

# Bubble Expectations

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**W**hat were investors thinking while the S&P 500 Index rose to 1,527 in March 2000 and fell to 1,041 by the end of September 2001? What were they thinking while the Nasdaq soared to 5,049 and plummeted to 1,498? Did investors think that the market was in a bubble? Did the deflating market deflate their expectations? We answer these questions with data from Gallup polls of individual investors.\*

We find that investors thought that the stock market was in a bubble in the late 1990s and early 2000 but expected that bubble to inflate. The deflating market of 2000 and 2001 deflated investor expectations but it did little to deflate the optimism of investors about their own luck or abilities. Investors expected to beat the market when the market was high and they expected to beat the market when it was low. We discuss the cognitive errors that underlie these curious patterns of expectations.

Gallup has been conducting the PaineWebber Index of Investor Optimism polls since October 1996 and it added questions about investments in June 1998. The September 2001 poll includes 1,000 investors aged 18 and higher, conducted from September 1 through September 16. (Fifty-three percent of polls were conducted after the terrorist attacks of September 11.) The range of questions in the Gallup poll is wide, from the outlook for unemployment to attitudes towards Social Security and to expectations about stock returns.

## BUBBLES

Stock market bubbles exist when stocks are overvalued, 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 by asking investors about them. Do investors think that the market is in a bubble?

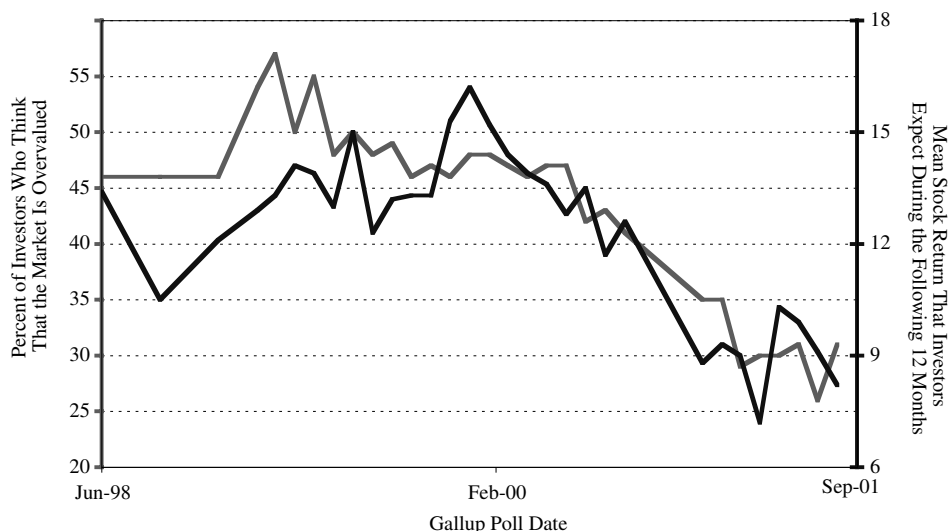
Almost half of individual investors thought that the market was in a bubble in February 2000 when the market was close to its peak. Question 22 of the Gallup poll is, in effect, a question about bubbles: "Do you think that the stock market is overvalued, valued about right, undervalued, or are you unsure?"

Forty-eight percent of investors thought that the stock market was overvalued in February 2000, while only 3% thought that it was undervalued. Another 32% percent thought that the market was valued about right and 17% either refused to answer the question or did not know the answer.

Investors form expectations as if they believe that inflated bubbles will continue to inflate while deflated bubbles will continue to deflate. When investors believe that the stock market is overvalued they also expect high future returns, and when they believe that the stock market is undervalued they expect low returns. Exhibit 1 shows that the proportion of investors in the Gallup poll who thought the market was overvalued decreased from 48% in February 2000, at the height of the stock

