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Optimal stopping problems for a Brownian motion with disorder on a segment. (English)

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Summary: We consider optimal stopping problems for a Brownian motion and a geometric Brownian motion with "disorder", assuming that the moment of disorder is uniformly distributed on a finite segment. The optimal stopping rules are found as the times of first hitting of the time-dependent boundaries which are characterized by certain integral equations by some Markov process (the Shiryaev-Roberts statistic). The problems considered are related to mathematical finance and can be applied in questions of choosing the optimal time to sell an asset with the changing trend.

MSC:

60G40 Stopping times; optimal stopping problems; gambling theory
60J65 Brownian motion
91G80 Financial applications of other theories

Keywords:

optimal stopping problems; disorder detection problems; Shiryaev-Roberts statistic

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