

On Modeling US Dollar/Pound Sterling Exchange Rate: Stochastic Volatility and Extreme Values

Teresa T. Pereira
DEIO and CEA, Faculdade de Ciências
Universidade de Lisboa
tthemido@fc.ul.pt

Abstract

Financial time series usually present high volatility, i.e., periods of stillness are followed by periods of high instability. Examples are stock market and foreign exchange rates data. The US dollar/pound sterling daily exchange rate time series is fitted by stochastic volatility models, namely ARCH/GARCH models, and adjusted models parameters are estimated by quasi-maximum likelihood using the statistical package Eviews. The main goals are conditional variance forecasting and extreme value analysis of the exchange rate process.

Keywords: Financial time series, foreign exchange rate, stochastic volatility, ARCH and GARCH models, extremal index, tail estimation.