The Crash of '87: Was It Expected? The Evidence from Options Markets

by David Bates.

Nicholas Lyle

A01757213

Fin6470 Final

In this paper Bates is looking to see if the market had indicators that could have been used to predict the market crash in October 1987. He did this by analyzing the prices on options. Specifically out of the money puts in relation to out of the money calls. Out of the money puts are used as a “crash insurance” option.

Shillers had conducted surveys were ex-post to determine if people had foreseen a crash coming. The survey showed that most institutions and investors had thought that the market was going to crash. However this can be biased from 20-20 hindsight. Instead Bates conducted more relevant tests to see how much the market actually knew the market was going to crash. He was testing to see if a rational bubble was what caused the crash. Bates used a modified version of the Black-Scholes model that used stochastic volatility, and jump diffusions. He would use puts and calls to show evidence of the bubble. Since out of the money puts were priced much higher than out of the money calls, which should be priced similar in a normal distribution, he can conclude that the market was indeed predicting a crash.

When he assessed these options in the months leading up to the crash they implied that expectations that the market would collapse. It is also worthy to note that two months before the crash the options had a price difference that was normal. He had found that there was showing a strong opinion of a down market but Bates could not get enough evidence to suggest that a rational bubble had formed a collapsed the market. Looking at his data however it shows that if there was a rational bubble it would have burst sometime in August, not in October when the market showed signs of a collapse.