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Frederi G Viens* (viens@purdue.edu), Dept. Statistics, Purdue University, 150 N University St, West Lafayette, IN 47907-2067, and **Ha-Young Kim** (hykim@math.purdue.edu). *Portfolio Optimization in Discrete Time with Proportional Transaction Costs under Stochastic Volatility.*

This paper is devoted to evaluating the optimal self-financing strategy and the optimal trading frequency for a portfolio with a risky asset and a risk-free asset. The objective is to maximize the expected future utility of the terminal wealth in a stochastic volatility setting, when transaction costs are incurred at each discrete trading time. A HARA utility function is used, allowing a simple approximation of the optimization problem, which is implementable forward in time. For each of various transaction cost rates, we find the optimal trading frequency, i.e. the one that attains the maximum of the expected utility at time zero. We study the relation between transaction cost rate and optimal trading frequency. The numerical method used is based on a stochastic volatility particle filtering algorithm, combined with a Monte-Carlo method. The filtering algorithm updates the estimate of the volatility distribution forward in time, as new stock observations arrive; these updates are used at each of these discrete times to compute the new portfolio allocation. (Received February 22, 2010)