

Lab 10

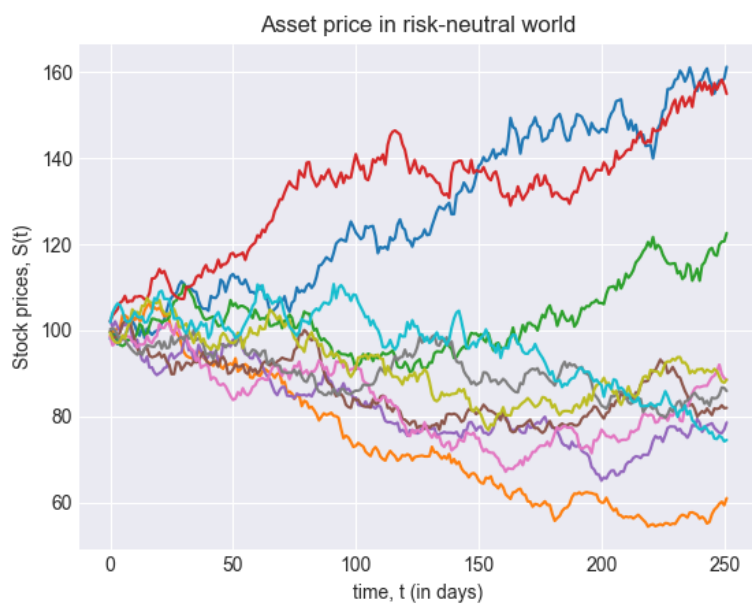
Naveen Kumar A G

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10 different paths of Geometric Brownian motion in real world:



10 different paths of Geometric Brownian motion in risk-free world:



Q1:

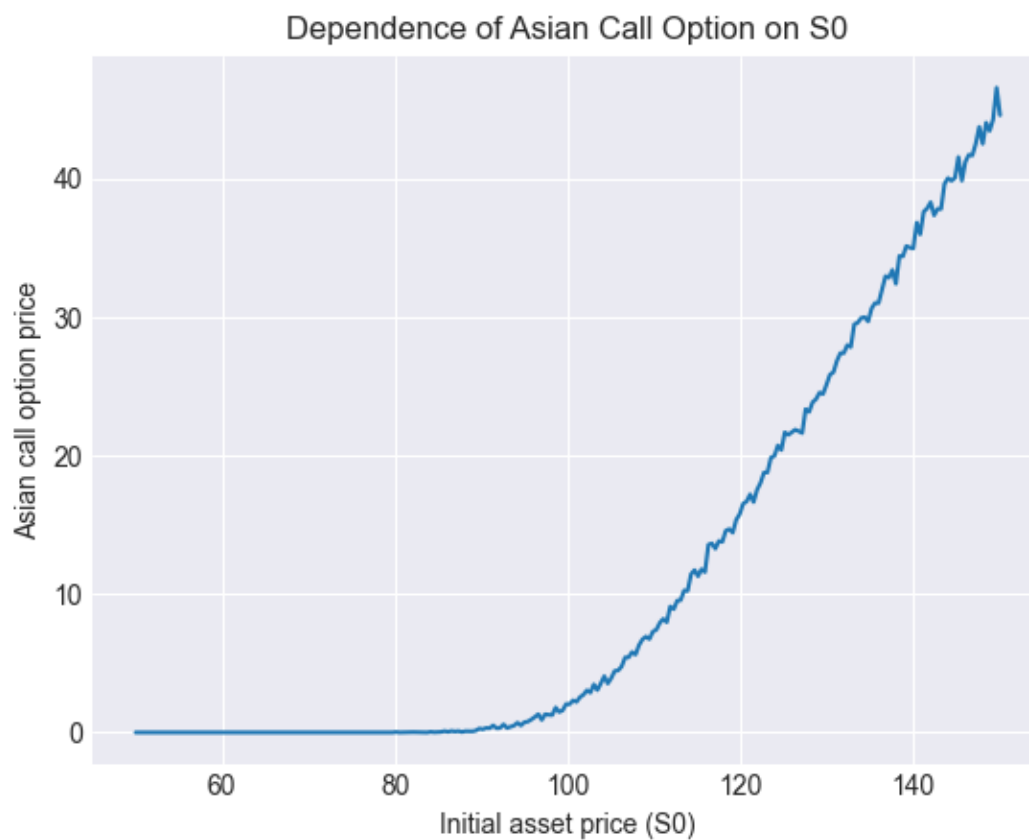
6 month fixed-strike Asian option prices without variance Reduction

