Exchange Rates and Markov Switching Dynamics

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Summary

The characterization of exchange rate dynamics is a challenging undertaking. Engel and Hamilton (1990), however, reported that a two-regime Markov switching model performs well in both in-sample and out-of-sample periods. Unfortunately, similar to most empirical studies on Markov switching dynamics, there is no formal test for the number of regimes in the exchange rate data. The purpose of the current exercise is to re-evaluate the presence of Markov switching dynamics in exchange rate data. To provide some formal evidence on the presence of Markov switching behavior, we adopt a Monte Carlo approach to circumvent the statistical inference problem inherent in the test of regime-switching behavior. The results indicate that the Monte Carlo method has considerable power in detecting Markov switching dynamics. In addition, we explore the implications of data frequency for detecting Markov switching. It is found that, for a given sample period, low frequency data such as quarterly data yield inconclusive evidence (that is, the test rejects neither random walk nor Markov switching) while high frequency data such as monthly data offer unambiguous evidence of the presence of Markov switching dynamics. The results suggest that data frequency, in addition to sample size, is crucial for identifying Markov switching behavior in exchange rate data.