MA 374
Financial Engineering Lab-10

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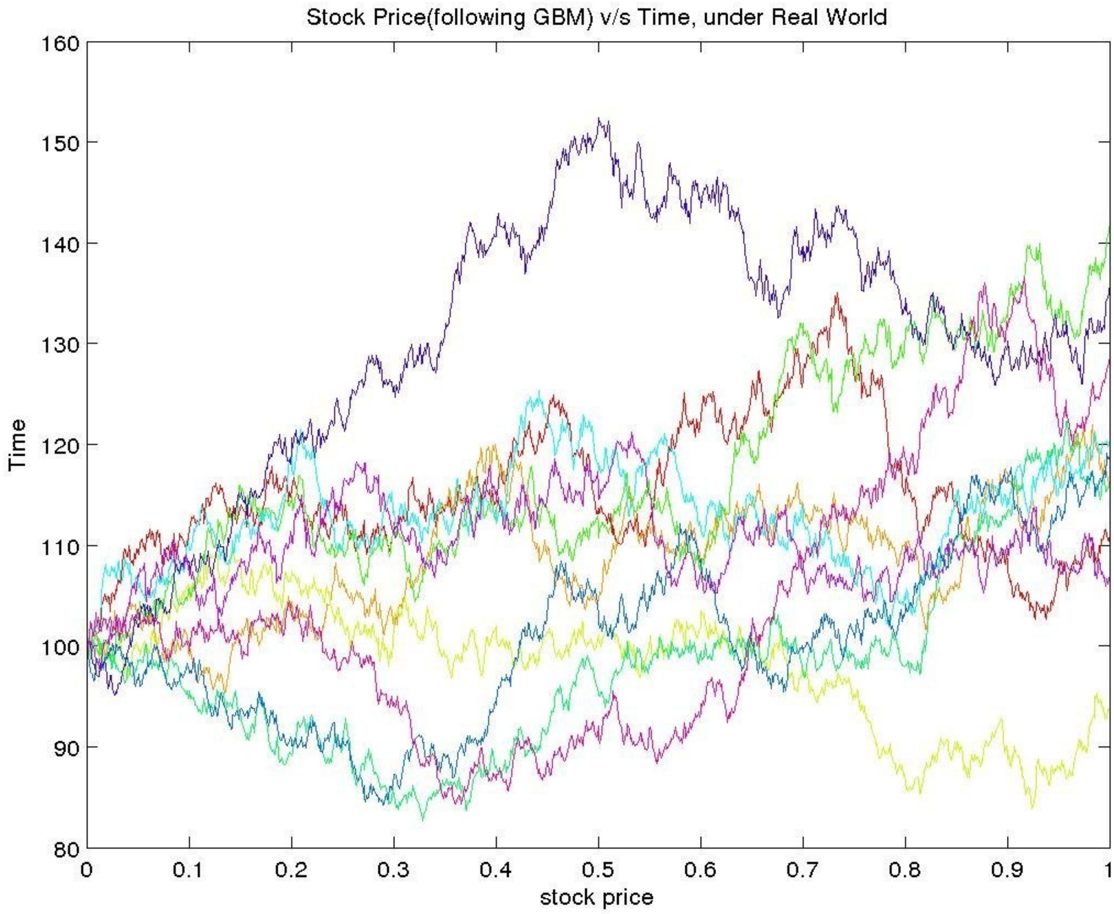
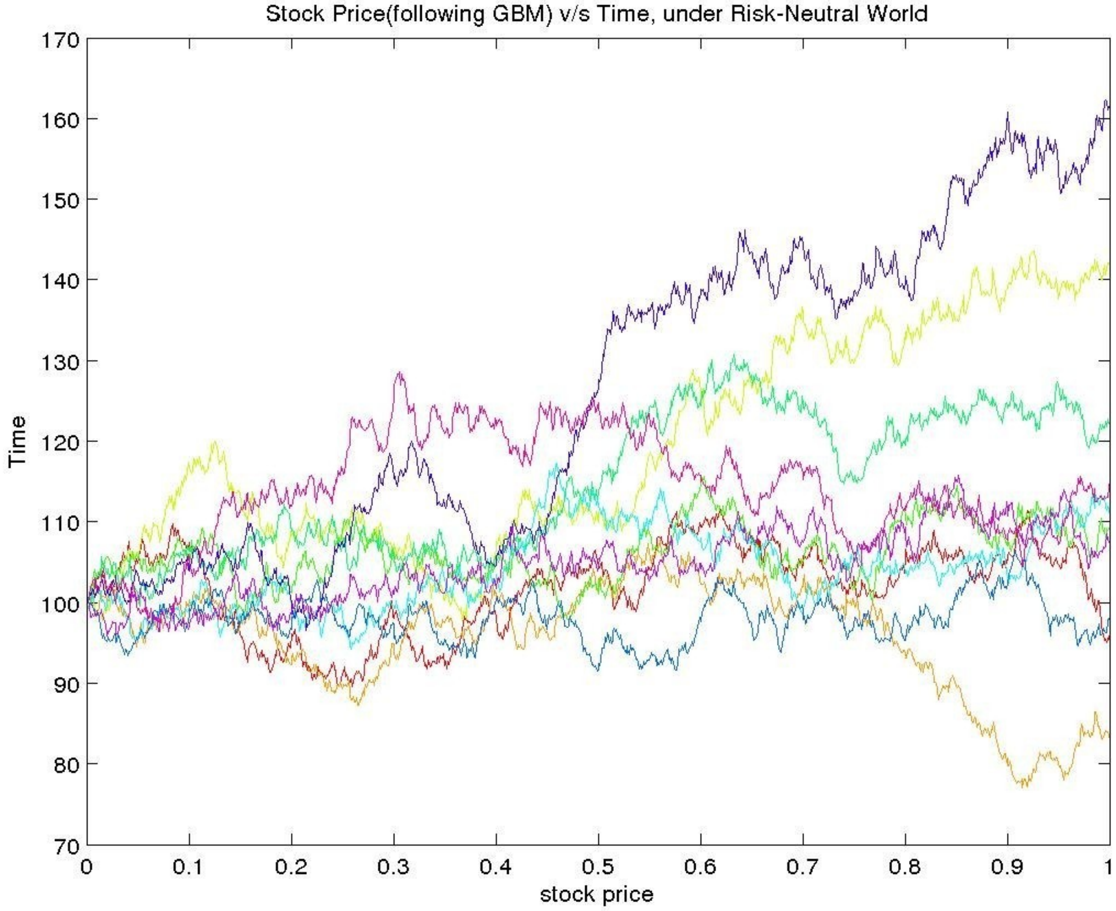
Part 1:
Simulation of 10 paths in real and risk neutral world : Set 1: Real world



