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### ***Earthquakes, Terrorists, and Investments***

Recently, a very good friend of mine asked me when the next recession would be. I frequently receive such questions. As a fund manager, I'm expected to know such things -- or at least, I'm expected to spout off a bunch of gibberish so that I sound as if God himself told me the answer.

Quite simply, I don't know when the next recession will be. While such questions are intellectually interesting, they are not likely to have predictable answers. In fact, as we will explore below, the odds of timing most financial events are similar to the odds of timing an earthquake or a terrorist attack.

Nate Silver's excellent and very readable book, [The Signal And The Noise: Why So Many Predictions Fail -- But Some Don't](#), provides some very interesting data for understanding what is predictable. Nate's claim to fame is the website <https://fivethirtyeight.com>, which has used statistical models to very accurately predict US election outcomes.

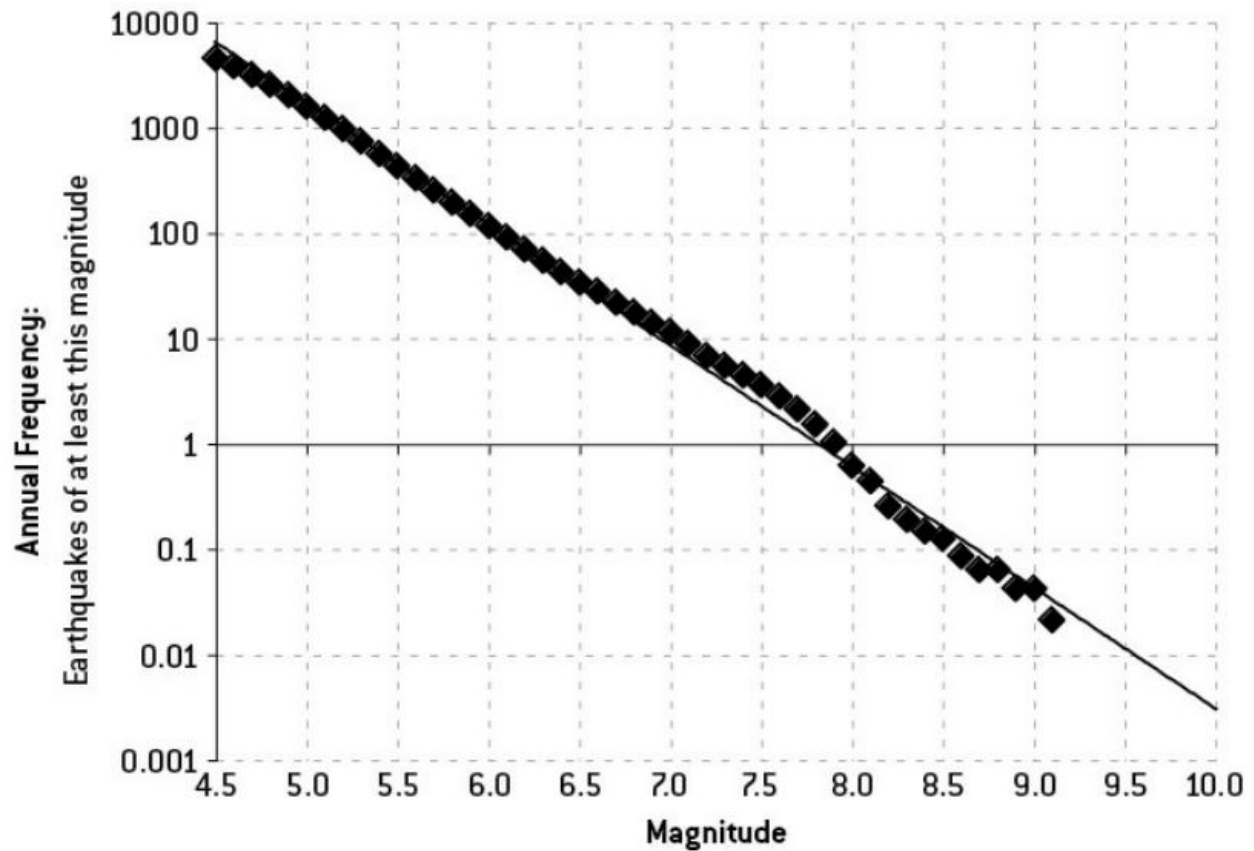
If you are like me, your elementary-school teacher told you: "Scientists are working very hard to predict when earthquakes will occur, and they are on the verge of a major breakthrough." However, to date this breakthrough has not happened. Various scientists have had interesting ideas, but none have panned out for predicting an earthquake's timing.

