livprob7.tex

PROBLEMS 7. 10.3.2014

Q1. *Vega.* The partial derivative of an option price w.r.t. the volatility σ is called its *vega, v.*

For calls and puts in the Black-Scholes model, show that vega is positive. Interpretation: *options like volatility.* This makes good intuitive sense: an option is an insurance policy against adverse price movements. The worse these might be, the more we will be prepared to pay for it.

Q2. *Delta.* The partial derivative of an option price w.r.t. the stock price S is called its *Delta.*
(i) For calls, show that $\Delta \in (0, 1)$.
(ii) For puts, show that $\Delta \in (-1, 0)$.

NHB