Simulation of 10 paths in real and risk neutral world : Set 2: Risk Neutral world



Part 2:

Calculation of Asian Call and Put option with strike = 105, 100, 90 by simulation of paths in risk neutral world :

Confidence interval for call option with strike=90: (11.167855 11.262790) with mean=11.215322

Confidence interval for put option with strike=90: (0.232708 0.246733) with mean=0.239721

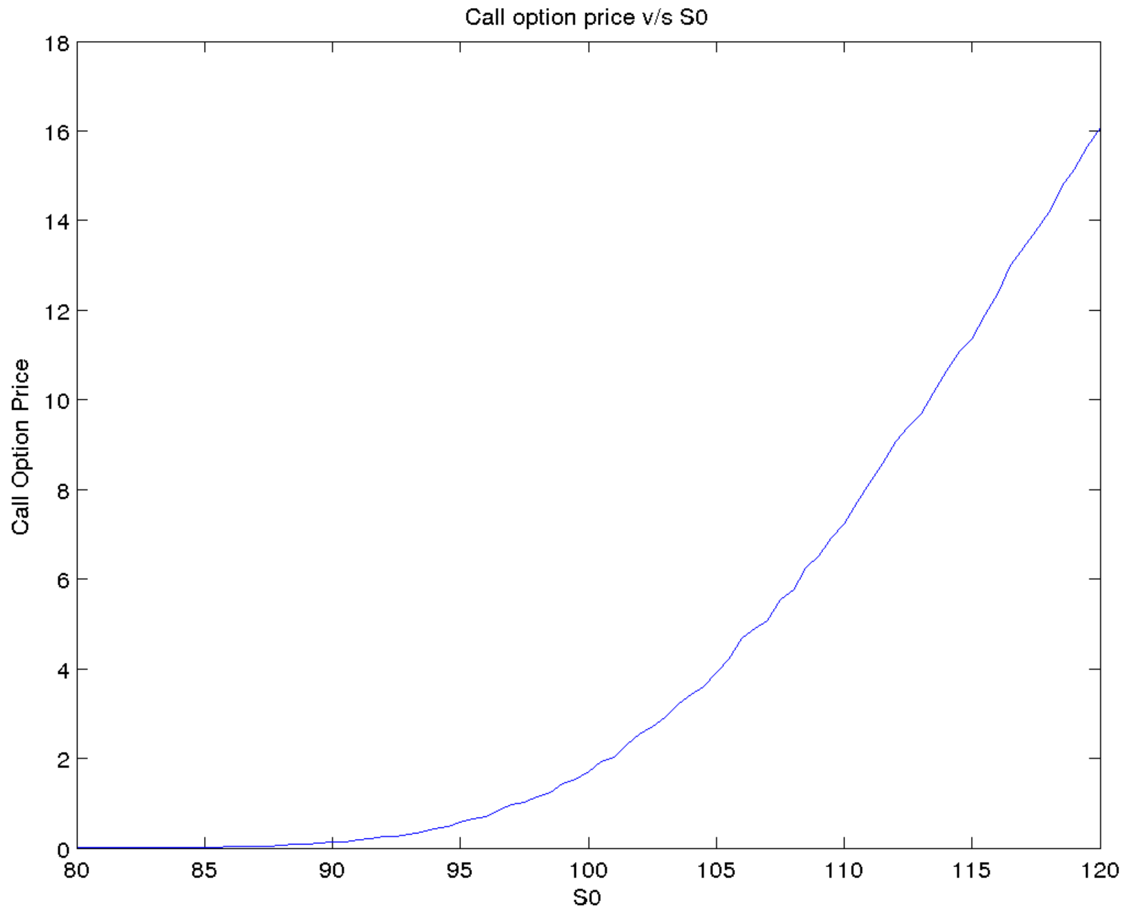
Confidence interval for call option with strike=105: (1.760957 1.809022) with mean=1.784989

