

## The New York Times

### Explaining the Markets

*With a Sunny Future, They Take a Dive;  
Economists Grapple With Contradictions*

By PETER PASSELL

For more than three years stock and bond prices marched optimistically upward in spite of economic forecasts that varied from murky to guarded. But once the clouds lifted to reveal a sunny future for the American economy, the securities markets took their

#### Economic Analysis

worst dive since the recession of 1990.

Economists have a plausible explanation — fear of inflation — for this seeming paradox, but they have had a lot more trouble explaining the timing or depth of the mini-crash that jolted public confidence and left traders scrambling for portents of the aftershocks.

Indeed, economists are once again grappling uneasily with the contradiction between their textbook image of securities markets as well-oiled machines for grinding new information into prices — sometimes referred to as “efficient markets” — and the reality of securities traders who seem to stampede as mindlessly as groupies at a rock concert.

“We just don’t understand the social psychology of financial markets,” said Richard Thaler, an economist at Cornell.

The part that is well understood is that in a rational world, good news for the economy can be bad news for traded securities.

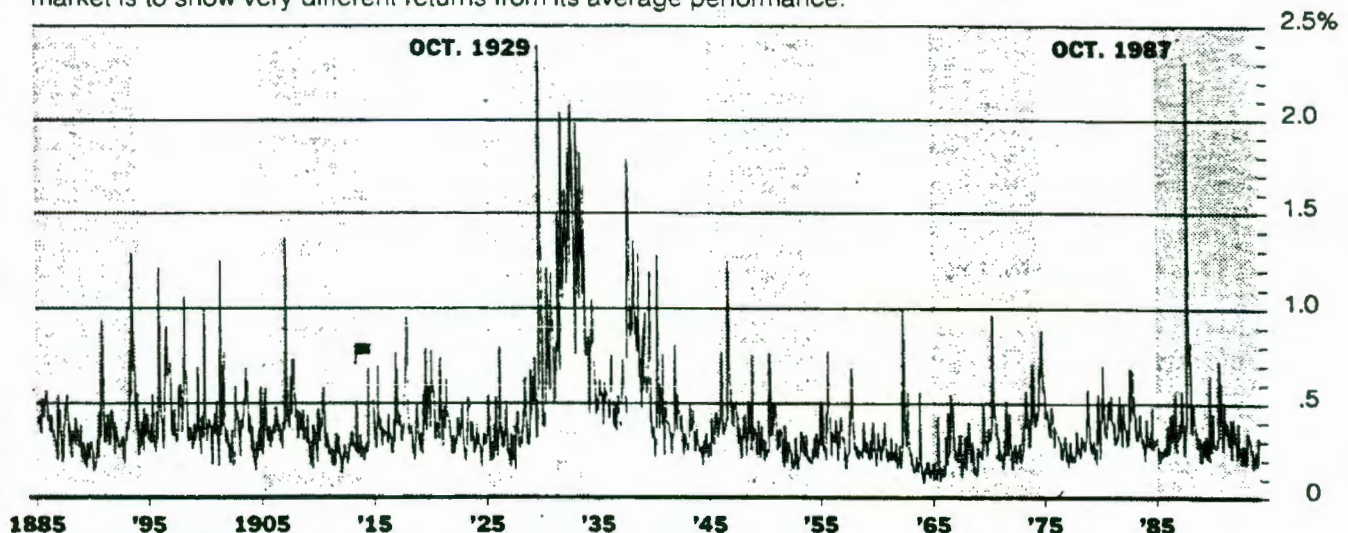
The price of a bond is inherently sensitive to changes — or expectations of changes — in the interest

rates charged on freshly minted i.o.u.’s. So when the economy showed signs of heating up and the Federal Reserve tweaked interest rates in what was advertised as a pre-emptive strike against inflation, it is at least plausible that bond prices fell in anticipation of more interest rate increases down the pike.

Why stocks get jarred is trickier (but still possible) to rationalize. For one thing, said Burton Malkiel, an economist at Princeton, inflation raises the effective tax rate on corporate earnings because the tax laws do not take into account the fact that corporations incur the heavy burden of replacing worn-out capital equipment at higher cost. For another, periods of inflation often presage recession, and thus lower profits. So

### Volatility in the Market: A Look Back

Variation of monthly stock prices according to standard deviation, from Jan. 1885 through March 1994. Standard deviation, expressed in percentage points, measures the market’s probable variation from its expected return. In a standard deviation of 2 percent in either direction, the market would fluctuate from its average monthly return in a range of about 4 percent from its current value; the market would be expected to move by less than that amount two-thirds of the time. The higher the standard deviation, the more likely the market is to show very different returns from its average performance.



Source: William Schwert, Simon Graduate School of Business at the University of Rochester

■ The market was shut Aug.-Nov. 1914.



