Gamma Behavior

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Gamma

Call, Put

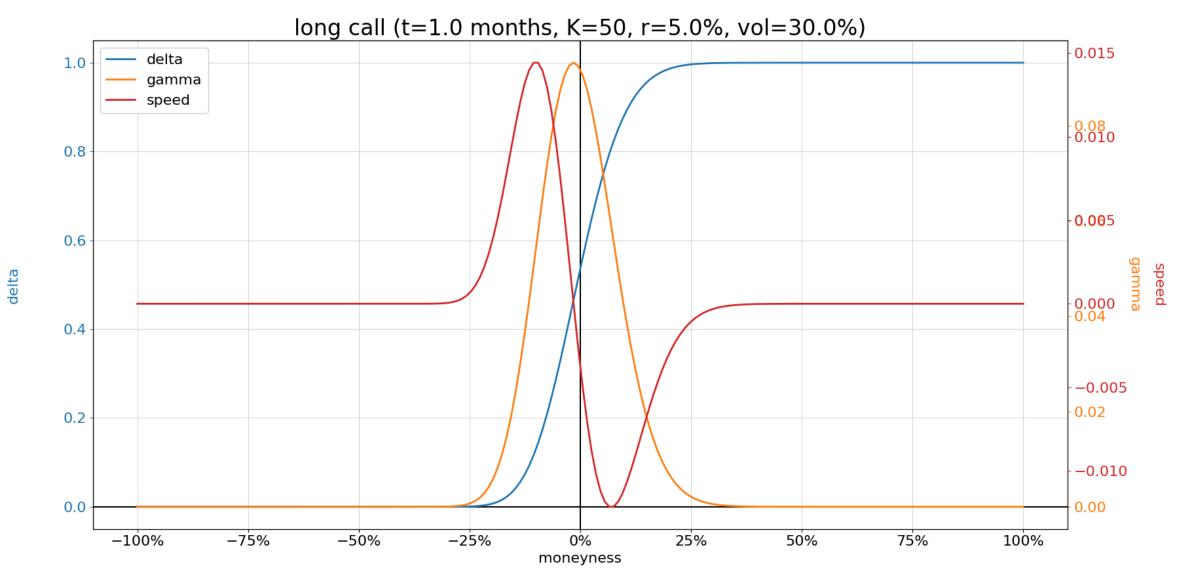
$$\Gamma = \frac{d^2C}{dS_0^2} = \frac{d^2P}{dS_0^2} = \frac{d\Delta}{dS_0} = \frac{n(d_1)}{S_0\sigma\sqrt{T}}$$

Speed/DgammaDspot

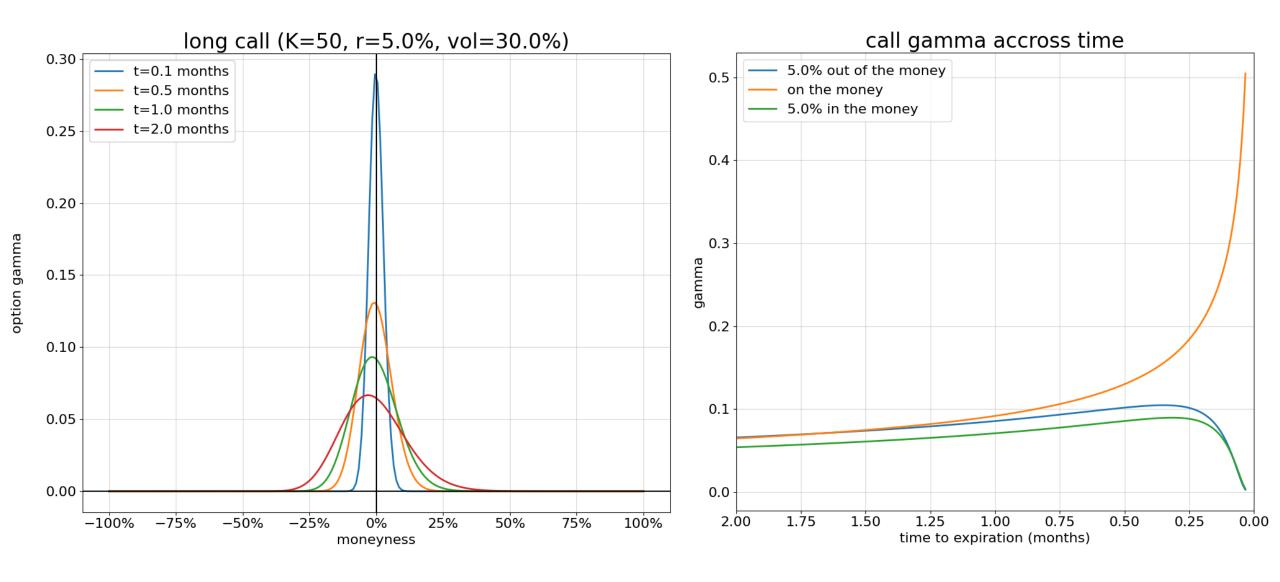
Call, Put

$$Speed_{call,put} = \frac{d\Gamma}{dS_0} = -\frac{\Gamma\left(1 + \frac{d_1}{\sigma\sqrt{T}}\right)}{S_0}$$

Gamma

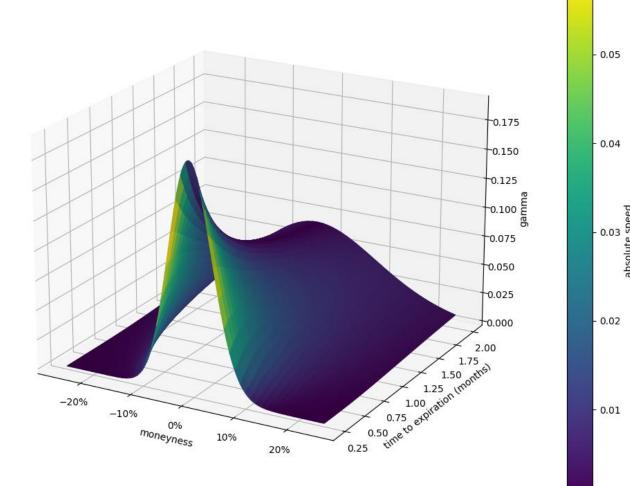


Gamma



Change in gamma accross time and price

call gamma for r = 5.0%, vol = 30.0%



Given low moneyness and high t, gamma has a saddle point

call gamma for r = 5.0%, vol = 30.0% 0.008 0.007 0.06 0.006 0.05 - 0.005 g - 600.0 Psolute 0.02 0.01 - 0.003 0.00 250 -75% -50% -25% - 0.002 200 -vu -vu (months) moneyness 0.001 75% 100% 0.000