Rho Behavior

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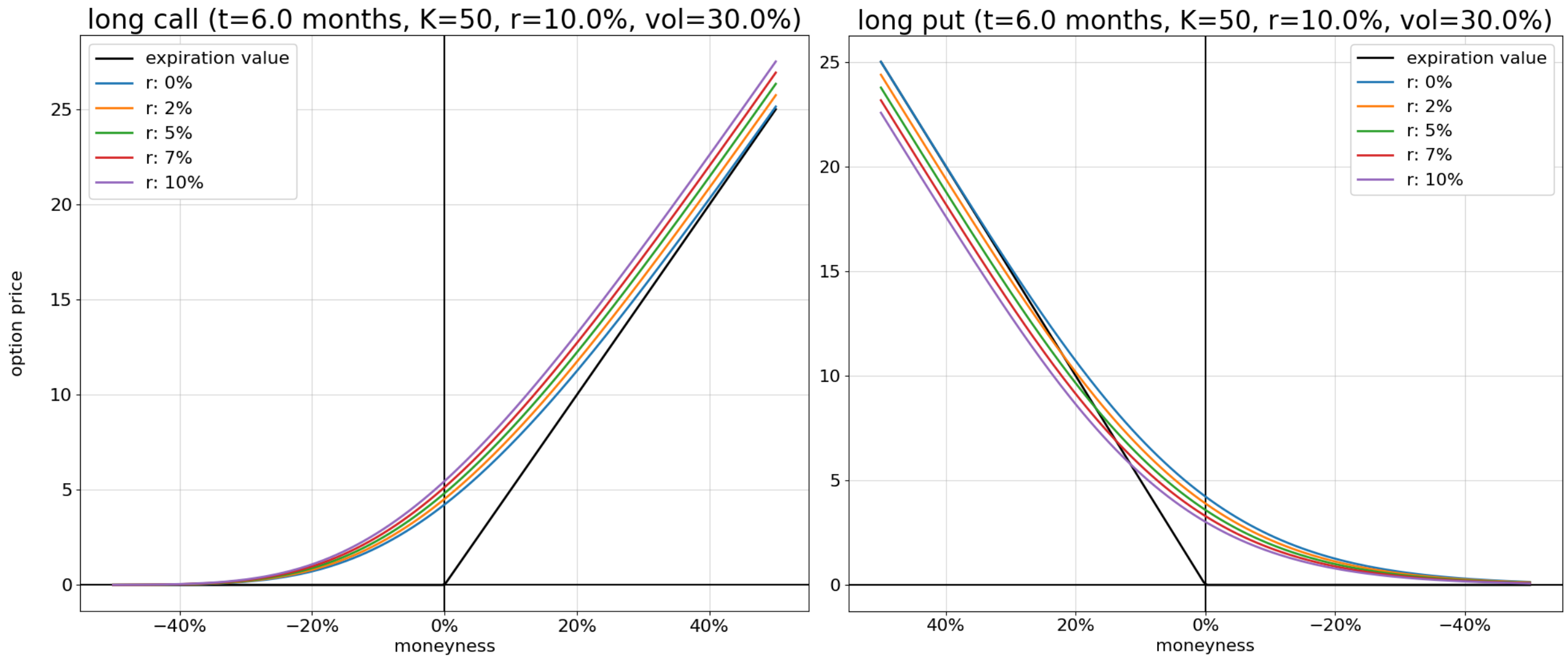
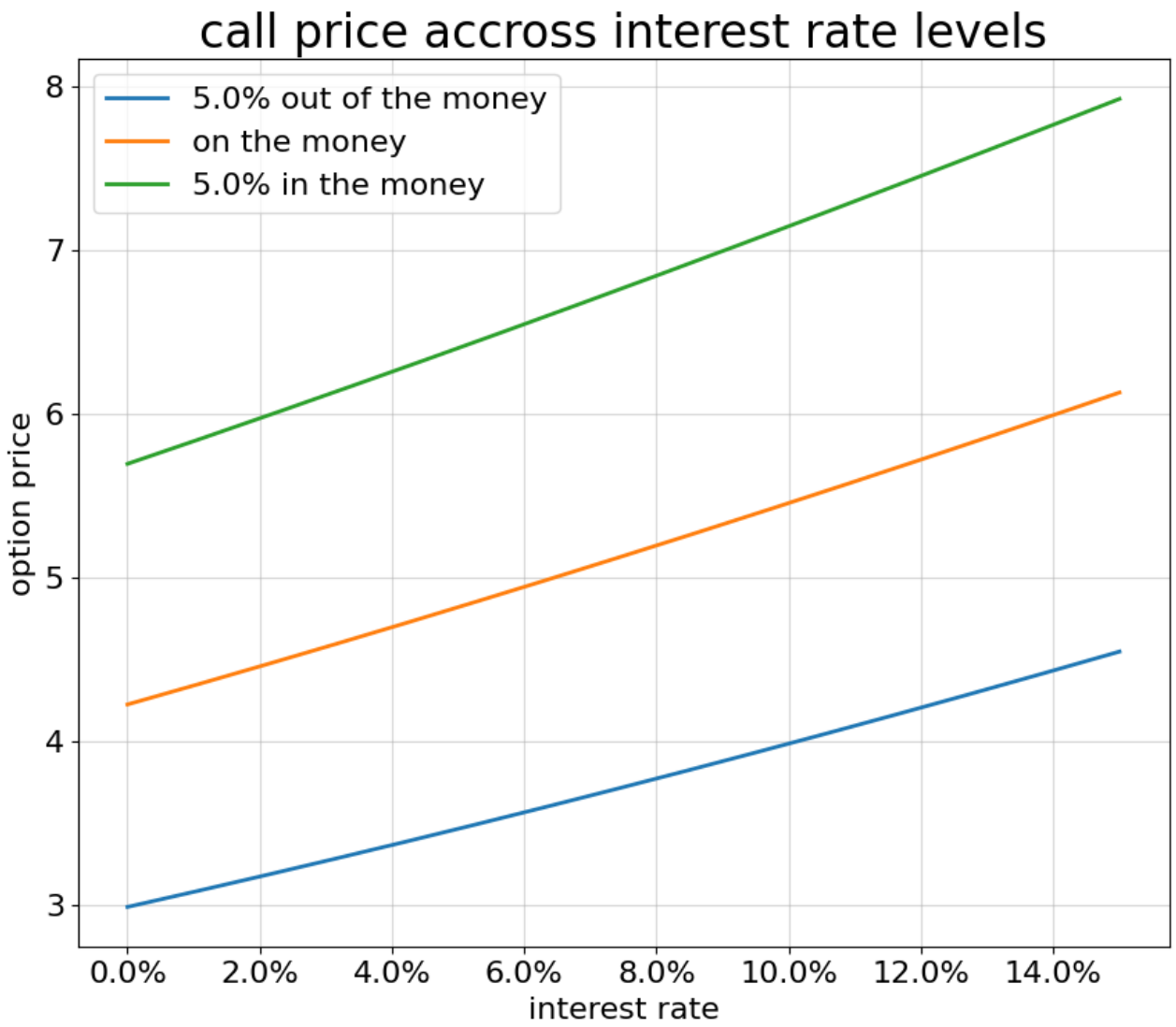
