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with rank based characteristics.*

We consider two competing companies whose capitals are modeled by diffusions with infinitesimal generator

$$\begin{aligned} \mathcal{L} := & \mathbf{1}_{\{x_1 > x_2\}} \left(\frac{\rho^2}{2} \frac{\partial^2}{\partial x_1^2} + \frac{\sigma^2}{2} \frac{\partial^2}{\partial x_2^2} + (\gamma_1 + g_1) \frac{\partial}{\partial x_1} + (\gamma_2 + g_2) \frac{\partial}{\partial x_2} \right) \\ & + \mathbf{1}_{\{x_1 \leq x_2\}} \left(\frac{\sigma^2}{2} \frac{\partial^2}{\partial x_1^2} + \frac{\rho^2}{2} \frac{\partial^2}{\partial x_2^2} + (\gamma_1 + g_2) \frac{\partial}{\partial x_1} + (\gamma_2 + g_1) \frac{\partial}{\partial x_2} \right), \end{aligned}$$

where the local drift and variance characteristics are assigned by rank with constraints on constants $g_1 + g_2 + \gamma_1 + \gamma_2 = 0$, $\gamma_i + g_1 < 0$, $i = 1, 2$, $\rho^2 \geq 0$, $\sigma^2 \geq 0$, $\rho^2 + \sigma^2 = 1$. This model is an extension of E. R. FERNHOLZ, T. ICHIBA, I. KARATZAS, V. PROKAJ (2011). On some probability space we construct such diffusions and analyze their properties. Questions of pathwise uniqueness, transition probabilities and some related backward stochastic differential equations are also addressed. Based on the construction and analysis of the diffusions we argue investment strategies in the model. (Received September 24, 2012)