



1,586 Views | 215 CrossRef citations to date | 3 Altmetric

Original Articles

Identifying Bull and Bear Markets in Stock Returns

John M. maheu & Thomas H. McCurdy

Pages 100-112 | Published online: 02 Jul 2012

“ Cite this article

Sample our
Mathematics & Statistics
Journals
>> [Sign in here](#) to start your access
to the latest two volumes for 14 days

References

Citations

Metrics

Reprints & Permissions

Read this article

Share

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

Related Research Data

[Duration-Dependent Transitions in a Markov Model of U.S. GNP Growth](#)

Source: Journal of Business and Economic Statistics

[On estimating the expected return on the market](#)

Source: Journal of Financial Economics

[Measuring Goodness of Fit in Linear and Nonlinear Models](#)

Source: Southern Economic Journal

[Consistent Estimation of Linear and Non-linear Autoregressive Models with Markov Regime](#)

Source: Journal of Time Series Analysis

[Time Series Analysis](#)

Source: Unknown Repository

[Erratum: The likelihood ratio test under nonstandard conditions: Testing the Markov switching model of GNP](#)

Source: Journal of Applied Econometrics

[Duration dependence in the US stock market cycle: a parametric approach](#)

Source: Applied Financial Economics

[Markov Switching in GARCH Processes and Mean-Reverting Stock-Market Volatility](#)

Source: Journal of Business and Economic Statistics

[Noise Trader Risk in Financial Markets](#)

Source: Journal of Political Economy

[Stylized facts of daily return series and the hidden Markov model](#)

Source: Journal of Applied Econometrics

[Asymptotic normality of the maximum-likelihood estimator for general hidden Markov models](#)

Source: The Annals of Statistics

[A Markov Model of Switching-Regime ARCH](#)

Source: Journal of Business and Economic Statistics

[A Test for Independence Based on the Correlation Dimension](#)

Source: Unknown Repository

[Time Series Analysis.](#)

Source: Contemporary Sociology A Journal of Reviews

[The likelihood ratio test under nonstandard conditions: Testing the markov switching model of gnp](#)

Source: Journal of Applied Econometrics

[The econometrics of financial markets](#)

Source: Journal of Empirical Finance

[Asymptotic Null Distribution of the Likelihood Ratio Test in Markov Switching Models](#)

Source: International Economic Review

[Nonlinearity tests for time series](#)

Source: Biometrika

[Modeling the conditional distribution of interest rates as a regime-switching process](#)

Source: Journal of Financial Economics

[Bubbles, Stock Returns, and Duration Dependence](#)

Source: Journal of Financial and Quantitative Analysis

[Dynamic linear models with Markov-switching](#)

Source: Journal of Econometrics

[Stock market volatility and the business cycle](#)

Source: Journal of Applied Econometrics

[Indexes of U.S. Stock Prices from 1802 to 1987](#)

Source: The Journal of Business

[Autoregressive conditional heteroskedasticity and changes in regime](#)

Source: Journal of Econometrics

[On a Measure of Lack of Fit in Time Series Models](#)

Source: Biometrika

[A Markov-Switching Model Of Gnp Growth With Duration Dependence*](#)

Source: International Economic Review

[A Markov model of heteroskedasticity, risk, and learning in the stock market](#)

Source: Journal of Financial Economics

[A New Approach to the Economic Analysis of Nonstationary Time Series and the Business Cycle](#)

Source: Econometrica

[Hypothesis testing when a nuisance parameter is present only under the alternative](#)

Source: Biometrika

[A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity](#)

Source: Econometrica

[Maximum-likelihood estimation for hidden Markov models](#)

Source: Stochastic Processes and their Applications

Linking provided by 

Related research

People also read

Recommended articles

Cited by
215

Information for

Authors

R&D professionals

Editors

Librarians

Societies

Opportunities

Reprints and e-prints

Advertising solutions

Accelerated publication

Corporate access solutions

Open access

Overview

Open journals

Open Select

Dove Medical Press

F1000Research

Help and information

Help and contact

Newsroom

All journals

Books

Keep up to date

Register to receive personalised research and resources by email



Sign me up



Copyright © 2025 Informa UK Limited [Privacy policy](#) [Cookies](#) [Terms & conditions](#)

[Accessibility](#)



Taylor & Francis Group
an **informa** business

Registered in England & Wales No. 01072954
5 Howick Place | London | SW1P 1WG