Summary: In this paper, we consider the optimal dividend problem with bounded dividend rate for the risk model with surplus-dependent premiums and surplus-dependent claim arrivals. The objective is to maximize the expected cumulative discounted dividends payment up to the time of ruin. Firstly, we give the necessary and sufficient condition for a strategy to be a stationary Markov strategy. Using the theory of measure-valued generators, we derive the associated measure-valued dynamic programming equation (DPE). Finally, we discuss the relationship between the measure-valued DPE and the corresponding quasi-variational inequalities (QVI), and show that the optimal dividend strategy is a stationary Markov strategy with a band structure.

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optimal dividend problem; measure-valued DPE; Markov strategy; band structure

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