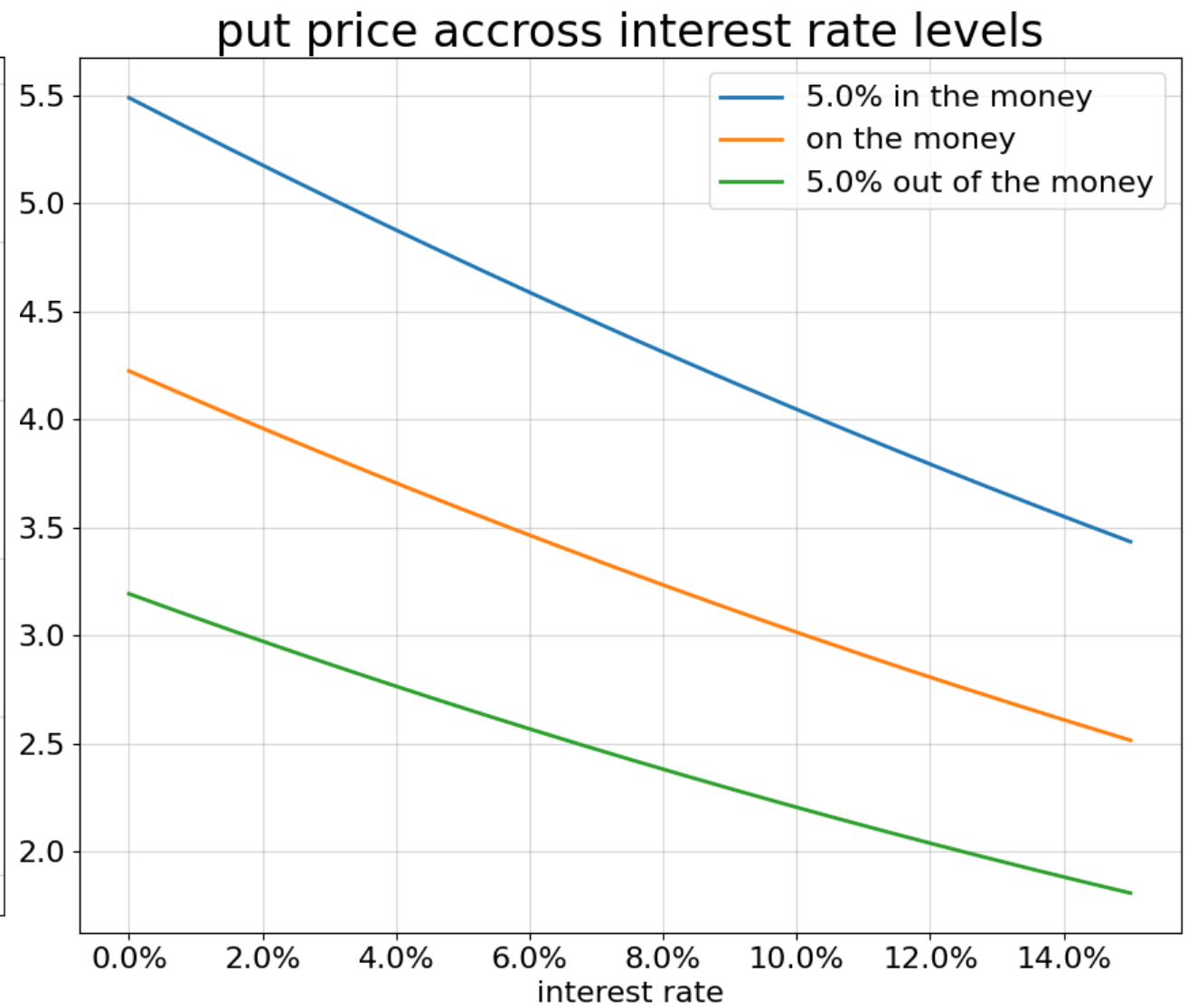
Rho

