

The Extent of Virgin Olive-Oil Prices' Distribution Revealing the Behavior of Market Speculators

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Abstract : The olive tree, the olive harvest during winter season and the production of olive oil better known by professionals under the name of the crushing operation have interested institutional traders such as olive-oil offices and private companies such as food industry refining and extracting pomace olive oil as well as export-import public and private companies specializing in olive oil. The major problem facing producers of olive oil each winter campaign, contrary to what is expected, it is not whether the harvest will be good or not but whether the sale price will allow them to cover production costs and achieve a reasonable margin of profit or not. These questions are entirely legitimate if we judge by the importance of the issue and the heavy complexity of the uncertainty and competition made tougher by a high level of indebtedness and the experience and expertise of speculators and producers whose objectives are sometimes conflicting. The aim of this paper is to study the formation mechanism of olive oil prices in order to learn about speculators' behavior and expectations in the market, how they contribute by their industry knowledge and their financial alliances and the size the financial challenge that may be involved for them to build private information hoses globally to take advantage. The methodology used in this paper is based on two stages, in the first stage we study econometrically the formation mechanisms of olive oil price in order to understand the market participant behavior by implementing ARMA, SARMA, GARCH and stochastic diffusion processes models, the second stage is devoted to prediction purposes, we use a combined wavelet- ANN approach. Our main findings indicate that olive oil market participants interact with each other in a way that they promote stylized facts formation. The unstable participant's behaviors create the volatility clustering, non-linearity dependent and cyclicity phenomena. By imitating each other in some periods of the campaign, different participants contribute to the fat tails observed in the olive oil price distribution. The best prediction model for the olive oil price is based on a back propagation artificial neural network approach with input information based on wavelet decomposition and recent past history.

Keywords : olive oil price, stylized facts, ARMA model, SARMA model, GARCH model, combined wavelet-artificial neural network, continuous-time stochastic volatility mode

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