New index identifies periods when global stock markets might decline

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Researchers have found a way to measure the likelihood of global stock market losses by identifying periods in which shocks may be more likely to spread across many national markets.

This "fragility index" identifies periods in which international equity markets are more susceptible to widespread pull-backs by identifying common risk exposures. The index identifies when systemic risk exposure is high in markets across multiple countries, and shows an increasing probability of a global stock market draw-down.

For example, the likelihood of a global decline was one in three on days in which the index was high, but less than one in 20 following days in which the index was low.

Dave Berger, an assistant professor of finance at Oregon State University, is lead author on the study, which was published online today in the *Journal of* Financial Economics.

"The index may have important uses for policy makers, money managers and ultimately private investors," Berger said.

On one level, he said, the fragility index is a measure of when stock movements are most apt to be exaggerated, either positively or negatively. When it is high, movements are more extreme. When fragility is low, stock movements are less apt to experience a significant change, either up or down.

For instance, global daily returns above 1 percent, as well as losses greater than 1 percent, are both more common when the fragility index is high. But when the fragility index is high instead of low, the down days are by far more common. During such periods the probability of one of the bad days occurring is 33 percent – more than seven times higher than when fragility index is low, when these significant downturns occur only 4.5 percent of the time.

Looking at data from 1994 to 2010 that covers indexes from 82 countries, Berger and Kuntara Pukthuanthong of San Diego State University were able to identify periods in which national stock markets had a high degree of correlation, and then were able to identify periods when an initial shock would be more likely to spread.

Berger said the 2008 stock market crash illustrates the importance of studying systemic risk in international equity markets.

"The factors that lead to global declines can change, so we tried to create a general measure of systemic risk," Berger said. "The probability of a worldwide financial pull-back is highest during periods in which many countries share a high exposure to our factor. When exposures are high across multiple countries, then if a shock occurs it will manifest globally, and multiple markets will simultaneously decline."

Provided by Oregon State University

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