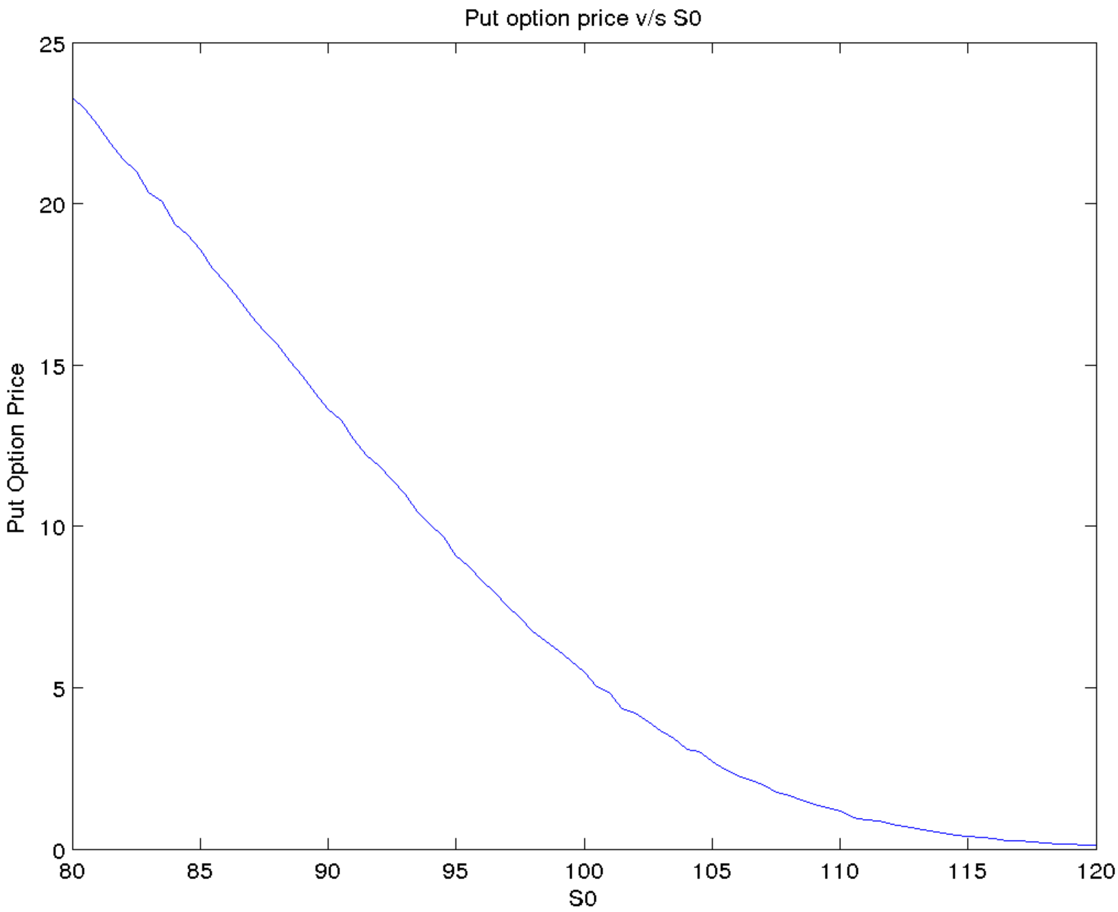
Confidence interval for put option with strike=105: (5.376679 5.446483) with mean=5.411581

