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Tomoyuki Ichiba*, South Hall, University of California, Santa Barbara, CA 93106. *Filtering degenerate rank-based particle systems.*

In stochastic portfolio theory, the rank-based market models describe the long-term stability of ranked market weights. Each stock can be seen as a particle in the particle systems of the whole market. We study stochastic filtering of systems of interacting particles, in which drifts and variances are assigned by rank. The filtered systems are degenerate: the variances corresponding to one or two ranks can vanish, and so the corresponding ranked motions become ballistic rather than diffusive. We study the system of filtering equations, in particular, when the number of stocks is large. The stability properties for the resulting processes of gaps between successive ranks are also studied. (Received September 15, 2020)