

Title: Volatility bursts and order book dynamics

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Abstract: The presented paper studies the dynamics of supply and demand through the electronic order book. We describe and define the basic rules of the order book and its dynamics. We also define limit and market orders and describe the differences between them and how they influenced the evolution of ask, bid price and spread. Next part of the paper is dedicated to the description and definition of volatility and its basic models. The brief overview about volatility clustering and its modeling by economists and physicists can be found in the following part. In the last part we introduce a simple model of order book in which we observe ask, bid price and spread. Then we study the empirical distribution of spread and try to find its probability distribution. The volatility clustering is then observed through the relative returns of spread. In the last part we introduce some possible improvement of the model.

Keywords: volatility clustering, order book, limit orders, market orders