THE ANALYSIS OF THE STOCK BUY-AND-SELL RULE WITH REFERENCE TO THE ULTIMATE AVERAGE

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Abstract. We aim to determine the optimal stock buying and selling time over a given horizon with reference to the ultimate arithmetic and geometric average price of stock. Assuming that stock price satisfies the geometric Brownian motion, we formulate the problem as an optimal stopping time problem. We provide a measure transformation approach to characterize the resulting free boundary. It turns out that the optimal buying strategy is bang-bang, whereas the optimal selling strategy can be a feedback one subject to the type of averaging and parameter values. This result is different from that of taking the ratio of the selling (buying) price to the ultimate average price as the decision-making goal.

Keywords. Buy-and-sell rule; Ultimate average; Measure transformation.

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