Does this mean that earthquakes are not predictable? No -- in fact, earthquakes are very predictable, if we ask the right questions about them.

The figure below plots the size of an earthquake vs the number of times such an earthquake occurred between January 1964 and March 2012. The plot is a nice straight line, which indicates a very predictable system. As a result, if we ask the right question about earthquakes ("How often does a magnitude 7 earthquake occur?"), then their behavior is very predictable. However, if we ask the wrong question about earthquakes ("When will the next earthquake hit Los Angeles?"), then their behavior is not predictable.



FIGURE 5-3B: WORLDWIDE EARTHQUAKE FREQUENCIES, JANUARY 1964–MARCH 2012, LOGARITHMIC SCALE



Terrorist events are very similar to earthquakes -- it is extremely hard to predict when they will occur. In fact, terrorist events are so difficult to predict that the U.S. government resorts to spying on every person worldwide (including you) in hopes of timing the next terrorist attack. Yet despite this intrusive spying, terrorist attacks still regularly occur, both in the U.S. and abroad.

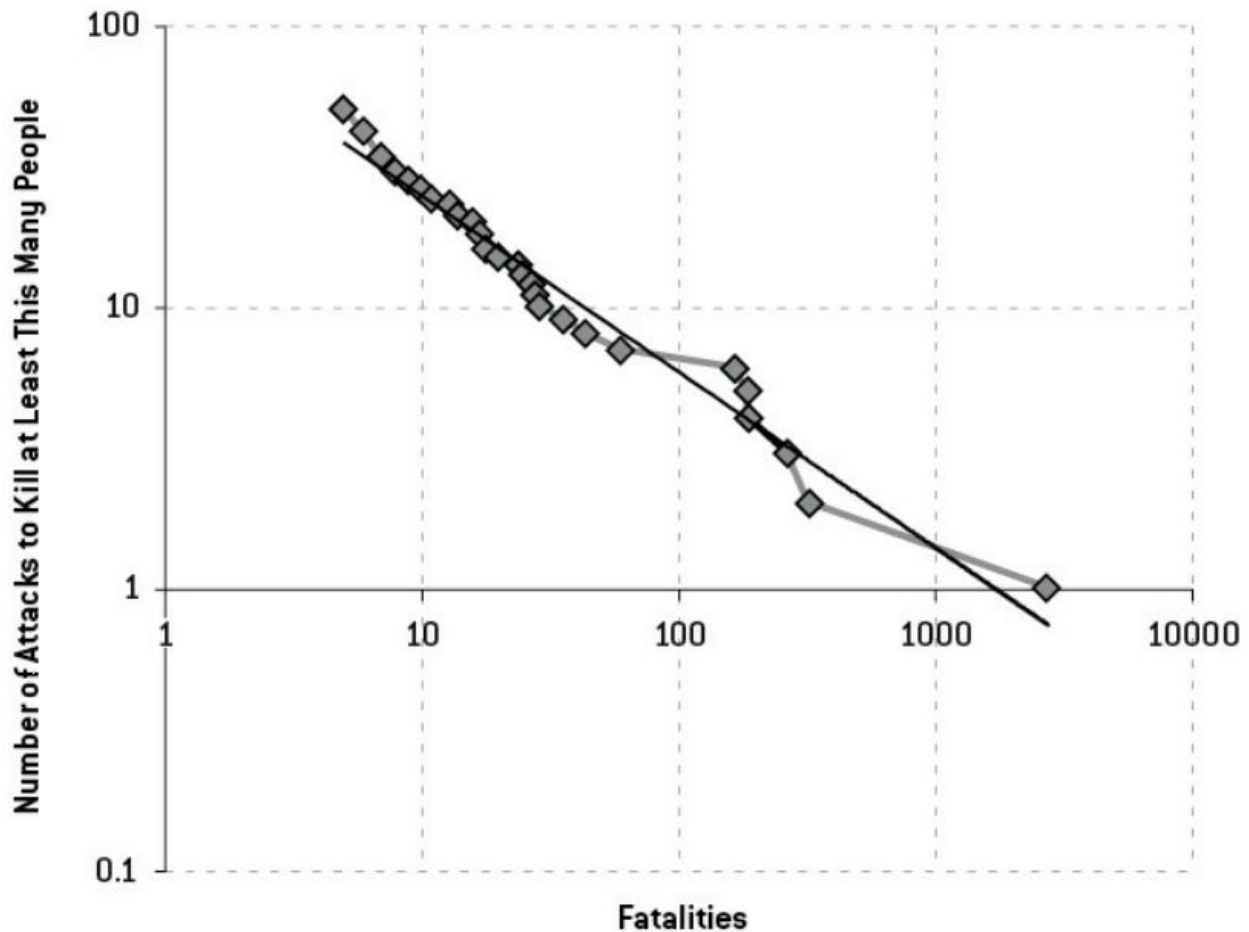
Does this mean that terrorist events are not predictable? Again, terrorist events are predictable if we ask the right questions about them.