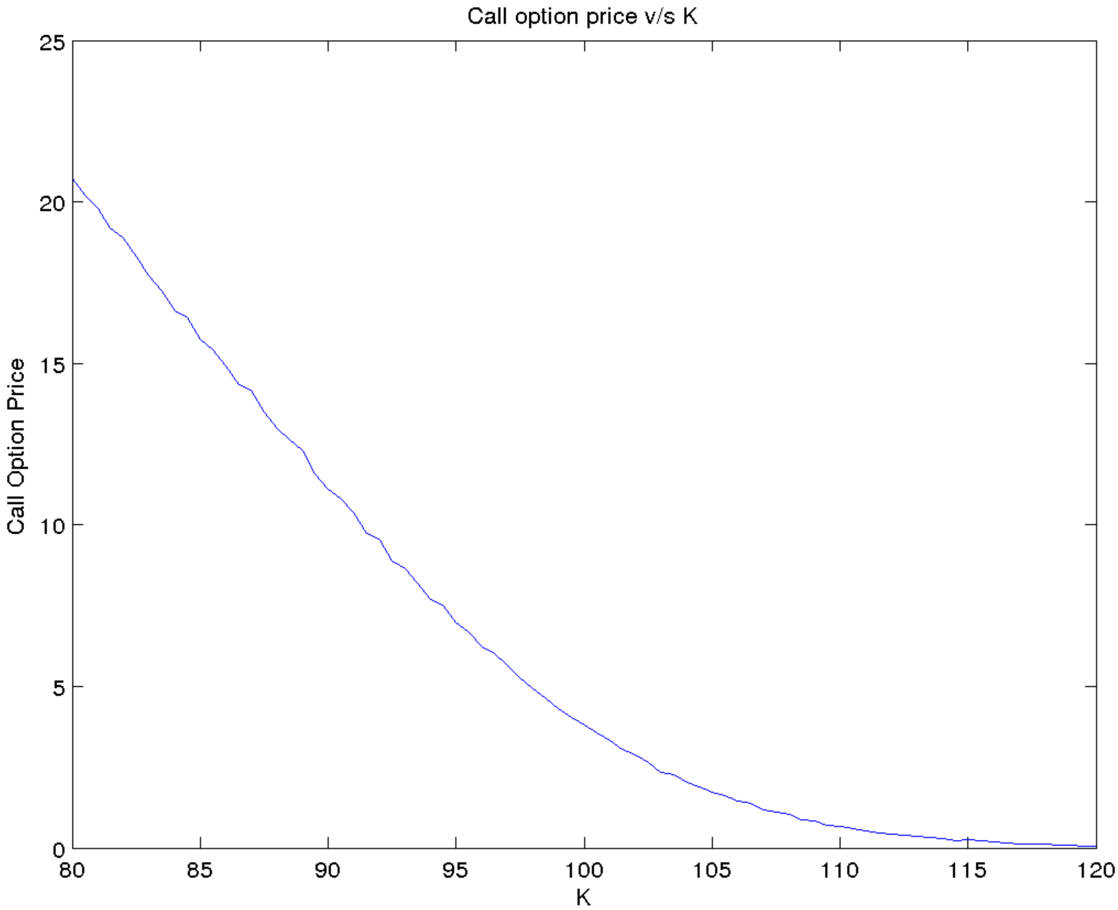
Confidence interval for call option with strike=110: (0.680188 0.708681) with mean=0.694434

Confidence interval for put option with strike=110: (9.180578 9.265141) with mean=9.222859