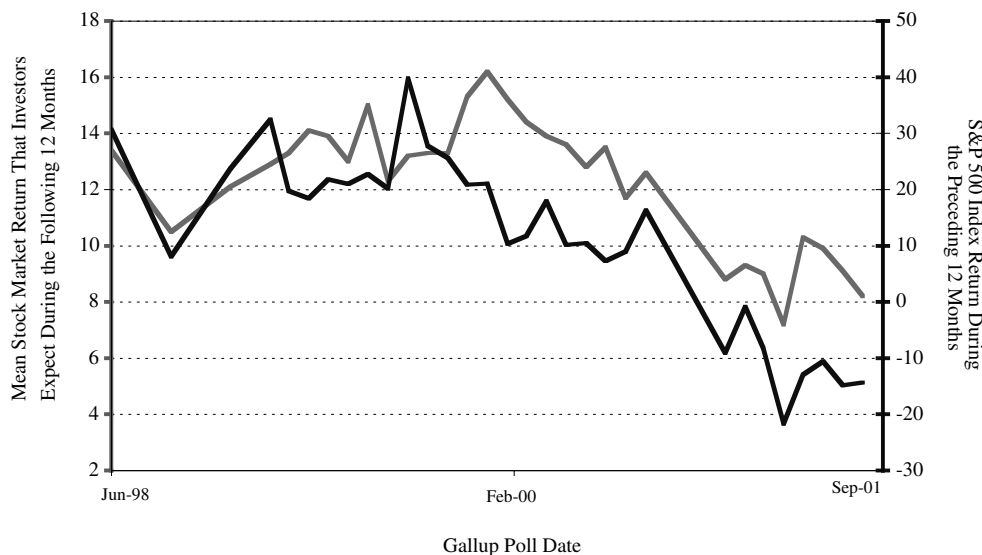
## EXHIBIT 1

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



## EXHIBIT 2

The Relationship Between the Mean Stock Market Return That Investors Expect During the Following 12 Months and the S&P 500 Index Return During the Preceding 12 Months

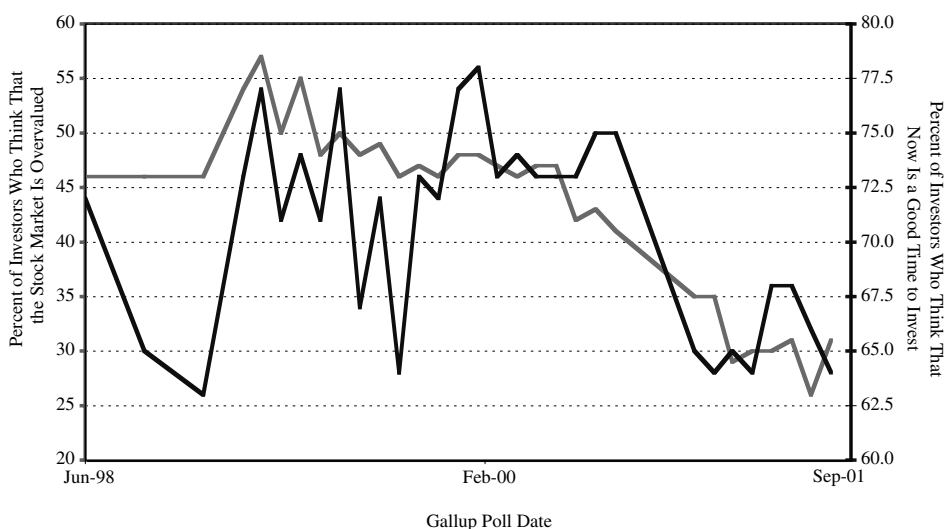


market, to 27% September 2001, after the market fell. Exhibit 1 also shows that investors expected *lower* return on the stock market in the 12 months following September 2001 than in the 12 months following February 2000. The mean expected stock market return for the 12 months following September 2001 was 6.3%, less than one half of the mean 15.2% expected stock market return for the 12 months following February 2000.

Individual investors form expectations about future stock returns as if they extrapolate past stock returns. Exhibit 2 shows that investors in the Gallup poll expected a mean 15.2% stock market return in the 12 months following February 2000, following a 10.3% S&P 500 Index gain and a 57.3% Nasdaq gain in the preceding 12 months, but they expected only a mean 6.3% stock market return in the 12 months following September 2001, following

## EXHIBIT 3

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



a 24.4% S&P 500 Index *loss* and a 57.1% Nasdaq *loss* in the preceding 12 months.

The Gallup poll paints a picture of individual investors who form expectations as if they believe in the greater fool theory of investments. Investors believe, in effect, that inflated bubbles will continue to inflate and, therefore, they will find greater fools who will buy their inflated stocks at even more inflated prices. 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. Exhibit 3 shows that while 48% of investors in the February 2000 survey thought that the market is overvalued, 78% 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 decreased after the market fell. Only 27% of investors thought that the market was overvalued in September 2001. But the *decrease* in the perception that the market is overvalued was accompanied by a decrease in the proportion of investors who thought that now is a good time to invest, from 78% in February 2000 to 53% in September 2001.