The figure below plots the number of fatalities from a terrorist event vs the number of such events in NATO countries between 1979 and 2009. The dot to the far right is September 11, 2001. Again, the plot is a nice straight line, which indicates a very predictable system. As a result, if we ask the right question about terrorist events (“On average, how often do we expect to see a terrorist attack that kills at least 100 people?”), then the answer is very predictable. However, if we ask the wrong question about terrorist events (“When will New York City experience its next terrorist attack?”), then the answer is not predictable.



The frightening extrapolation of this plot is that an event killing 100,000 people will likely occur on average about once per 150 years. Such devastation could easily result from a crude nuclear weapon detonating within a city. Assuming an average lifetime, a 1 in 2 chance exists of such a tragedy occurring during your lifetime.

FIGURE 13-5: TERROR ATTACK FREQUENCY BY DEATH TOLL, NATO COUNTRIES, 1979–2009 (LOGARITHMIC SCALE)



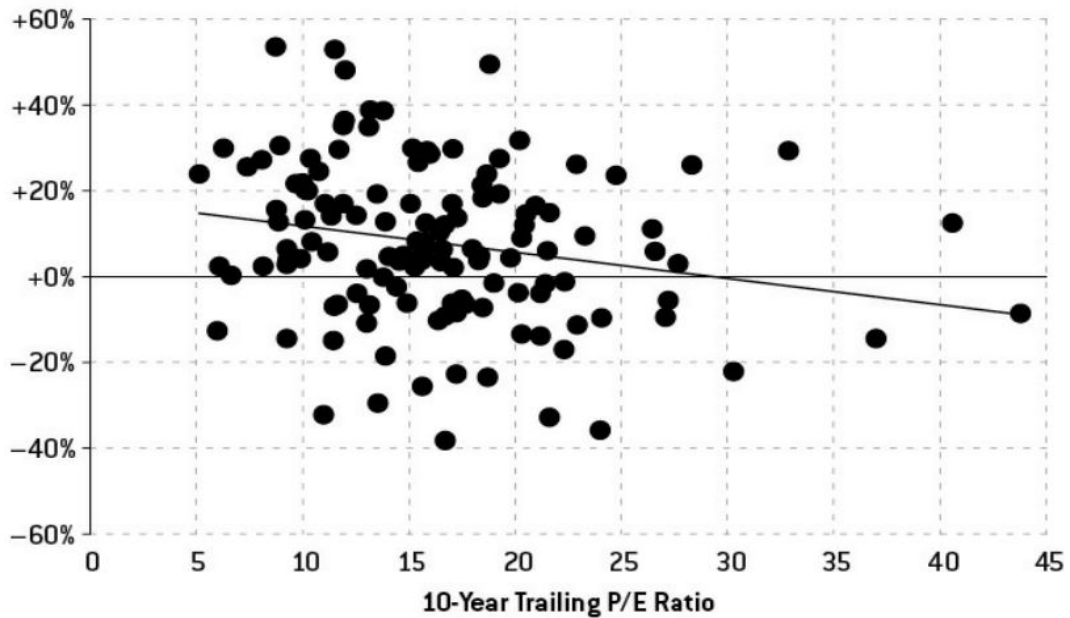
In investing, the same principles apply. If we ask the right question, then there is predictability in the market. However, if we ask the wrong question, then the market is totally random.

