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**Moustapha N Pemy\*** (mpemy@towson.edu), Mathematics Department, Towson University, 7800 York Road Room 316, Towson, MD 21204, and **Q Zhang** and **G Yin**. *Liquidation of a large block of stock with regime switching*.

Stock-selling rules are mainly concerned with liquidation of the security within a short period of time. In practice, this is feasible when a relatively smaller number of shares of a stock is involved. Selling a large position in a market place normally depresses the market if sold in a short period of time, which would result in poor filling prices. Comparing to the existing results in the literature, this work has two distinct features. First, the underlying stock price is modeled using a geometric Brownian motion formulation with regime switching in which the jump rate depends on the selling intensity. Secondly, we consider the liquidation strategy for selling a large block of stock by selling much smaller number of shares over a longer period of time. By using a fluid model, in which the number of shares is treated as fluid (continuous), we treat the selling rule problem where the corresponding liquidation is dictated by the rate of selling over time. Our objective is to maximize the expected overall return. Thus it may be formulated as a stochastic control problem with state constraints. Method viscosity solution is used to characterize the dynamics governing the optimal reward function and the associated boundary conditions. Numerical examples are reported. (Received September 08, 2009)