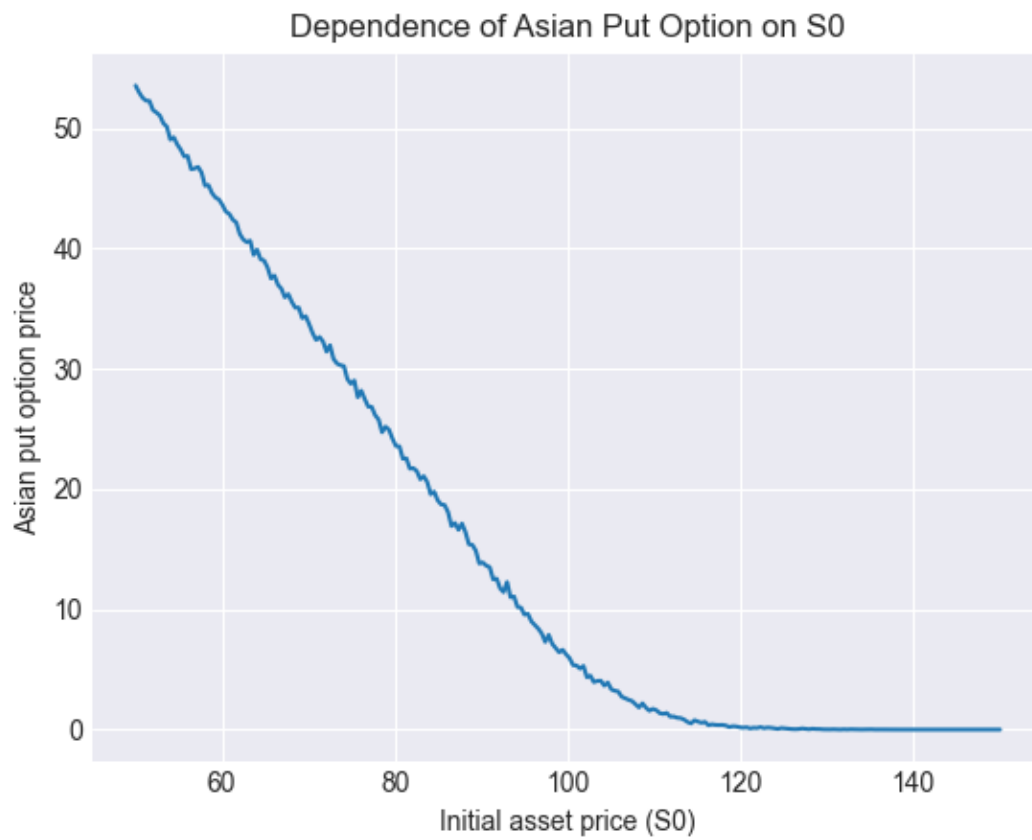
	Call Price	Put Price
K = 90	10.885395521740003	0.2806017155135966
K = 105	1.4697087346813542	6.131827334199563
K = 110	0.47627237365521174	9.783652307846305

	Call Price Variance	Put Price Variance
K = 90	60.38146518284026	1.3289044887693906
K = 105	10.197169843636937	33.343462098822464
K = 110	3.4125624234042387	43.44106518419173

