

# Some two-dimensional controlled ruin problems

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## **Abstract**

We consider a two-dimensional Brownian motion with drift in the positive quadrant, representing the wealth of two companies. It is allowed to control the drift of the two companies, with a given upper bound for the total drift. We are considering several optimization criteria involving the ruin probabilities of the two companies, and characterize the value functions as the viscosity solution of the corresponding Hamilton-Jacobi-Bellman equation. Moreover, we provide some results on the structure of the optimal control policy.

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