Some optimal stopping problems in models with partial information

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Abstract. We consider the problem of sequential multiple disorder detection and the problem of finding an optimal time to sell a financial asset on infinite time horizon. In both problems, the underlying models are based on observable diffusion processes with local drift rates modelled by continuous Markov chains with two states. The initial problems are reformulated as optimal stopping problems for continuous Markov processes under partial observations. By means of the analysis of the associated free-boundary problems, the closed form solutions are derived for the optimal stopping problems.

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Keywords Optimal stopping; partial information; free-boundary problem; hidden Markov chain