Incorporating Liquidity Risk in Currency Futures Pricing

Anshul Goel, Indian Institute of Technology Kanpur

January 24, 2020

As suggested by the paper "Derivatives Pricing with Liquidity Risk" [1], crude oil and gold markets are of particular interest among commodity futures owing to their crucial role in stock markets, their implications to T-bill rates & forex market. But, except Zhang and Wei(2010) [2], there is not much literature on price discovery mechanism between gold and futures market.

They employed Hasbrouck's Information share which face its own limitations of lacking a unique value of Information share as it considers random ordering of market equations which doesn't take into account various observed phenomenons in financial assets.[3] My aim is to extend this literature by employing Grammig and Peter Information Share which provides unique Information share values by incorporating the idea of fat tails and Tail dependence that are prevalently observed in financial markets but lack the theoretical reasoning. [4]

I have applied Hasbrouck's Information Share on Forex market earlier in my research project under Prof Wasim Ahmad. I am confident that I would be able to work on this problem in my summer tenure. Please find the link of my project poster and my code repository codes:
`Poster`
`Repository`

References

[1] Zhang Y, Ding S, Duygun M. Derivatives pricing with liquidity risk. *J Futures Markets*. 2019;1–15. https://doi.org/10.1002/fut.22008

[2] Zhang Y, Wei Y. The crude oil market and the gold market: evidence for cointegration, causality and price discovery. https://doi.org/10.1016/j.resourpol.2010.05.003

[3] Hasbrouck J. One security, many markets: metermining the contributions to price discovery. http://www.jstor.org/stable/2329348

[4] Grammig J, Peter F.Telltale tails: A New Approach to Estimating Unique Market Information Shares. https://doi.org/10.1017/S0022109013000215