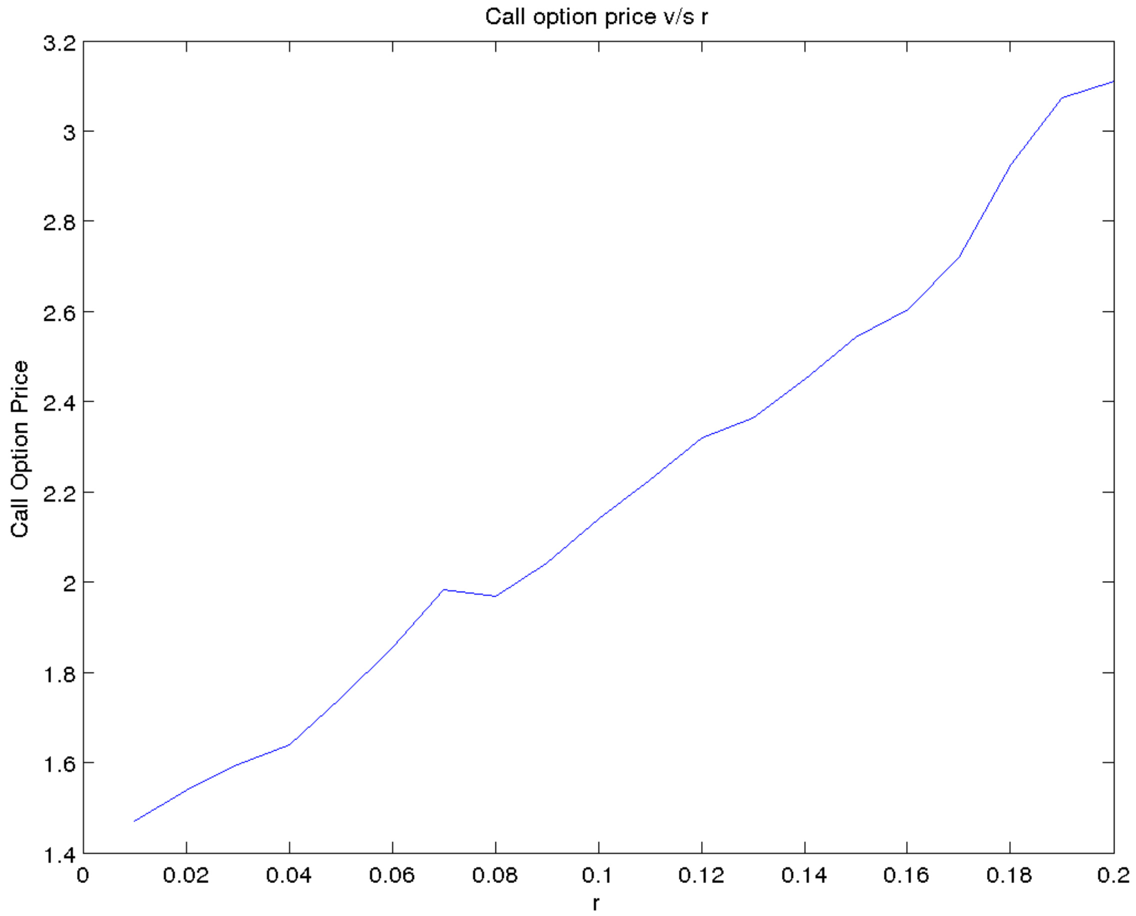
Part 3:
Sensitivity of Option prices w.r.t. Different parameters