$$\rho_{call} = \frac{dC}{dt} = \frac{tKe^{-rt}}{(1+r)} N(d_2)$$

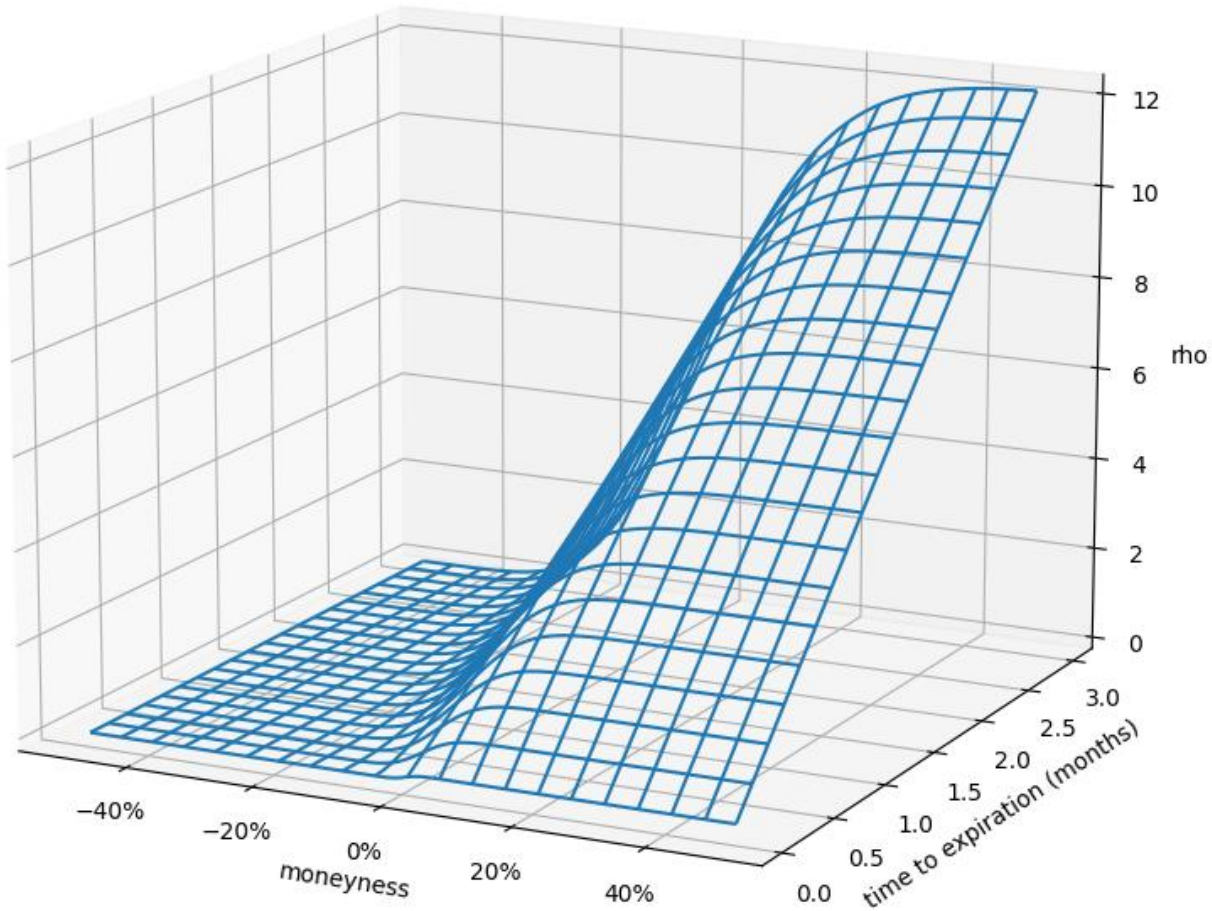
$$\rho_{put} = \frac{dP}{dt} = \frac{tKe^{-rt}}{(1+r)} (N(d_2) - 1)$$


long call (t=6.0 months, K=50, r=10.0%, vol=30.0%)
expiration value
r: 0%
r: 2%
r: 5%
r: 7%
r: 10%
option price
moneyness
−40%
−20%
0%
20%
40%
0
5
10
15
20
25
long put (t=6.0 months, K=50, r=10.0%, vol=30.0%)
expiration value
r: 0%
r: 2%
r: 5%
r: 7%
r: 10%
moneyness
40%
20%
0%
−20%
−40%
0
5
10
15
20
25


call price accross interest rate levels
5.0% out of the money
on the money
5.0% in the money
option price
8
7
6
5
4
3
0.0%
2.0%
4.0%
6.0%
8.0%
10.0%
12.0%
14.0%
interest rate


put price accross interest rate levels
5.0% in the money
on the money
5.0% out of the money
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
0.0%
2.0%
4.0%
6.0%
8.0%
10.0%
12.0%
14.0%
interest rate

call rho for r = 10.0%, vol = 30.0%



put rho for r = 10.0%, vol = 30.0%