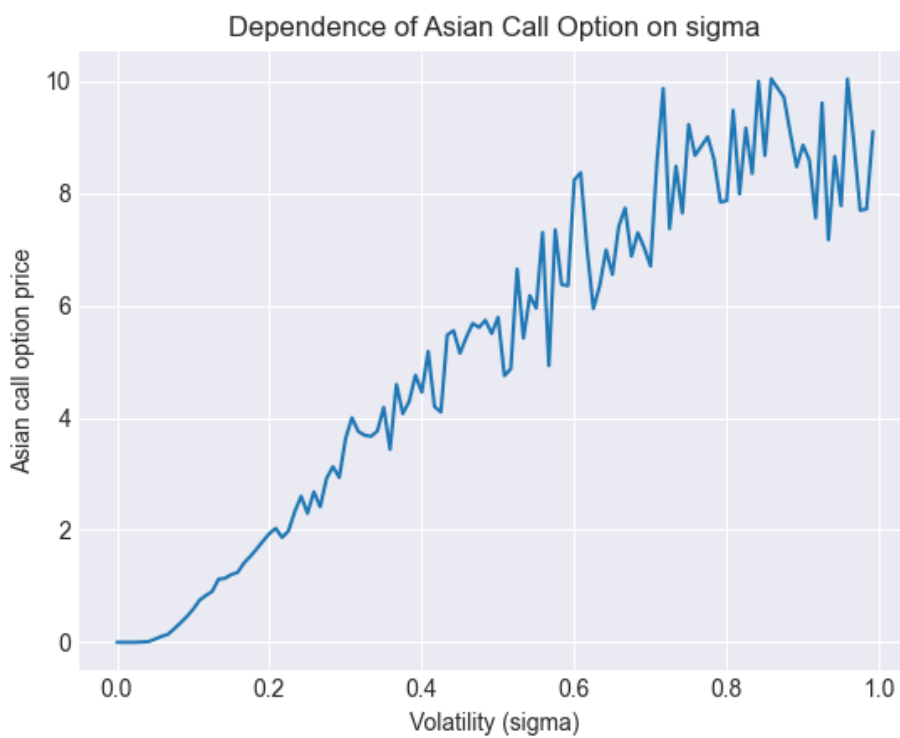
Sensitivity Analysis:

