Professor helps develop system that warns of stock crashes

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When Barracuda Network's stock price tumbled almost 35 percent in one day last September, a new system developed by Berkeley-Haas researchers had already flagged the signs that led to the fall.

The new crash-risk system, based on a study of 14 years of stock data, aims to help investors actively avoid price crashes. The system is based on flags which researchers developed from variables associated with stock price declines. When a company receives three or more flags, it is significantly more likely that its stock price will crash.

"We have found these crash flags to be an effective tool for investors," says Professor Richard Sloan, Haas Accounting Group. "Barracuda had been consistently raising between four and five flags over the previous month, so this is a good example of the price crash flag system in action. Despite reporting a healthy 14% revenue growth rate, Barracuda disappointed investors who had been expecting even more."

The study, "Navigating Stock Price Crashes," is co-authored by Prof. Sloan; B Korcan Ak, Berkeley-Haas PhD Candidate; and RS Investment's Steve Rossi, an analyst, and Scott Tracy, a portfolio manager.

About 70% of stock market crashes occur when earnings announcements are made, says Prof. Sloan.

"We wanted to understand the types of signals that can help to predict

such price crashes," he says.

The researchers studied 14 years worth of stock return data between 2001 and 2014. The sample included nearly 60,000 observations consisting of companies trading on a major US stock exchange with a market capitalization of at least $100 million at the beginning of the period. They rated each stock on a number of variables to determine which companies should be assigned crash flags.

They identified five variables that were particularly helpful in predicting stock price crashes. These variables include unusual trading volume, high short interest, large accounting accruals, extreme valuations and high growth expectations. Stocks ranking in the top quintile on at least three of these variables were significantly more likely to experience a price crash over the next six months.

The variables include:

• Unusual trading volume.
• High short interest, which is measured in terms of shares sold short as a percentage of shares outstanding or a percentage of float, the total number of shares available to trade.
• Large accounting accruals.
• Extreme valuations.
• High growth expectations.

"We're not necessarily advocating that investors should trade stocks based on crash risk flags alone," says Prof. Sloan. "But we strongly suggest that stocks with three or more flags be carefully examined before continuing to hold them through earnings season. Our research should help investors to construct equity portfolios with fewer stock price crashes, higher returns, and lower volatility."

More information: Steven Bruce Rossi et al. Forecasting Stock Price Crashes, *SSRN Electronic Journal* (2015). DOI: 10.2139/ssrn.2585811

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