson, but investors have many theories. Institutional investors form expectations about stock returns as if theory predicts that bubbles will burst soon after they are formed while individual investors form expectations about stock returns as if theory predicts that bubbles will continue to inflate.

Individual investors thought that the stock market was in a bubble in the late 1990s and expected that bubble to inflate; the proportion of investors who thought that the stock market was overvalued was high in the late 1990s and so was the proportion of investors who thought that it was a good time to invest. The return expectations of institutional investors imply that they, too, thought that the stock market was in a bubble in the late 1990s, but they expected the bubble to burst. The return expectations of institutional investors were low in the late 1990s, as if they expected the bubble to burst, but the return expectations turned high in December 2000, after the bubble burst.

It is easier to refute the wrong answers to the bubbles question than to find the right ones. Bubbles do not inflate forever, contrary to the expectations of individual investors and bubbles do not burst as soon as they are formed, contrary to the expectations of institutional

investors. Valuation measures, such as P/E ratios and dividend yield, are poor guides to moments of bubble burst even if they are good guides to the likelihood that, in time, bubbles will burst. Exuberant expectations about the stock market, like valuation measures, are not reliable guides to moments of bubble burst. The stock market bubble expanded in the late 1990s despite modest expectations of individual investors about stock market returns and despite depressed expectations of institutional investors.

Individual investors are an optimistic group, especially about their own fortunes and the long-term fortunes of the stock market. Individual investors expected higher stock market returns over the following 10 years than over the following 12 months and they expected higher returns on their own portfolios than on the stock market as a whole. For example, while individual investors in December 1999 expected a mean 15.30% return on the stock market during the following 12 months, they expected a mean 18.40% on their own portfolios. They also expected a mean 19.00% return on the stock market during the following 10 years.

The ups and downs of the stock market have shaken the optimism of individual investors about their short-term fortunes but their optimism about the long term remained unshaken. The proportion of investors who were optimistic about reaching their investment targets during the following 12 months declined substantially during 2000 and early 2001, in the wake of the decline in the stock market, but there was virtually no change in the proportion of investors who were optimistic about reaching their investment objectives over the next five years.

Finance academics, investment professionals and investors, both institutional and individual, tend to focus on the behavior of markets. Is the stock market in a bubble? Will the bubble burst? We focus instead on the behavior of investors. Do investors think that the market is in a bubble? Do they think that the bubble will burst?

We find that investors are often wrong, the victims of cognitive biases. Individual investors think that high past returns portend high future returns, but they are wrong. Institutional investors think that high past returns portend low future returns, but they are equally wrong. The cognitive biases that investors display in our setting are typical of the cognitive biases they display in other settings. Investors are unrealistically overconfident in our setting, expecting, on average, higher than average returns. They are unrealistically optimistic in other settings as well.

An understanding of the behavior of investors is important on its own because the behavior of investors determines their fortunes. Moreover, an understanding of the behavior of investors is ultimately the only road to an understanding of the behavior of markets.

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References

Caginalp, Gunduz, David Porter and Vernon Smith. "Financial Bubbles: Excess Cash, Momentum, and Incomplete Information."

- The Journal of Psychology and Financial Markets*, 2, (2000), pp. 80–99.
- Caginalp, Gunduz, David Porter and Vernon Smith. "Overreaction, Momentum Liquidity, and Price Bubbles in Laboratory and Field Asset Markets." *The Journal of Psychology and Financial Markets*, 1, (2000), pp. 24–48.
- Campbell, John and Robert Shiller. "Valuation Ratios and the Long-Run Stock Market Outlook." *The Journal of Portfolio Management*, Winter, (1998), pp. 11–26.
- Chevalier, Judith and Glenn Ellison. "Risk Taking by Mutual Funds as a Response to Incentives." *Journal of Political Economy*, 105, (1997), pp. 1167–1200.
- DeBondt, William. "A Portrait of the Individual Investor." *European Economic Review*, 42, (1998), pp. 831–844.
- Dreman, Donald, Stephen Johnson, Donald MacGregor and Paul Slovic. "A Report on the March 2001 Investor Sentiment Survey." *The Journal of Psychology and Financial Markets*, 2, (2001), pp. 126–134.
- Fama, Eugene and Kenneth French. "The Equity Premium." Center for Research in Security Prices Working Paper Series, University of Chicago, 2001.
- Fisher, Kenneth and Meir Statman. "Investor Sentiment and Stock Return." *Financial Analyst Journal*, March/April, (2000), pp. 16–23.
- Fisher, Kenneth and Meir Statman. "Cognitive Biases in Market Forecasts." *Journal of Portfolio Management*, Fall, (2000), pp. 72–81.
- Lei, Vivian, Charles Noussair and Charles Plott. "Non-Speculative Bubbles in Experimental Asset Markets: Lack of Common Knowledge of Rationality vs. Actual Irrationality." Working Paper, California Institute of Technology, 1998.
- McGough, Robert. "Bulls Say a Heated Market Could Get Even Warmer." *Wall Street Journal*, March 30, 1999, p. C1.
- McQueen, Grant, Michael Pinegar and Steven Thorley. "Delayed Reaction to Good News and the Cross-Autocorrection of Portfolio Returns." *Journal of Finance*, 51, (1996), pp. 889–919.
- Shiller, Robert. *Irrational Exuberance*. Princeton: Princeton University Press, 2000.
- Smith V., G. Suchanek and A. Williams. "Bubbles, Crashes and Endogenous Expectations in Experimental Spot Asset Markets." *Econometrica*, 56, (1988), pp. 1119–1151.
- Welch, Ivo. "The Equity Premium Consensus Forecast Revisited." Working paper, Yale University, 2001.
- Welch, Ivo. "Views of Financial Economists on the Equity Premium and on Professional Controversies." *Journal of Business*, 73, (2000), pp. 501–537.
- Wyatt, Edward. "The High Hopes of Investors in Stock Funds." *The New York Times*, October 10, 1997, p. D1.