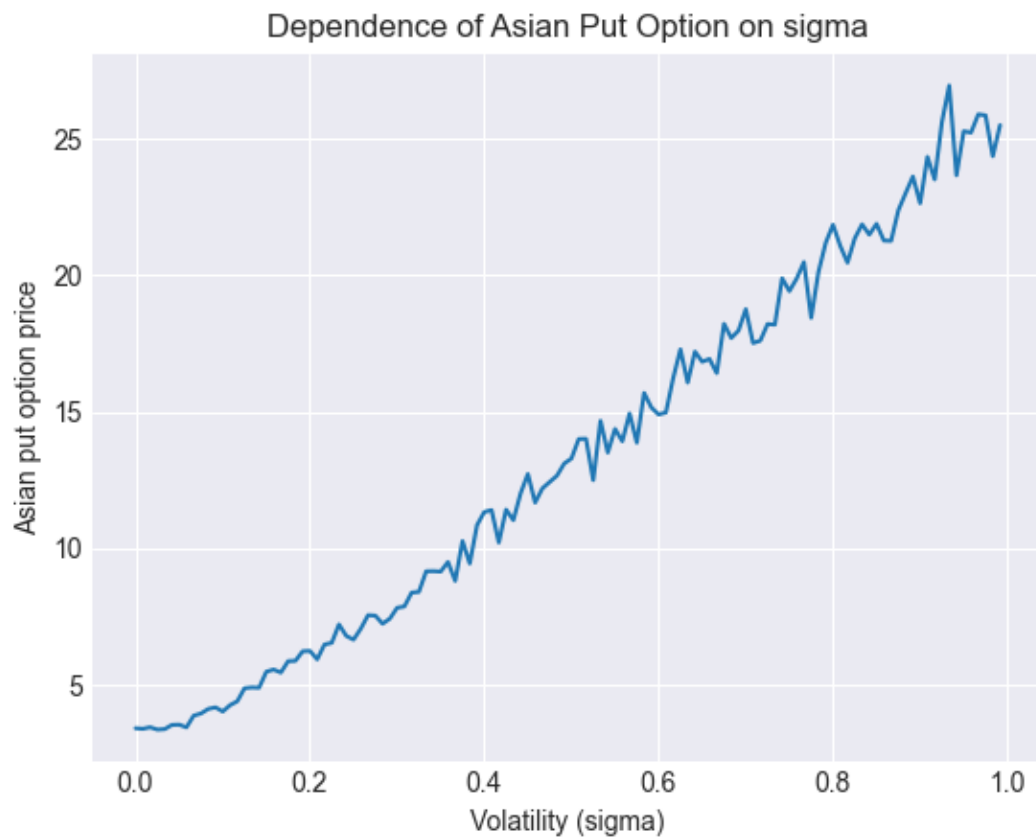
With spot



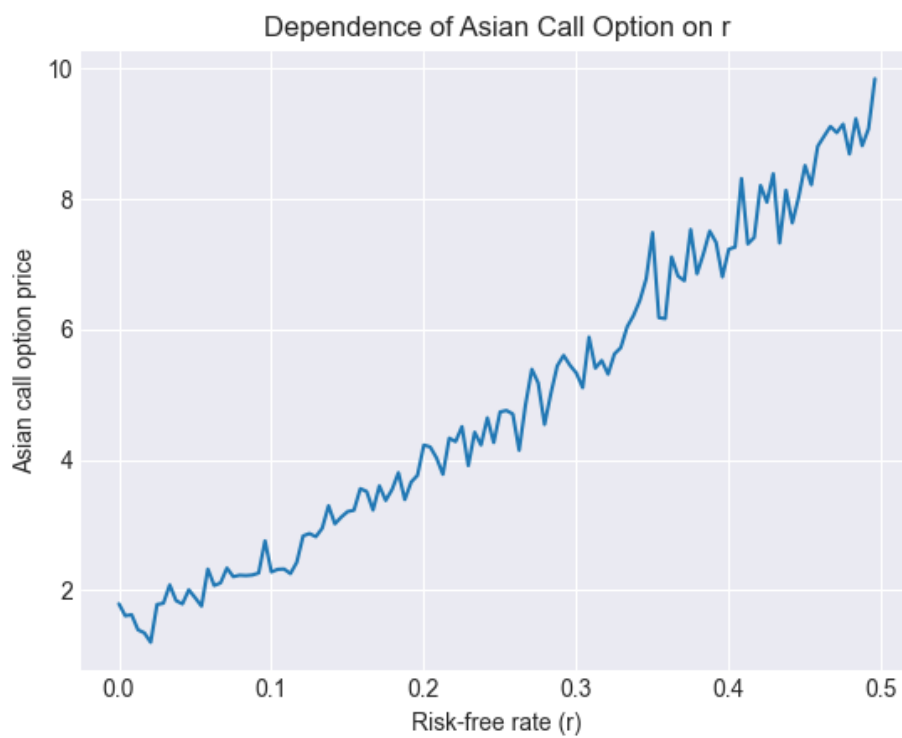