# Explaining the Markets' Zigzags

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shifts in inflationary expectations could certainly lead to a sharp drop in stock prices.

This is hardly the whole story, however. While fear of inflation could explain why stock and bond prices tanked in tandem this winter, it doesn't say much about the timing or magnitude of the drop. Indeed, with hindsight, it is clear that the probability of an economic boom had been building for many months, as had talk that both stocks and bonds were due for a fall.

But if securities markets are really precision instruments for setting securities prices, why didn't they incorporate shifting opinions a little at a time, drifting down to a new level that fully incorporated the new expectations?

Mr. Thaler, for one, sees a possible answer in "herding" — the notion that securities traders tend to act in concert, creating sharp breaks in securities prices rather than smooth adjustments. But, as he is happy to acknowledge, herding is more a description of what happens than an explanation for it.

One possibility is what Mr. Thaler calls "safety in numbers." Most decisions to trade securities these days are made by managers of mutual funds, pension plans and the like, who have a strong interest in not looking stupid when their competitors are looking smart. If, for example, a money manager buys when others are selling and the markets go down, he is likely to be out of a job.

On the other hand, it's almost O.K. to look stupid when everyone has also made a fool of himself. Hardly anyone blames a money manager who loses by doing just what the rest of the pack does.

## How Keynes Saw It

Another way of rationalizing herd behavior, offered by Jeremy Stein of the Sloan School of Management at the Massachusetts Institute of Technology, draws on John Maynard Keynes's image of the stock market. Keynes likened the stock market to an unusual beauty contest that had been sponsored by his local newspaper. The pictures of a dozen women were displayed. But readers were

asked to pick the one who they thought others would think prettiest, not the one they themselves thought prettiest. By analogy, Mr. Stein said, it is wrong to be right ahead of the pack — to sell while others are still driving up prices, or to refrain from selling when everyone else is dumping stocks.

Yet another explanation for herding, one held dear by economists still wedded to the idea that securities markets are efficient, is that actions speak louder than words — that a lot of information is actually broadcast by the act of buying or selling. Consider the last plunge in securities prices on the heels of the nudge by the Federal Reserve to interest rates and warning from its chairman, Alan Greenspan, that he had spotted inflation in his tea leaves. One might have expected an "efficient" market to anticipate the news and act accordingly. On the other hand, if the major players in the market look to each other for confirmation of their suspicions, what looked like panic selling could have been a rational rush for the exits. And the rush could have been exacerbated by the need to unwind debts backed by falling stock values.

## The Sheep's Perspective

The trouble with herding hypotheses is that they do not begin to explain what investors and policy makers really want to know. It may be comforting to believe that herd behavior makes sense from the perspective of the sheep. But it doesn't provide a hint as to when the sheep will change direction, or how far they will stampede. Nor does history offer many clues, said William Schwert of the Simon Graduate School of Business at the University of Rochester.

According to Mr. Schwert, who has plotted the volatility of stocks over the last century, there are no discernible trends to be ferreted out. In spite of all the institutional changes over time — the advent of securities regulation and standardized accounting procedures, the growth of professional money management, computerized trading, electronic distribution of business news — the data on volatility show a monotonous squiggle of modest ups and downs, randomly punctuated by catastrophic breaks.

The last few months' market activ-

ity suggest no exception to the rule: Indeed, they are almost lost in the noise of history. "A lot of things that people think are important in explaining volatility probably aren't," Mr. Schwert concluded.

It is conceivable that market behavior is inherently "chaotic" in the sense that the timing and magnitude of market changes may be exquisitely sensitive to what natural scientists call "initial conditions."

## Seemingly Random Dance

Next month's weather will be no surprise in the sense that it will more or less follow from known rules of physics. But whether it rains or shines in Chicago next month, we now believe, may depend on effectively unknowable details of cloud and wind patterns this week halfway across the world. By the same token, it is conceivable that securities markets bounce from unstable equilibrium to unstable equilibrium within broad bands, in a seemingly random dance to the tune of simple responses of traders to each others' actions.

This would suggest that economists may someday understand what makes the stock market tick (the way meteorologists understand what makes weather), yet be forever precluded from accurately predicting the big bumps in stock indexes. Economists who study the securities markets, however, are not quite ready to stop worrying and learn to love chaos. Indeed, some believe that models of market behavior with predictive power may be within reach.

Robert Shiller of Yale is amassing data on how securities traders respond to other traders by asking them hypothetical questions. And some of the answers are provocative, if hard to interpret. For example, Mr. Shiller found that the percentage of professional money managers who believed that the stock market would go up the day after a 3 percent tumble fell from 34 percent in early 1990 to just 18 percent in mid-1990.

As yet, Mr. Shiller has no testable theory that would use surveys to predict trading behavior, but he is frustrated that social scientists are not more aggressively pursuing this approach. "Economists depend too much on what they observe" rather than what they could find out by asking, he laments.