

Soccer and the Stock Market

Score big when you lose

BY ALEX EDMANS

Mention the Sloan School of Management to most MIT grads, and they'll conjure up pictures of dapper-suited 30-year-old MBA students at "networking" cocktail parties, talking vacuously on their cell about how to leverage core competences out of the box to sustain competitive advantage. But it's less widely known that geniuses and geeks can be found in Course 15 as well as in the traditional engineering-and-science heart of MIT. Only here, the PhD students shun the bright lights of volatile chemicals, fuel cells and pistons to spend their days, nights and weekends enveloped in the blissful abstraction of data and management theories. It's a small program with 10-15 students per year divided into disciplines such as Accounting, Marketing and Operations Management. In my field of Finance, I have only one classmate – it's a good thing we get along.

Finance sits naturally at MIT because of its deep mathematical content – MIT Professor Paul Samuelson won the Nobel prize for bringing quantitative analysis to economics. And so "classical" finance research developed by assuming all assets have one single "correct" price, which can be determined by mathematical calculations. Every year, dozens of starry-eyed MIT engineering PhDs are tempted to Wall Street, where they hope to unleash their quant skills to figure out this correct price faster and more accurately than everyone else. They make their millions by buying stocks that are too cheap and selling if the price is too high. Such trades drive prices to their "correct" values, classical finance argues, so prices end up as if calculated by an infinitely powerful computer.

But traders aren't computers. They're humans. They're subject to emotions, calculation errors and incomplete information. So today's hot topic is "behavioral" finance, which takes human imperfections discovered by psychologists and investigates their effect on asset prices.

Let's take a few examples. Read the newspapers after the New England Patriots beat the Philadelphia Eagles last year? "Dynasty", they proclaimed, just because the Pats had won two Superbowls in a row. When Manny Ramirez goes hitless three games in a row, the fans cry out that he's "past it". Both of these are an example of *overextrapolation* – people overreact to small pieces of information. And that explains why stocks are so volatile. When the first Internet eggshells hatched, many traders thought that the Internet would change the world forever – Copley Plaza would be no more, as everyone would do their shopping on Amazon.com, and Avalon would be replaced by Match.com as the prime Saturday night venue. So they overextrapolated and bid up Internet stocks to unrealistically high valuations.

Convinced your fledgling idea for the MIT \$50k challenge is a sure-fire ticket to fame and fortune? Well, that's the behavioral bias of *overconfidence*. Many individuals think they're clever enough to make money on the stock market, but studies have shown individual investors typically lose sizable chunks of money. The most overconfident of all, single men and those who trade online, do even worse than women or telephone traders.

Those of you who've been to Foxwoods will be familiar with the *disposition effect*. If you're down \$100 on the night, you may not want to quit and accept your small loss, but gamble even more hoping to get back to even – and often end up in even deeper water. The same happens in the stock market: investors sell stocks too early after they've risen, to lock in the profit, but won't sell if it means taking a loss and admitting they were wrong to buy the stock. This behavior costs them dearly, because studies show that short-run winners continue to outperform, and breaking balls continue to sink.

My own field of research looks at the effect of investor mood on stock returns. A famous paper showed that markets typically go up when it's sunny, as people are happier, and fall when it's cloudy. Other papers linked Jewish holidays, the sleep disruption caused by clock-change weekends, seasonal affective disorder and even lunar cycles to the stock market.

