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Identifying Bull and Bear Markets in Stock Returns

John M. maheu & Thomas H. McCurdy

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Abstract

This article uses a Markov-switching model that incorporates duration dependence to capture nonlinear structure in both the conditional mean and the conditional variance of stock returns. The model sorts returns into a high-return stable state and a low-return volatile state. We label these as bull and bear markets, respectively. The filter identifies all major stock-market downturns in over 160 years of monthly data. Bull markets have a declining hazard functions although the best market gains come at the start of a bull market. Volatility increases with duration in bear markets. Allowing volatility to vary with duration captures volatility clustering.

KEY WORDS:

Duration dependence | Filter | Markov chain | Regime switching

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