July 26th, 2021

Dear Editor,

Please find enclosed our manuscript “Foreign exchange markets: price response and spread impact” by Juan C. Henao-Londono and Thomas Guhr, which we ask you to consider for publication in Physica A: Statistical Mechanics and its Applications. The manuscript discusses an issue which has not received the necessary attention yet. We analyze price response functions in foreign exchange markets. While such analyses have been carried out in great detail for the stock markets, there is, to the best of our knowledge, no comparable study for foreign exchange markets.

We considerably revised a previous version of the manuscript which we had submitted to another journal. Insightful referee comments enabled us to greatly improve the quality of our manuscript. After the revision, we realized that our work better fits in with aims and scope of Physica A.

Our manuscript starts with an introduction that concisely and clearly explains the motivations of our work, the background and our expertise on similar works on price response functions. Follow an overview of the foreign exchange market and the key concepts we use. We then present the data set used along the manuscript with their corresponding characteristics. We define the time scales and the different price response functions, and illustrate the different results obtained. Finally we group exchange pairs according to their pip spread values and check their responses functions and the similarities in each group.

We are not aware of any large-scale data analysis addressing response functions for foreign exchange markets, inspite of their importance. Response functions are powerful observables as they give information on non-Markovian behavior. It is the purpose of the present study to close this gap. Based on a series of detailed empirical results obtained on trade by trade data, we show that the price response functions in the foreign exchange markets behave qualitatively similar as the ones in correlated stocks markets. We consider different time scales, years and currency pairs to compute the price response functions. Finally, we shed light on the spread impact in the response functions for foreign exchange pairs. We use a pip spread definition to group different foreign exchange pairs and show that large pip spreads have stronger impact on the response. We also spot that even for different groups of exchange pairs, the market has a general influence that can be seen in the shape of the average response functions.

Because of its importance for the understanding of market micro-structure and the study of foreign exchange markets, we are convinced that our manuscript is a relevant contribution to the field of Econophysics. We hope that you find it suitable for publication in Physica A.

Yours Sincerely,

Juan Camilo Henao Londono, also on behalf of Thomas Guhr