For example, consider predicting the average return of the S&P 500. The figures below use a price-to-earnings ratio to predict the average return of the market over 1-year and 20-year periods. Over 1 year, the market's behavior is extremely random and unpredictable. By contrast, over 20-year periods, the market's behavior has been quite predictable.

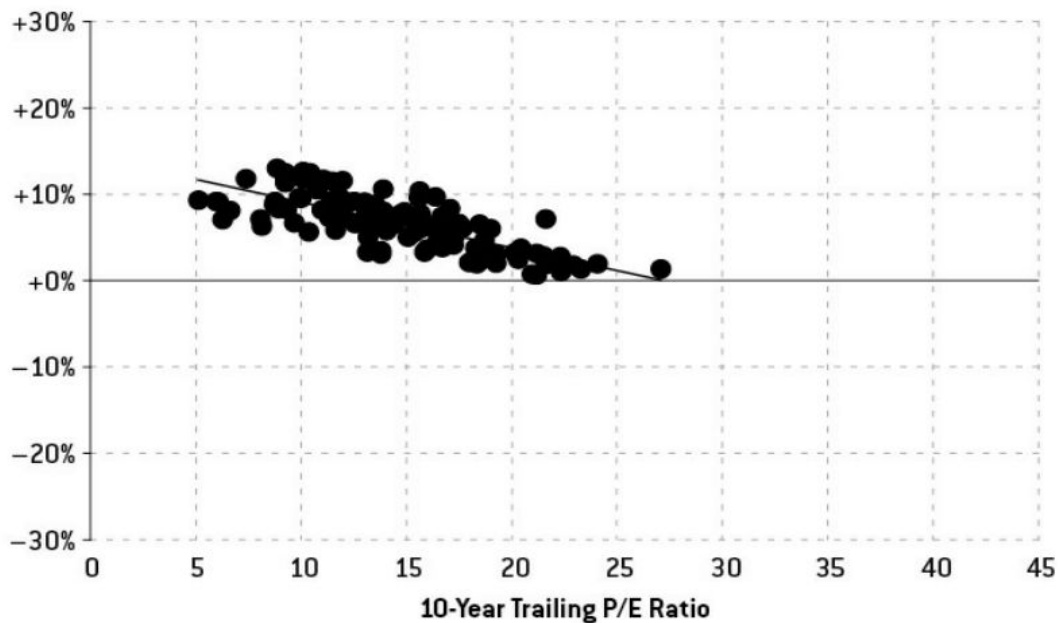


This is the exact reason why we own the businesses in Cecropia's portfolio for many years. Over short periods, like a couple of years, randomness dominates. However, over much longer periods, there is predictability.

