DETERMINANTS OF CENTRAL BANK OF BRAZIL INTERVENTION ON EXCHANGE RATE MARKET: AN EMPIRICAL APPROACH USING LOGISTIC REGRESSION AND ARTIFICIAL NEURAL NETWORKS

Cassius Marcellus do C. Figueiredo[1]

[1]Escola de Matemática Aplicada (EMAp)
Fundação Getúlio Vargas
Praia de Botafogo, 190 - 3º andar
cassius.figueiredo@fgvmail.br

Abstract

A common scenario in countries with inflation targeting regimes is Central Bank intervention in exchange market to keep volatility under control. In Brazil interventions are mostly done through spot market, derivatives market (exchange rate swaps) and also through forward market operations, liquidity and borrowing lines. Due to low volumes related to the last three channels, we kept our efforts concentrated in interventions through spot and derivatives markets. There are several articles discussing how successful those interventions are but only a few evaluating which factors may lead Central Bank of Brazil to an intervention. We try to fill this gap using two different techniques: the ever present logistic regression and a new approach (as fas as we know) using artificial neural networks. In parallel we will try to define if there are specific factors affecting different scenarios of intervention. The dataset goes from 2005 to 2012, when Central Bank of Brazil has been intervening based on market demand and not in a standardized way for longer periods of time. Our results show that there may be factors more relevant to one of the intervention decisions (buying or selling dollars) and we can highlight the relevance of exchange rate volatility, particularly in interventions where Central Bank of Brazil is selling dollars. This result is fully aligned with other papers on the subject.

Keywords: central bank of brazil, exchange rate intervention, logit, neural networks