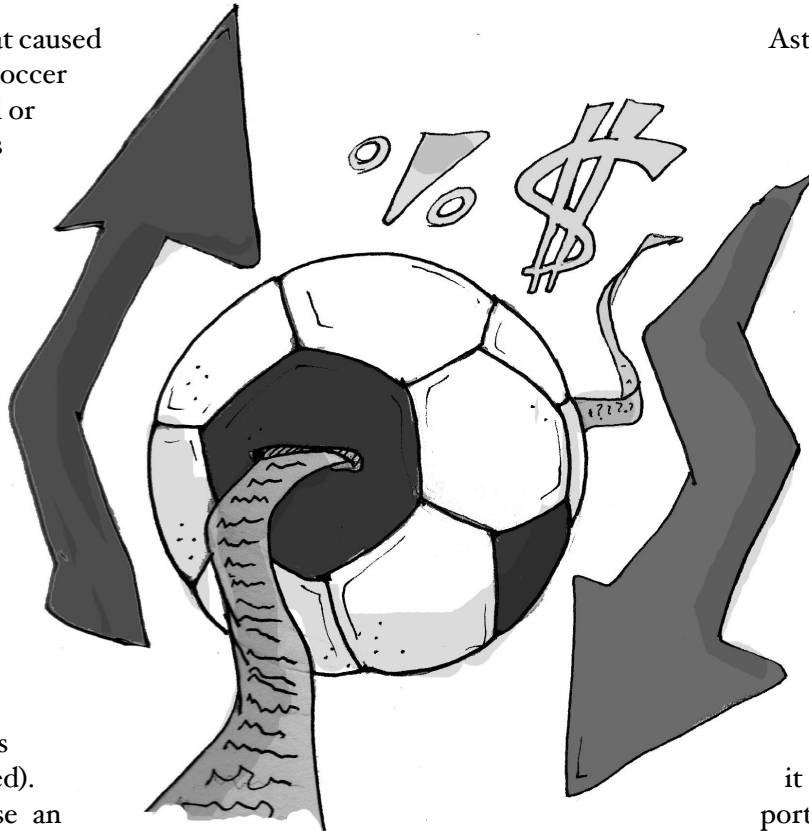
I decided to test the effect of a variable that affects mood in a much bigger way than the weather. Coming from England, and being Tang Hall Athletics

Chair, this variable came naturally to me – international soccer results! Soccer has been shown to cause heart attacks, homicides, suicides and riots. Not only that, millions of people around the world are fanatical about soccer – far more than those who suffer from seasonal affective disorder.

Is it English bias that caused me to choose soccer rather than baseball or football? No - it's critical that the mood measure is correlated across a country. If the Red Sox beat the Yankees, some Americans are happy and others are depressed so it's hard to predict what will happen to the overall US stock market. (The same problem is suffered by the weather variables previously studied). So I had to choose an international sport: if England wins, the whole of England is ecstatic.

Together with Professors Diego Garcia of Dartmouth and Oyvind Norli of the Norwegian School of Management, we tested the impact of international soccer results on 39 countries in our paper "Sports sentiment and stock returns" (<http://ssrn.com/abstract=677103>). We found that stock markets typically fall by 0.4% the day after the national team is eliminated from a major international competition. 0.4% may not seem a lot, but applied to the UK stock market

that's \$11.5 billion in a single day. As expected, the effect is stronger in the World Cup than the European Championships, Copa America or Asian Cup; stronger in elimination stages than group games and qualifiers; and strongest of all in England, France, Germany, Italy, Spain, Argentina and Brazil.



The effect is astonishingly robust across the 39 countries – although as expected, there's no effect in the USA. We also find a loss effect in international rugby, cricket and basketball – with an especially large effect for cricket in South Asia.

There's surprisingly little effect for wins, which could be for many reasons. One is that fans are systematically overconfident about their team's prospects – for 86 years, Red Sox fans thought this year would be "their year", always

to be disappointed. If fans go into each game expecting they'll win, there's little effect if they do win but they become depressed if they lose. Another is the asymmetry of competition format: winning an elimination game merely sends you into the next round, but losing leads to instant exit.

Astute readers may think there's a profit opportunity here: investors should sell stocks in both countries before a game, as the winning team will show no effect but the losing country's stocks will fall. This strategy would have made money over the time period we study (1973-2004). But the frustrating thing about finance for would-be traders is that as soon as a study is published, everyone knows about it and eats away the opportunity – just like when you find a good deal on Slickdeals or Ben's Bargains, everyone has got to it first. So you may not be able to make any money going forwards. Also, international sports matches probably don't occur often enough to have a portfolio fully dedicated to trading them.

So I'm afraid I don't have a strategy to help stretch your graduate stipend that little bit further. But at least I hope our study has shown you that finance can be more interesting than you previously thought. You might even have learned a cool topic of conversation for the next networking cocktail party. **GSN**