In and Out-Of-Sample Performance of Non Simmetric Models in International Price Differential Forecasting in a Commodity Country Framework

Authors : Nicola Rubino

Abstract : This paper presents an analysis of a group of commodity exporting countries' nominal exchange rate movements in relationship to the US dollar. Using a series of Unrestricted Self-exciting Threshold Autoregressive models (SETAR), we model and evaluate sixteen national CPI price differentials relative to the US dollar CPI. Out-of-sample forecast accuracy is evaluated through calculation of mean absolute error measures on the basis of two-hundred and fifty-three months rolling window forecasts and extended to three additional models, namely a logistic smooth transition regression (LSTAR), an additive non linear autoregressive model (AAR) and a simple linear Neural Network model (NNET). Our preliminary results confirm presence of some form of TAR non linearity in the majority of the countries analyzed, with a relatively higher goodness of fit, with respect to the linear AR(1) benchmark, in five countries out of sixteen considered. Although no model appears to statistically prevail over the other, our final out-of-sample forecast exercise shows that SETAR models tend to have quite poor relative forecasting performance, especially when compared to alternative non-linear specifications. Finally, by analyzing the implied half-lives of the > coefficients, our results confirms the presence, in the spirit of arbitrage band adjustment, of band convergence with an inner unit root behaviour in five of the sixteen countries analyzed.

Keywords : transition regression model, real exchange rate, nonlinearities, price differentials, PPP, commodity points

Conference Title : ICBEFR 2017 : International Conference on Business, Economics and Finance Research

Conference Location : Barcelona, Spain

Conference Dates : August 17-18, 2017