**1-Year Return, S&P 500**



**20-Year Average Return, S&P 500**



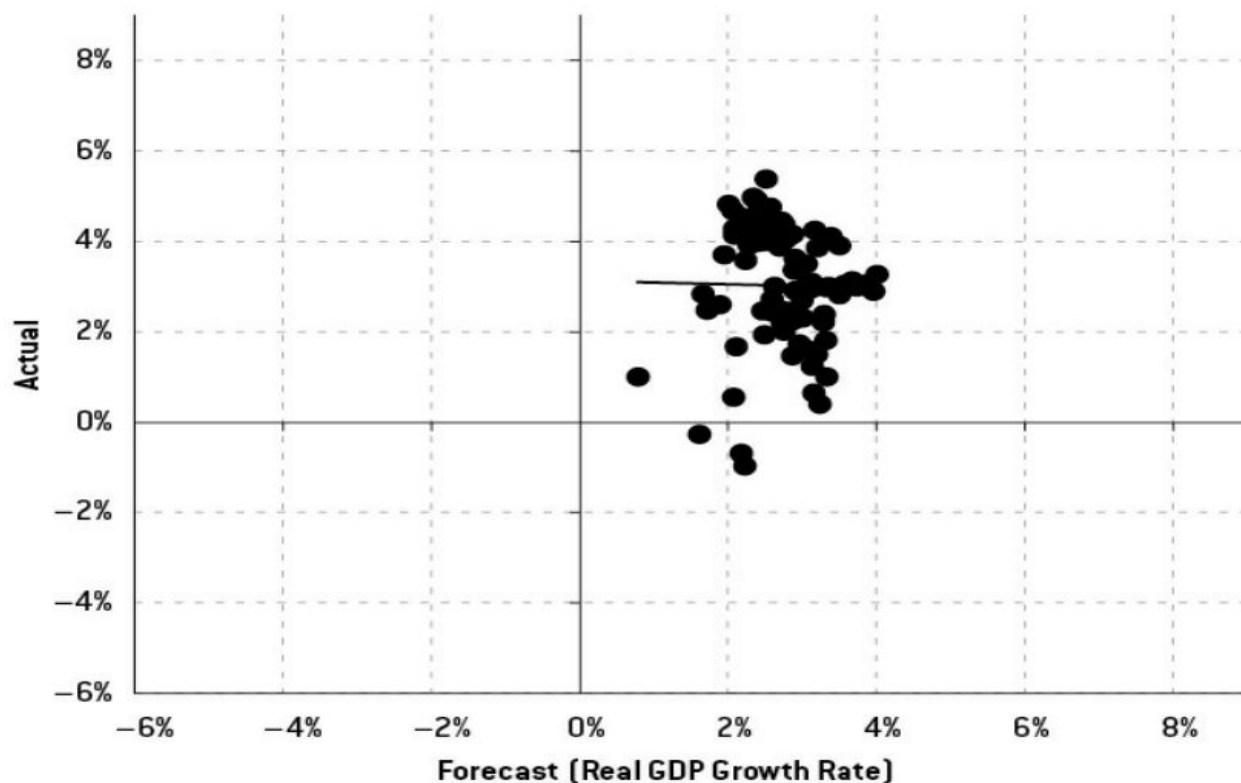


Back to our original question. When will the next recession occur?

A recession is two consecutive quarters of decreasing GDP (Gross Domestic Product). The following figure shows predicted GDP vs actual GDP between 1986 and 2006. As you can see, there is no correlation between predicted GDP and actual GDP. The result: GDP and recession predictions are all noise and no signal, and it is likely that no one can predict with accuracy when the next recession will be.

(As an aside, note how likely Trump's plan for 5-6% GDP growth is.)

FIGURE 6-5B: GDP FORECASTS VERSUS ACTUAL GDP, 1986–2006



One of the most critical and rarely discussed questions in investing is: “What is predictable, and what is just noise?” Our fund concentrates on what has been predictable. Every position we own is based on one or more statistical views of the world which we believe appear predictive. In a short time-period, like one year, I can't say if a security we own will increase or decrease in price. However, I can say that statistically, owning securities such as we own has produced good returns over long periods of time.



I'll conclude with the prescient wisdom of Peter Lynch, a value investor who averaged a 29.2% annual return while running Fidelity's Magellan Fund from 1977-1990. Speaking about the "wrong" question, Peter said:

*I spend about 15 minutes a year on economic analysis. The way you lose money in the stock market is to start off with an economic picture. I also spend 15 minutes a year on where the stock market is going.*

Peter understood what is predictable and what is just noise.

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