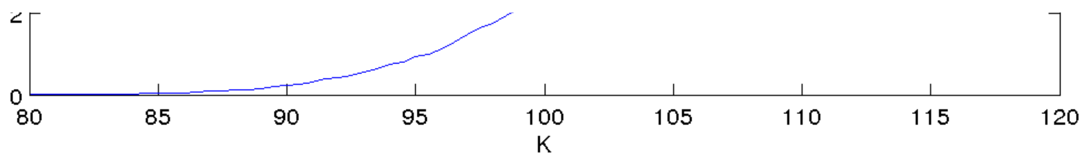


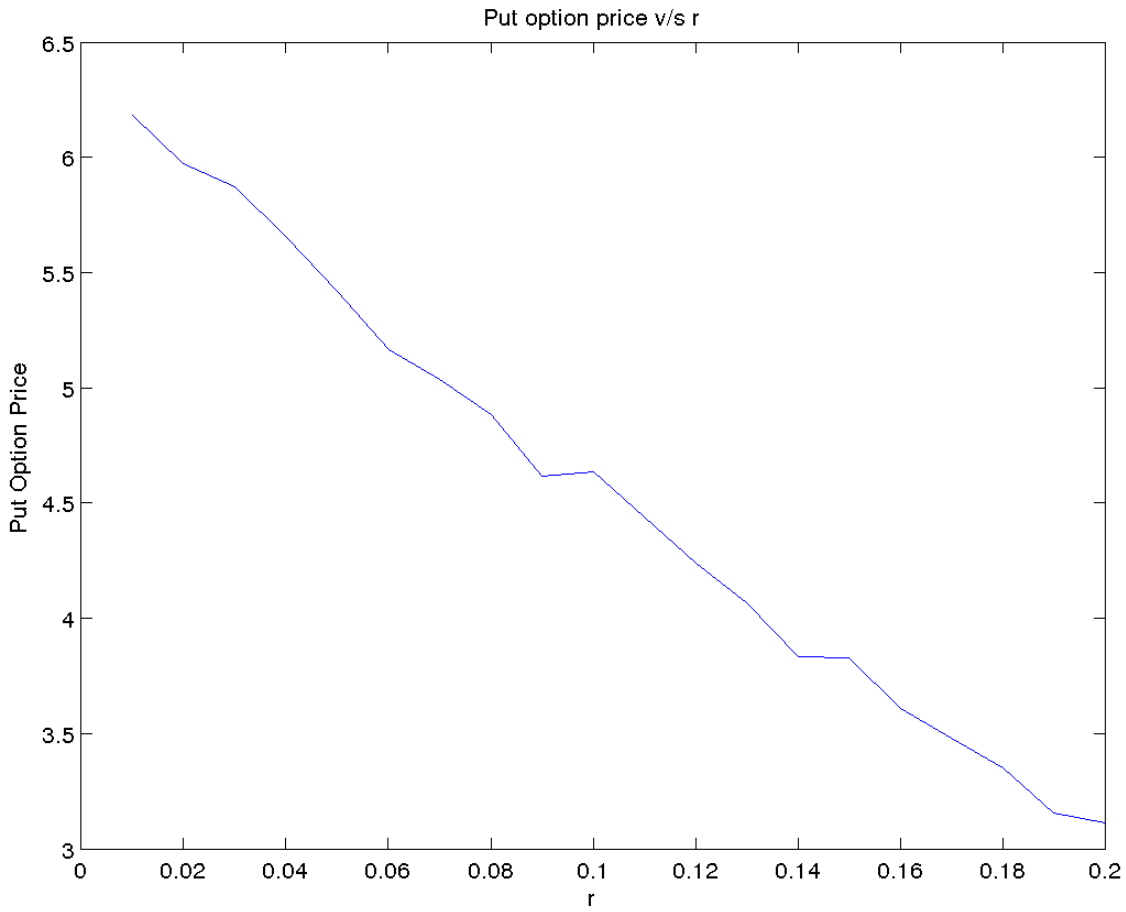

Put option price v/s S0
Put Option Price
S0
0
5
10
15
20
25
80
85
90
95
100
105
110
115
120



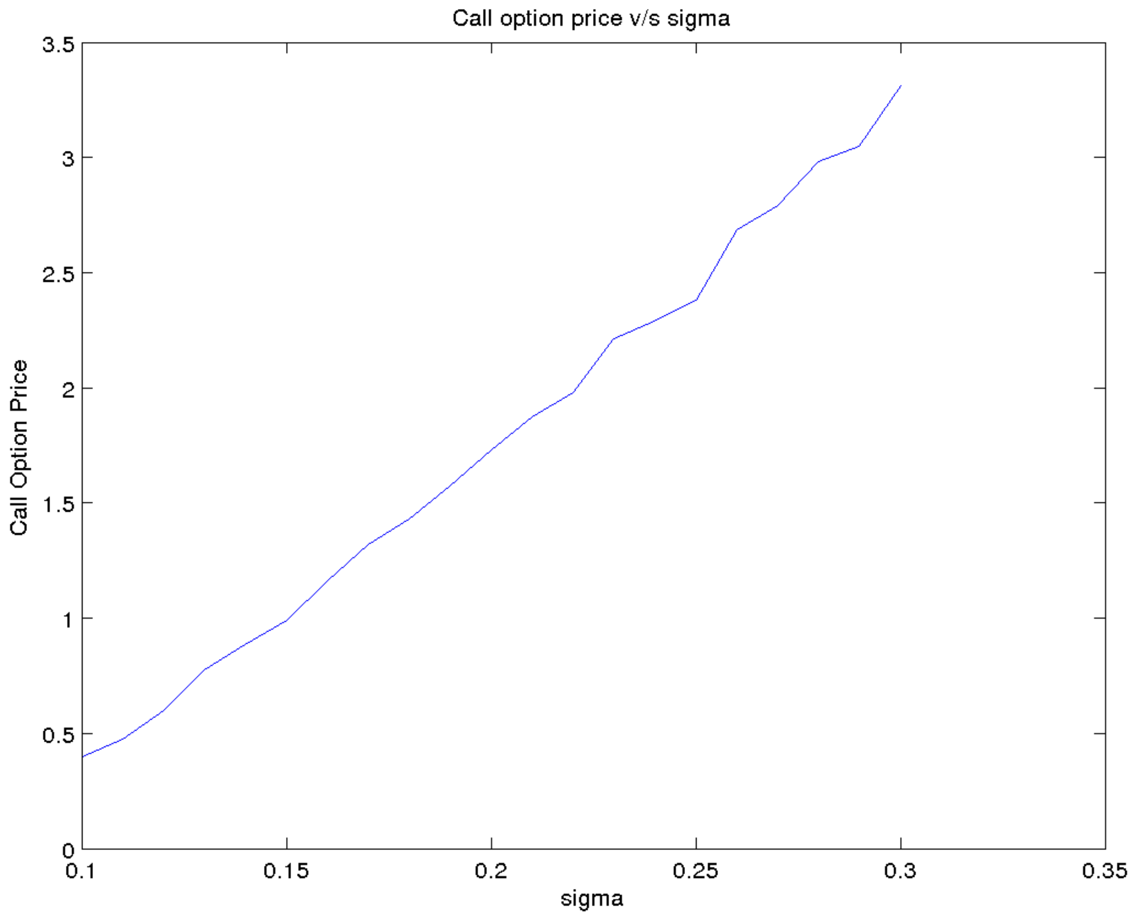
Call option price v/s K
Call Option Price
K
0
5
10
15
20
25
80
85
90
95
100
105
110
115
120

