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**MICROECONOMIC MODELS FOR LONG-MEMORY
IN THE VOLATILITY OF FINANCIAL TIME SERIES**

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Abstract

We show that a class of microeconomic behavioral models with interacting agents, derived from Kirman (1991, 1993), can replicate the empirical long-memory properties of the two first conditional moments of financial time series. The essence of these models is that the forecasts and thus the desired trades of the individuals in the markets are influenced, directly, or indirectly by those of the other participants. These “field effects” generate “herding” behaviour which affects the structure of the asset price dynamics. The series of returns generated by these models display the same empirical properties as financial returns: returns are $I(0)$, the series of absolute and squared returns display strong dependence, while the series of absolute returns do not display a trend. Furthermore, this class of models is able to replicate the common long-memory properties in the volatility and co-volatility of financial time series, revealed by Teyssi ere (1997, 1998a). These properties are investigated by using various model independent tests and estimators, i.e., semiparametric and nonparametric, introduced by Lo (1991), Kwiatkowski, Phillips, Schmidt and Shin (1992), Robinson (1995), Lobato and Robinson (1998), Giraitis, Kokoszka, Leipus and Teyssi ere (2000, 2001). The relative performance of these tests and estimators for long-memory in a non-standard data generating process is then assessed.

Keywords: long-memory, microeconomic models, field effects, semiparametric tests, conditional heteroskedasticity.

JEL Classification: C15, C22, D40.

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