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Modeling of First-Passage Processes in Financial Markets[1] JUN-ICHI INOUE, HIKARU HINO, Hokkaido University, NAOYA SAZUKA, Sony Corporation, ENRICO SCALAS, Universita del Piemonte Orientale — In this talk, we attempt to make a microscopic modeling the first-passage process (or the first-exit process) of the BUND future by minority game with market history. We find that the first-passage process of the minority game with appropriate history length generates the same properties as the BTP future (the middle and long term Italian Government bonds with fixed interest rates), namely, both first-passage time distributions have a crossover at some specific time scale as is the case for the Mittag-Leffler function. We also provide a macroscopic (or a phenomenological) modeling of the first-passage process of the BTP future and show analytically that the first-passage time distribution of a simplest mixture of the normal compound Poisson processes does not have such a crossover.

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