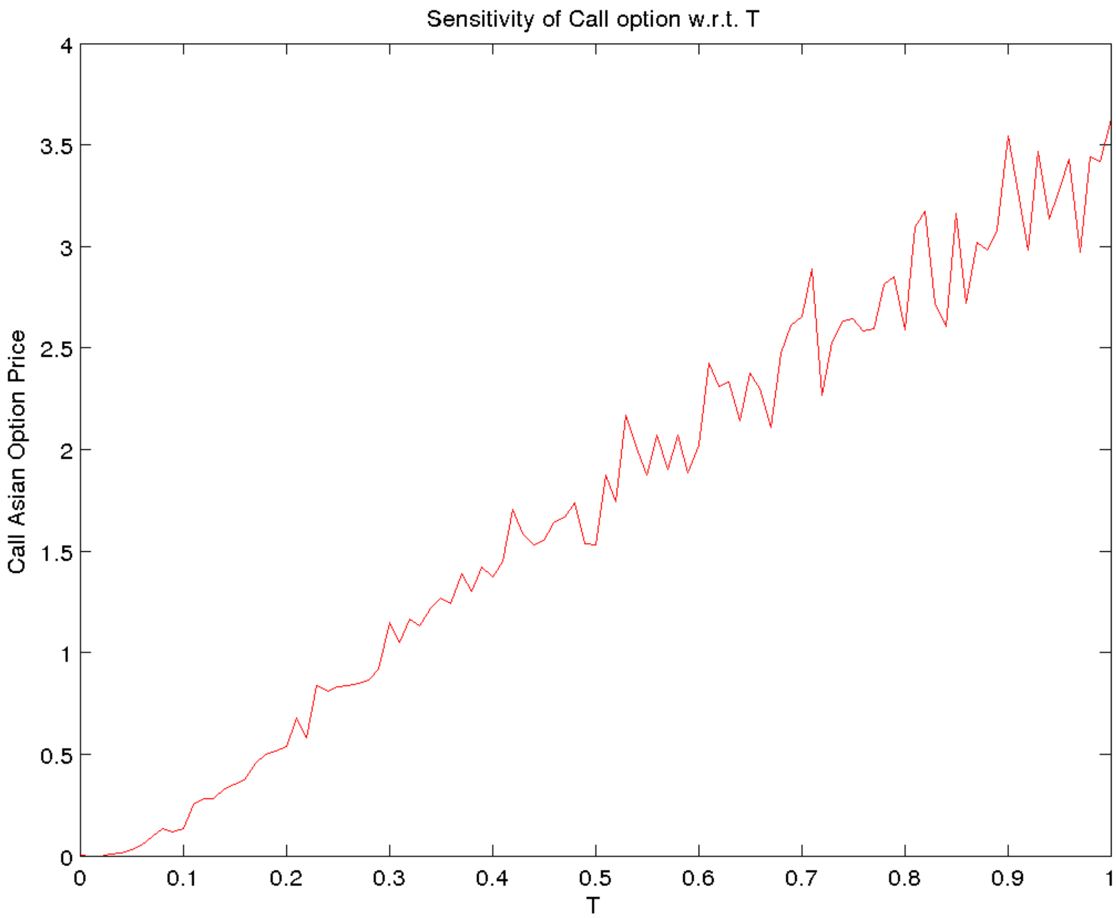

Call option price v/s r
Call Option Price
r
3.2
3
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2


