

Keynes's 'beauty contest'



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Photos by Associated Press.

In 1978, the Harvard financial economist Michael Jensen wrote, “I believe there is no other proposition in economics which has more solid empirical evidence supporting it than the efficient market hypothesis.” If it is possible to “jinx” a scientific hypothesis, Professor Jensen may have done it.

Consider the history since that time. First, there was the crash in stock prices in October 1987. The late 1990s saw a spectacular rise and fall in technology stocks. The irrational exuberance shifted to real estate, leading up to the peak in August 2006, followed by a crash that helped cause the global financial crisis. Even former Chairman of the Federal Reserve Alan Greenspan apologized, “Those of us who have looked to the self-interest of lending institutions to protect shareholders’ equity—myself especially—are in a state of shocked disbelief.”

Many other economists who supported the efficient-markets hypothesis (EMH) have been surprised by recent history, but there is one man who would not have been “shocked”: John Maynard Keynes.

Keynes is remembered for his view that governments should spend money in recessions to regain full employment, an argument made famous in his 1936 book *The General Theory of Employment, Interest, and Money*. Few, however, realize that Keynes was a true forerunner of behavioral finance. Had more people, including Greenspan, studied the chapter of *The General Theory* on financial markets, the crisis might have been avoided.

Keynes thought markets had been more “efficient” at the beginning of the 20th century, when managers owned most of the shares in a company and knew what it was worth. As shares became more widely dispersed, “the element of real knowledge in the valuation of investments by those who own them or contemplate purchasing them . . . seriously declined.”

By the time of *The General Theory*, Keynes had concluded that markets had gone crazy: “Day-to-day fluctuations in the profits of existing investments, which are obviously of an ephemeral and non-significant character, tend to have an altogether excessive, and even an absurd, influence on the market.”

To buttress his point, he noted the fact that shares of ice companies were higher in summer months when sales are higher. This fact is surprising, because in an efficient market, stock prices reflect the long-run value of a company and do not rise in good seasons. Recent academic studies show this pattern is still true (see “Why investors misprice cyclical stocks”).

Keynes was also skeptical that professional money managers would perform the role of the “smart money” that EMH defenders rely upon to keep markets efficient. Rather, he thought they were more likely to ride a wave of irrational exuberance than to fight it. One reason, he said, is that it is risky to be a contrarian: “Worldly wisdom teaches that it is better for reputation to fail conventionally than to succeed unconventionally.”

Instead, Keynes thought that professional money managers were playing an intricate guessing game. He likened it to a common newspaper game,

... in which the competitors have to pick out the six prettiest faces from 100 photographs, the prize being awarded to the competitor whose choice most nearly corresponds to the average preferences of the competitors as a whole: so that each competitor has to pick, not those faces that he himself finds prettiest, but those that he thinks likeliest to catch the fancy of the other competitors, all of whom are looking at the problem from the same point of view ... We have reached the third degree where we devote our intelligences to anticipating what average opinion expects the average opinion to be. And there are some, I believe, who practice the fourth, fifth, and higher degrees.

I believe Keynes’s beauty-contest analogy remains an apt description of how financial markets work, as well as of the key role played by behavioral factors. To understand his analogy, try out this puzzle that Tim Harford recently posed on my behalf to FT readers:

Guess a number from zero to 100, with the goal of making your guess as close as possible to two-thirds of the average guess of all those participating in the contest. To help you think about this puzzle, suppose there are three players who guessed 20, 30 and 40 respectively. The average guess would be 30, two-thirds of which is 20, so the person who guessed 20 would win.

Consider what your guess might have been. Now consider what I will call a zero-level thinker. He says: “I don’t know. This seems like a math problem. I will just pick a number at random.” Lots of people guessing a number between zero and 100 at random will produce an average guess of 50.

How about a first-level thinker? She says: “The rest of these players don’t like to think much, they will probably pick a number at random, averaging 50, so I should guess 33, two-thirds of 50.”

A second-level thinker will say: “Most players will be first-level thinkers and think that other players are a bit dim, so they will guess 33. Therefore I will guess 22.”

A third-level thinker: “Most players will discern how the game works and will figure that most people will guess 33. As a result they will guess 22, so I will guess 15.”

Of course, there is no convenient place to get off this train of thinking. Do you want to change your guess? Here is another question: What is the Nash equilibrium for this scenario? Named for John Nash, the mathematician and subject of the film *A Beautiful Mind*, who sadly was recently killed in a car crash, the Nash equilibrium in this game is a number that, if everyone guessed it, no one would want to change as their guess. The only Nash equilibrium in this game is zero.

To see why, suppose everyone guessed three. Then the average guess would be three and you would want to guess two-thirds of that, or two. But if everyone guessed two you would want to guess 1.33, and so forth. If, and only if, all participants guessed zero would no one want to change his or her guess.

Formally, this game is identical to Keynes’s beauty contest: you have to guess what other people are thinking that other people are thinking. In economics, the “number guessing game” is commonly referred to as the “beauty contest.”

Thanks to the Financial Times, this is the second time I have run this experiment on a large scale. In 1997, we offered two business-class tickets to North America. Now, in these days of austerity, entrants were offered what I have been assured is a posh travel bag. Personally, I am also throwing in an autographed copy of my recent book *Misbehaving*, on which this essay is based.

How have things changed? Well, one finding will comfort tradition-bound economists. When the prize was two business-class tickets, we had 1,382 contestants. With only a travel bag on offer, entrants dropped to 583. Economic theory is redeemed!

Even with the smaller number of entrants, the results were nearly identical. In 1997 the average guess was 18.9, meaning the winning guess was 13. This time the average guess was 17.3, leading to a winning guess of 12. The distribution of guesses also looked like the one from 1997.

Many contestants were able to figure out the Nash equilibrium and guessed zero or one, thinking everyone else would be as clever as they were. A large number also guessed 22, showing second-level thinking. Just as last time, there was an assortment of pranksters who guessed 99 or 100, trying to skew the results.

Keynes’s beauty-contest analogy remains an apt description of what money managers do. Many investors call themselves “value managers,” meaning they try to buy stocks that are cheap. Others call themselves “growth managers,” meaning they try to buy stocks that will grow quickly. But of course no one is seeking to buy stocks that are expensive or stocks of companies that will shrink. So what these managers are really trying to do is buy stocks that will go up in value—or, in other words, stocks that they think other investors will later decide should be worth more.

Buying a stock that the market does not fully appreciate today is fine, as long as the rest of the market comes around to your point of view sooner rather than later. Remember another of Keynes’s famous lines, “In the long run we are all dead.” The typical long run for a portfolio manager is no more than a few years, often just a few months! So to beat the market, a money manager has to have a theory about how other investors will change their minds. In other words, their approach has to be behavioral.

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