How investors should adjust for black Mondays

February 6, 2008

Highly improbable events do happen, and the financial markets are not immune. Is it possible to predict such events?

What seems impossible isn't. For centuries, people believed that swans could only be white and then it happened: a black swan was spotted. The term has evolved to represent a rare and large-impact event that makes sense only after the fact. Black Swans exist in the financial world - just think of any Black Monday.

Take the Dow Jones Industrial Average. For 91 years, from its inception in 1896 to early fall 1987, the Dow had fallen only twice by more than 10 percent in one day - and both falls had happened during the infamous 1929 stock market crash. Nothing in the Dow's history pointed to the possibility that it could fall as it did on October 19, 1987, when the unexpected and the inconceivable happened: the Dow tumbled 22.6 percent and wreaked havoc on investors' portfolios. The returns of 201 trading days were wiped out in a single day. Black Monday, a rare event, was considered a Black Swan.

A Black Swan has three attributes:

- First, it is an outlier, which means it lies outside the realm of regular expectations, because nothing in the past can convincingly point to its occurrence.
- Second, it carries an extreme impact.
- Third, despite being an outlier, plausible explanations for its occurrence can be found after the fact, thus giving it the appearance that it can be explainable and predictable.

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In short, a Black Swan is characterized by rarity, extreme impact and retrospective predictability.

Professor Javier Estrada, head of the Financial Management Department at IESE, looks at the impact of Black Swans, or outliers, on the market's long-term performance. His article, "Black Swans and Market Timing: How Not to Generate Alpha," focuses on "large" daily swings, which are more common than one might think. Just a few large daily swings can more than overturn the return of a portfolio obtained over a long period of time. Interestingly, it is assumed that this should happen infrequently, if at all. Yet, the evidence shows that these swings do happen, and far more often than would be expected.

Outliers have a massive impact

Estrada's research focuses on outliers that are more than three standard deviations away from the mean. He also looks at the best and worst 10, 20 and 100 daily returns. The article does not attempt to formally define a Black Swan; instead, it analyzes how the markets (and the returns) absorb the big swings.

The article's ultimate goal is to quantify the impact of outliers on long-term performance. Other questions that are answered include:

- Do investors obtain their long-term returns smoothly and steadily over time, or is their long-term performance largely determined by the return of just a few outliers?
- Are investors likely to predict successfully the best days to be in and out of the market?
- Should investors attempt to time the market?

The evidence, based on more than 160,000 daily returns from 15 international equity markets, is clear: Outliers have a massive impact on long-term performance.

On average, across all 15 markets, missing the best 10 days resulted in portfolios 50.8 percent less valuable than a passive investment; and avoiding the worst 10 days resulted in portfolios 150.4 percent more valuable than a passive investment.

Given that 10 days represent less than 0.1 percent of the days considered in the average market, the odds against successful market timing are staggering.

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Good days and bad days

Here's an example: $100 invested in the U.S. stock market in 1990 turned into $401 by the end of 2006, but missing the best 10, 20 and 100 days would have reduced the terminal wealth to $250, $172 and $22 respectively.

In the world of finance, most assume that returns will be normally distributed; this view is widely used and abused, implicitly or explicitly, by both academics and practitioners. And yet, the evidence of the past 40-plus years clearly disputes the plausibility of this assumption, particularly as far as daily returns are concerned.

Unfortunately, many widely used measures of risk stem from the normality assumption and basically exclude the possibility of Black Swans.

As the figures show, in all cases - whether in the United States or in other international markets - a very small number of days accounts for the bulk of returns delivered by equity markets. Investors do not obtain their long-term returns smoothly and steadily over time, but largely as a result of booms and busts. Being invested on the good days and not invested on the bad days is key to long-term performance. Yet, the odds of successfully predicting the days to be in out of the markets are, unfortunately, close to negligible.

Estrada offers two recommendations based on the results that large swings and Black Swans do exist, are largely unpredictable and have a massive impact on long-term performance.

"Investors should adjust to the existence of Black Swans rather than trying to predict them," he writes.

It is possible to imagine the consequences of an event if its probability of occurring is largely unknown - think of an earthquake in San Francisco or a flood in New Orleans - and it is on these potential consequences that investors should focus. Hence, broad diversification would mitigate exposure to negative Black Swans while preserving some exposure to positive Black Swans.

Second, Black Swans render market timing a goose chase. Attempting to predict the negligible proportion of days that determines an enormous creation or destruction of wealth seems to be a losing proposition.

Academics and practitioners have devised countless strategies to generate "alpha" - that measure of performance relative to a benchmark, or in the context of this article, the

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measure of the magnitude in which the market outperforms (positive alpha) or underperforms (negative alpha). Yet of all the strategies, market timing seems to be one very unlikely to succeed. Much like going to Vegas, market timing may be an entertaining pastime, but not a good way to make money.

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