The tendency of individual investors to forecast returns as continuations of past returns is common. Fisher and Statman [2000] found a similar tendency in the forecasts of members of the American Association of Individual Investors. But why do investors see patterns of up

and down when returns are random? The tendency to identify patterns in random data has been observed in many settings. As Gilovich, Vallone, and Tversky [1985] noted, intuitive perceptions of randomness depart systematically from the laws of statistics that underlie randomness. People apparently expect that if a series is random, the essential characteristics of randomness will manifest themselves not only in large samples but also in small ones. So, when they find patterns in a small sample of the series, such as high returns during a five-year period, they reject the possibility that the series is random. For example, knowing that coin tosses, given a large series of tosses, generate roughly half heads and half tails, people expect short sequences of coin tosses to contain roughly half heads and half tails. Large deviations from the half-and-half proportions are common in short sequences of coin tosses, however; much more common in fact than in people’s perceptions of fact. Tversky and Kahneman [1971] described these common perceptions as a belief in the “law of small numbers,” an erroneous belief that the law of large numbers also applies to small numbers.

People see patterns in random series, but which patterns do they see? Do they predict continuations of past numbers, or do they predict reversals? Researchers have found that predictions are highly sensitive to context. For example, when told that a coin has come up heads in three tosses in a row, most people predict a reversal for the next toss (this prediction tendency is known as “gambler’s

## EXHIBIT 4

### The Return Expectation of Investors

|        | Expected Return on the Market During the Following 12 Months |        | Expected Return on Own Portfolios During the Following 12 Months |        | S&P500 Return During the Preceding 12 Months | Nasdaq Return During the Preceding 12 Months | S&P500 Return During the Following 12 Months | Nasdaq Return During the Following 12 Months |
|--------|--|--------|--|--------|--|--|--|--|
|        | Mean   | Median | Mean   | Median |  |  |  |  |
| Jun-98 | 13.4%  | 10.0%  | 15.2%  | 12.0%  | 30.71%                                       | 27.03%                                       | 22.75%                                       | 41.77%                                       |
| Feb-00 | 15.2%  | 12.0%  | 16.7%  | 12.0%  | 10.34%                                       | 57.25%                                       | -8.20%                                       | -54.18%                                      |
| Sep-01 | 6.3%   | 5.0%   | 7.9%   | 6.0%   | -24.38%                                      | -57.08%                                      | NA   | NA   |

## EXHIBIT 5

### The Optimism of Investors About the Economy and the Stock Market

|        | Percent 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 |         |   |
| Jun-98 | 72%  | 65%               | 63%                             | 59%       | 59%            | 30.71%  |   |
| Feb-00 | 76%  | 71%               | 66%                             | 54%       | 45%            | 10.34%  |   |
| Sep-01 | 38%  | 34%               | 36%                             | 39%       | 54%            | -24.38% |   |

fallacy”). When told that a basketball player has hit three baskets in a row, however, most people predict continuation, in the belief that the player has a “hot hand.” Gilovich, Vallone, and Tversky found that basketball players, coaches, and fans believe in the “hot hand” in basketball even though series of basketball shots follow a random walk. Why do most people predict reversals in the case of coin tosses and predict continuations in the case of basketball shots? Gilovich, Vallone, and Tversky attributed differences between predictions of continuation and predictions of reversals to differences in perceptions about the underlying process in the series. For example, it is hard to imagine a credible factor that could create a link between successive coin tosses, but many factors—confidence, fatigue, and so on—could create a link between successive shots by a basketball player. Similarly, “new economy” stories created links between successive returns of the stock market in the late 1990s and “bust economy” stories created links between successive returns of the stock market in the early 2000s.

### OPTIMISM

Rational people are realistic, neither optimistic nor pessimistic. But normal people are unrealistically optimistic. Weinstein [1980] reported that, on average, people expect to do better than average. So, for example, people think that they are more likely to have gifted children than other

people and they also think that they are less likely to be victims of crime. Taylor and Brown [1988] summarized the literature as they wrote: “In effect, most people seem to be saying, ‘The future will be great, especially for me.’ Because not everyone’s future can be rosier than their peers’, the extreme optimism that individuals display appears to be illusory” (p. 197). Unrealistic optimism is evident in investment settings as well. On average, investors expect to do better than average; they expect to beat the market.

