Convertible bonds in jump-diffusion models

A convertible (callable) bond is a security that the holder can convert into a specified number of underlying shares. In addition, the issuer can recall the bond, paying some compensation, or force the holder to convert it immediately. We give explicit solutions to the corresponding stopping game in the context of a perpetual reduced form model with a Brownian motion part and exponentially distributed jumps. It turns out that the occurence of jumps leads to quite interesting optimal stopping strategies whose structure differs from the results for continuous models. Finally, we discuss a semiexplicite approximation of nonperpetual optimal stopping problems which is based on the randomization of the maturity date.