

Rank Process and Stochastic Corridor

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Fujita and Miura (2004) defined a rank statistics of a continuous time stock price process and derived its probability distribution under the assumption that the stock price follow a Geometric Brownian motion. The present paper uses rank statistics to define a new exotic derivatives; stochastic corridor. The stochastic corridor based on rank statistic measures how many days during the prefixed time interval the stock prices stay below the price of a prefixed day t . The special feature of the rank statistics is that its distribution does not depend on the stock price at the beginning of the prefixed time interval. Swap or exchange contract and option with spot starting corridor and forward starting corridor will be defined and their pricing will also be discussed.