Referee Report on "Exchange rate volatility in the eurozone". (Reference number: MS3354)

Summary:

These authors analyze whether exchange rate volatility may help to justify the drop in the rate of exports' growth in the eurozone since the beginning of the crisis. To this purpose, they focus on the four largest economies of the eurozone, Germany, France, Italy and Spain given that these countries represent a 64% of the total exports of the eurozone in 2015. In particular, they implement aggregate exports equations depending not only on the common factors which are foreign real income and external competitiveness but also incorporating the exchange rate volatility.

From the theoretical point of view, the authors emphasize the absence of a consensus. On the one hand, sometimes a negative relationship is identified given that higher volatility supposes lower volume of foreign trade given that firms will be more risk-averse when there is more uncertainty on the behavior of exchange rate. However, on the other hand, some studies assure that when risk increases, very risk-averse firms will export more to compensate the possibility of a large drop in their revenues. The authors of this analysis show that the results are mixed on the empirical studies depending on the countries, the proxy used for the exchange rate volatility and period analyzed.

Their results show no clear-cut evidence on the influence of exchange rate volatility on the exports. For the whole sample, the authors obtain that this effect is not significant, except for Germany in which it reveals a negative and significant impact. Splitting the sample period, they display positive and significant effect only for the crisis period for France, Italy and Spain. Their results suggest that financial markets are developed enough in order to avoid a negative impact on exports.

Comments:

This study analyzes a very interesting and relevant topic. They throw light on the mixed results achieved in the empirical literature on the relationship between exchange rate volatility and international trade. This paper implements not only a very appropriated econometric methodology but also alternative techniques in order to offer robust results.

One of the added value of this analysis is that in order to check the robustness of their results they use several proxies for the exchange rate volatility. They apply up to six different measures of volatility for each country. Specifically, they employ the standard deviation and the conditional variance from the GARCH methodology. Besides, these measures are computed on both nominal and real exchange rate, in particular the latter case using both export prices and unit labor costs as deflators.

I recommend to the authors to implement more stationary tests in order to check the robustness of their results. It is very common to use the ADF and PP unit root tests in which the null hypothesis is that the time series is I(1), perhaps you should apply the Kwiatkowski, Phillips, Schmidt and Shin (1992) KPSS test in which the null hypothesis is that the time series is I(0).

I also suggest to the authors to include in their tables some tests to validate the GARCH model such as the Lagrange multiplier to investigate whether the standardized residuals exhibit ARCH behavior. Besides, the F-statistic to test that all the slope coefficients are zero. Perhaps it is needed to show the results of Shapiro-Wilk test and Jarque-Bera normality test in order to check whether the standardized residuals follow a normal distribution. Moreover, the Q test

developed by Ljung and Box (1978) is required to test the presence of autocorrelation of order *m* in residuals. The Box-Pierce-Ljung portmanteau statistic is considering the most widely used diagnostic for conditional heteroscedasticity models (see for instance Tse, 2002). In the last tables I also consider that some information criteria for GARCH model selection should be included (see for instance, Brooks and Burke, 2010, in which they implement a set of appropriately modified information criteria).