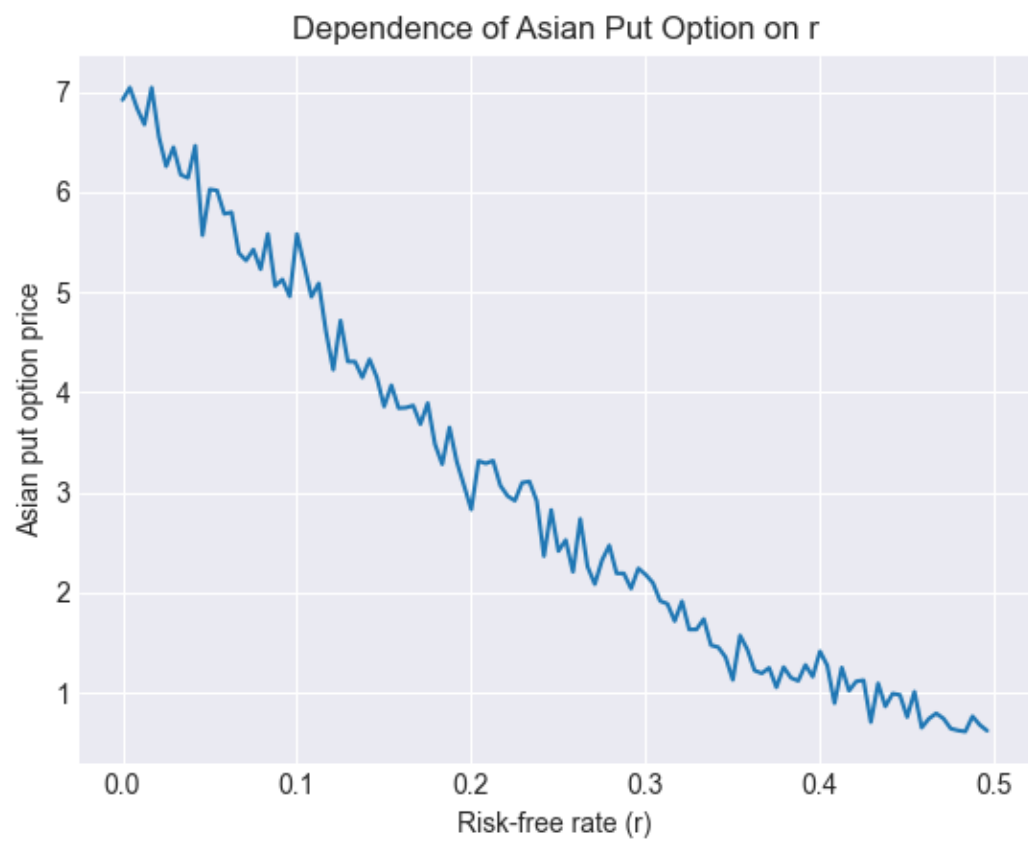
With volatility:



