

A note on the quasi-stationary distribution of the shiryaev martingale on the positive half-line

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We obtain a closed-form formula for the quasi-stationary distribution of the classical Shiryaev martingale diffusion considered on the positive half-line $[A, +\infty)$ with $A > 0$ fixed; the state space's left endpoint is assumed to be the killing boundary. The formula is obtained analytically as the solution of the appropriate singular Sturm-Liouville problem; the latter was first considered in section 7.8.2 of [P. Collet, S. Martínez, and J. San Martín, *Quasi-Stationary Distributions. Markov Chains, Diffusions and Dynamical Systems*, Springer, Heidelberg, 2013] but has heretofore remained unsolved.