Meeting: 1000, Albuquerque, New Mexico, SS 4A, Special Session on Financial Mathematics: The Mathematics of Derivative Securities

1000-60-143 **Seongjoo Song*** (ssong@stat.purdue.edu), Department of Statistics, Purdue University, 150 N. University Street, West Lafayette, IN 47906. *Asymptotic option pricing under a pure jump process.*

This paper studies the problem of option pricing in an incomplete market. Under the market incompleteness from the discontinuity of the asset price process, we try to find a reasonable price for a European contingent claim by adopting an asymptotic approach. First, we find the unique minimal martingale measure and get a price by taking an expectation of the payoff under this measure. We also show that it converges weakly to the equivalent martingale measure in the limit. To get a closed-form price, we use an asymptotic expansion. In case where the minimal martingale measure is a signed measure, we use a sequence of martingale measures (probability measures) that converges to the equivalent martingale measure in the limit to compute the price. (Received August 23, 2004)