Exhibit 4 shows that investors expected a mean 15.2% return on the stock market in February 2000, but that they expected a higher return, a mean of 16.7%, on their own portfolios. And while investors expected a mean 6.3% return on the stock market in September 2001, they expected a higher return, a mean of 7.9%, on their own portfolios.

Events, such as the ups and down of the economy and the stock market, affect the optimism of investors. Individual investors were optimistic about economic growth until early 2000 but their optimism declined afterwards. Exhibit 5 shows that 72% of investors were somewhat optimistic or very optimistic about economic growth in June 1998. Optimism increased to 76% by February 2000 but declined to 38% by September 2001. Optimism about unemployment and the stock market went up and down in parallel with optimism about economic growth but optimism about inflation and interest rates followed a different path. Fifty-nine percent of investors were optimistic about interest rates in June 1998. That proportion

## EXHIBIT 6

### The Optimism of Investors About Achieving Their Financial Goals

|        | Percent of Investors Who Are Optimistic About Achieving Their Investment Targets Over the Next 12 Months | Percent of Investors Who Are Optimistic About Achieving Their Investment Targets Over the Next 5 Years | Percent of Investors Who Are Optimistic About Their Ability to Maintain or Increase Their Current Income Over the Next 12 Months | Percent of Retired Investors Who Are Optimistic About Their Ability to at Least Maintain Current Living During Retirement Years | Percent of Investors Who Are Optimistic About Achieving Their Retirement Goals | S&P 500 Returns During the Preceding 12 Months |
|--------|--|--|--|---|--|--|
| Jun-98 | 71%  | 76%  | 73%  | 85%   | 76%  | 30.71%   |
| Feb-00 | 73%  | 78%  | 79%  | 89%   | 81%  | 10.34%   |
| Sep-01 | 53%  | 74%  | 68%  | 80%   | 74%  | -24.38%  |

## EXHIBIT 7

### 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



decreased to 45% in February 2000 and increased to 54% by September 2001.

Individual investors were generally optimistic about achieving their investment and retirement goals. Seventy-four percent of the (non-retired) investors in the September 2001 survey were somewhat optimistic or very optimistic about achieving their retirement goals. Exhibit 6 shows that the percentage of optimistic investors in September 2001 was lower than the 81% exhibit of optimistic investors in February 2000, but close to the 76% exhibit of June 1998.

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 weaker effects on their optimism about their long-term financial future. The proportion of investors who were optimistic about reaching their investment targets

during the next 12 months declined 20 percentage points, from 73% in February 2000 to 53% in September 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 declined by only four percentage points, from 78% in February 2000 to 74% in September 2001. The difference between optimism about the short term and the long term is smaller when it comes to income. While the proportion of investors who were optimistic about increasing or maintaining their current income in the next 12 months decreased by 11 percentage points, from 79% in February 2000 to 68% in September 2001, the proportion of investors who were optimistic about increasing or maintaining their current living during retirement decreased by nine percentage points, from 89% to 80%.

The optimism of individual investors about the long term is also reflected in their expectations for higher stock market returns during the long term than during the short term. Exhibit 7 shows that while individual investors expected a mean 15.2% return on the stock market in the 12 months following February 2000, they expected a mean annualized return of 15.9% in the following 10 years. And while they expected a mean 6.3% return stock market during the 12 months following September 2001, they expected a mean annualized return of 13.0% during 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 February 2000 and September 2001 is associated with a decline from a mean of 15.2% to a mean of 6.3% in the expectations for 12-month stock market returns, it is associated with a smaller decline in expectations of 10-year stock market returns, from 15.9% in December 1999 to 13.0% in September 2001.

## CONCLUSION

Investors 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?

Individual investors thought that the stock market was in a bubble in the late 1990s and early 2000 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 early 2000 and so was the proportion of investors who thought that it was a good time to invest.

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.

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 strong. The proportion of investors who were optimistic about reaching their investment targets during the following 12 months declined substantially along with the decline in the stock market, but there was little change in the proportion of investors who were optimistic about reaching their investment objectives over the next five years.

## ENDNOTES

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\*We draw from our article "Blowing Bubbles" [2002].

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