

ABSTRACT

In asset pricing, increasing attention is being paid to the construction of explicit models for the flow of market information, and the use of such models in financial markets as a basis for asset pricing. One notable approach in this spirit is the information based asset pricing theory of Brody, Hughston and Macrina. In this approach, the market filtration is modeled explicitly as a superposition of signals concerning relevant market factors and independent noise. The rate at which the signal is revealed to the market then determines the overall magnitude of asset volatility.

By letting this information flow rate be random, we obtain an elementary stochastic volatility model within the information based approach. Such an extension is economically justified on account of the fact that in real markets information flow rates are rarely measurable. The aim of the Brody, Hughston and Macrina approach is therefore to bring the mathematical abstraction of financial modeling at the level of the specification of market filtration. In this way, price process can be derived as an emergent phenomenon, rather than postulated from the outset. Building on this framework, in this study, the price of a derivative asset is obtained in the multidimensional framework with the assumption of stochastic volatility.