2
0
80
85
90
95
100
105
110
115
120
K

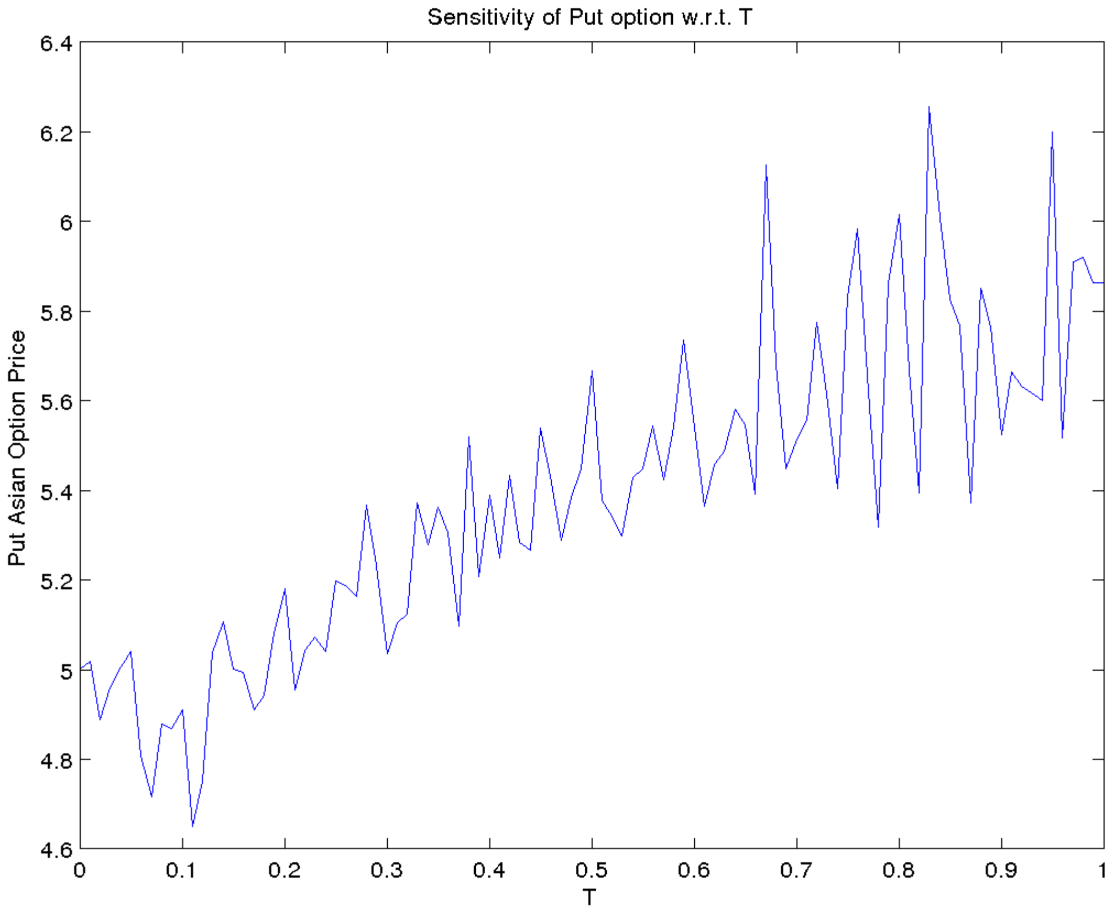


Put option price v/s r
6.5
6
5.5
5
4.5
4
3.5
3
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
r
Put Option Price


Call option price v/s sigma
Call Option Price
sigma
0
0.5
1
1.5
2
2.5
3
3.5
0.1
0.15
0.2
0.25
0.3
0.35



Sensitivity of Call option w.r.t. T
Call Asian Option Price
T
0
0.5
1
1.5
2
2.5
3
3.5
4
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1



Sensitivity of Put option w.r.t. T
Put Asian Option Price
T
6.4
6.2
6
5.8
5.6
5.4
5.2
5
4.8
4.6
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1