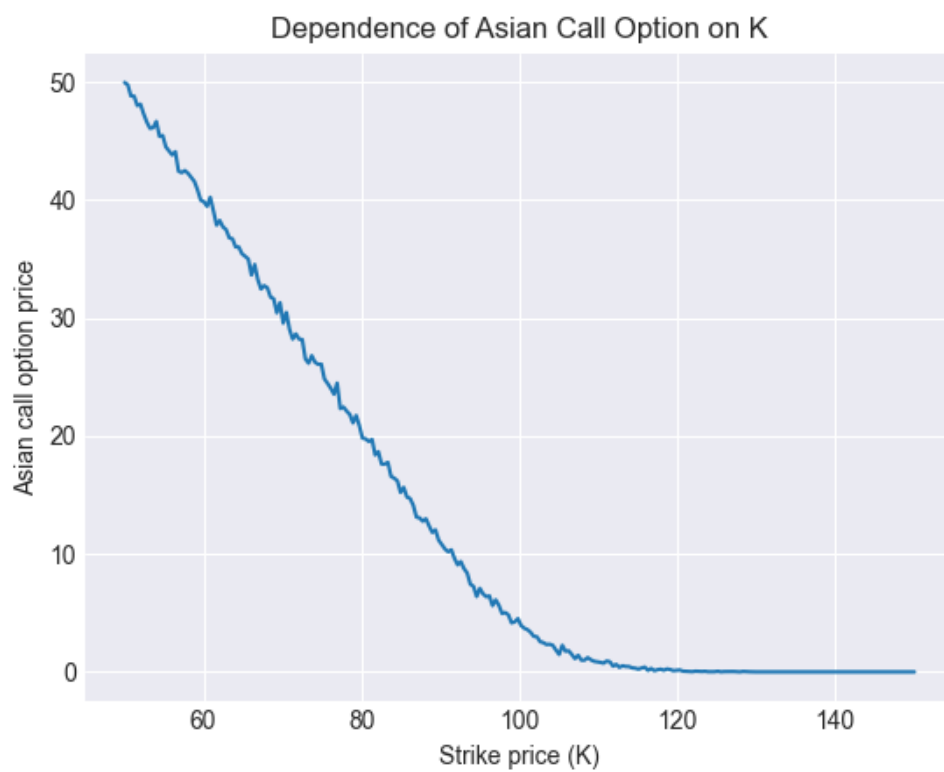


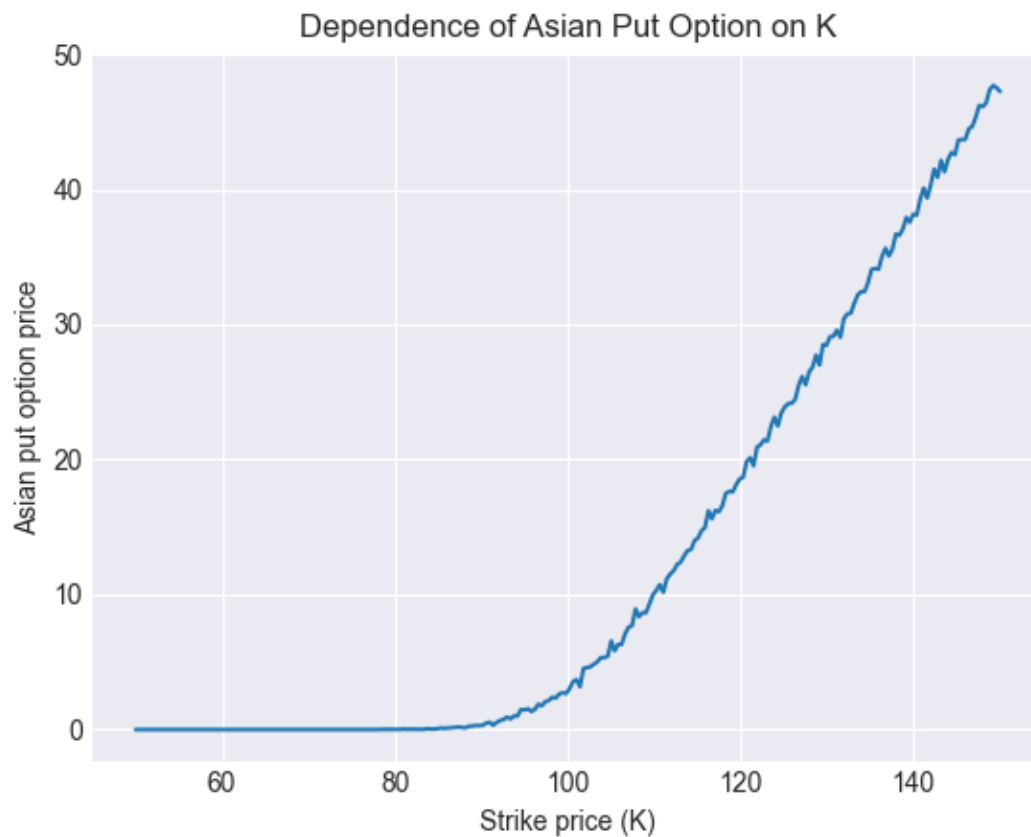
With risk-free rate:





With strike





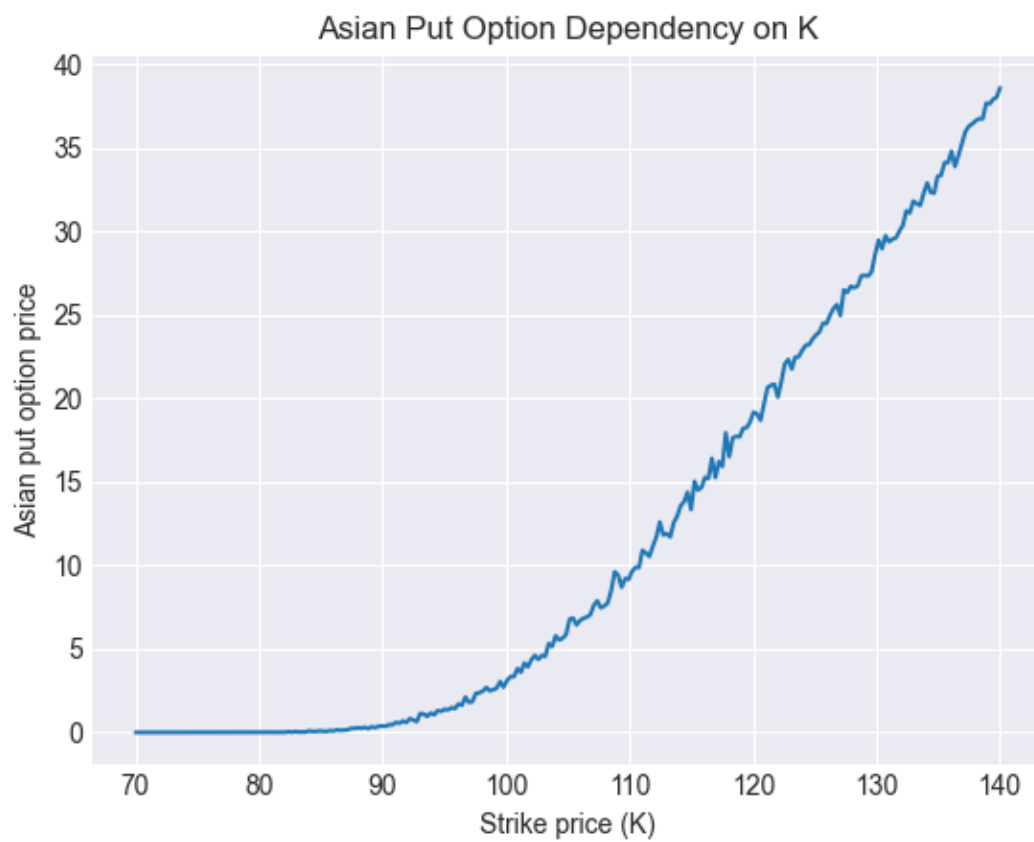
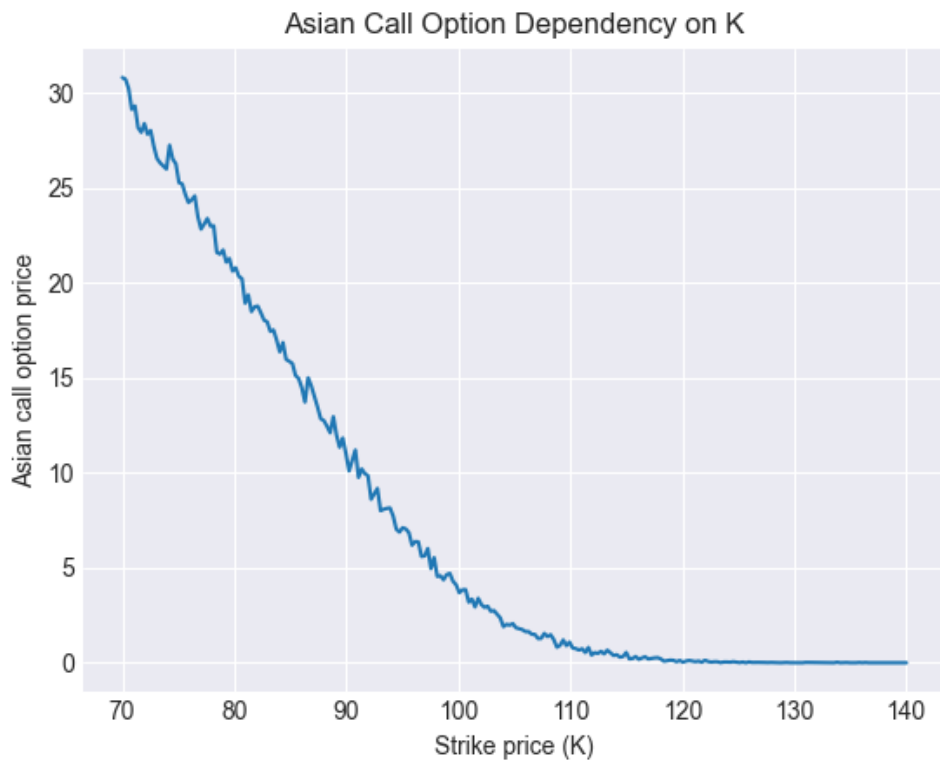
Q2:

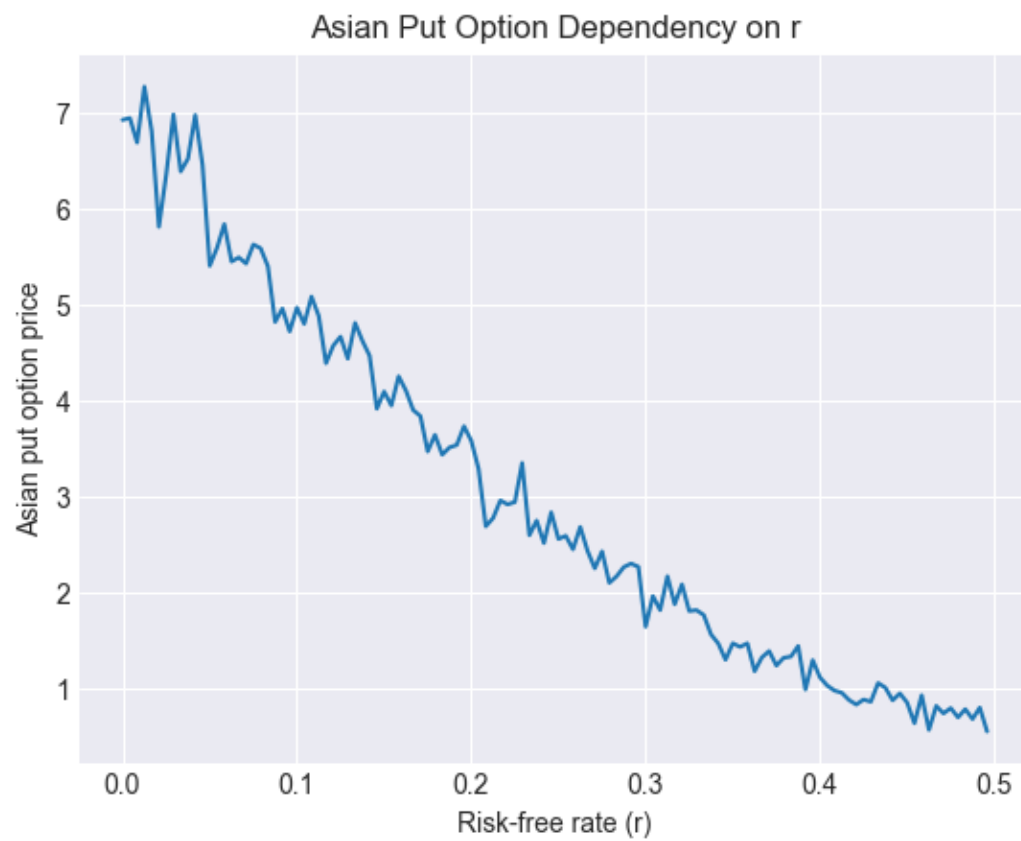
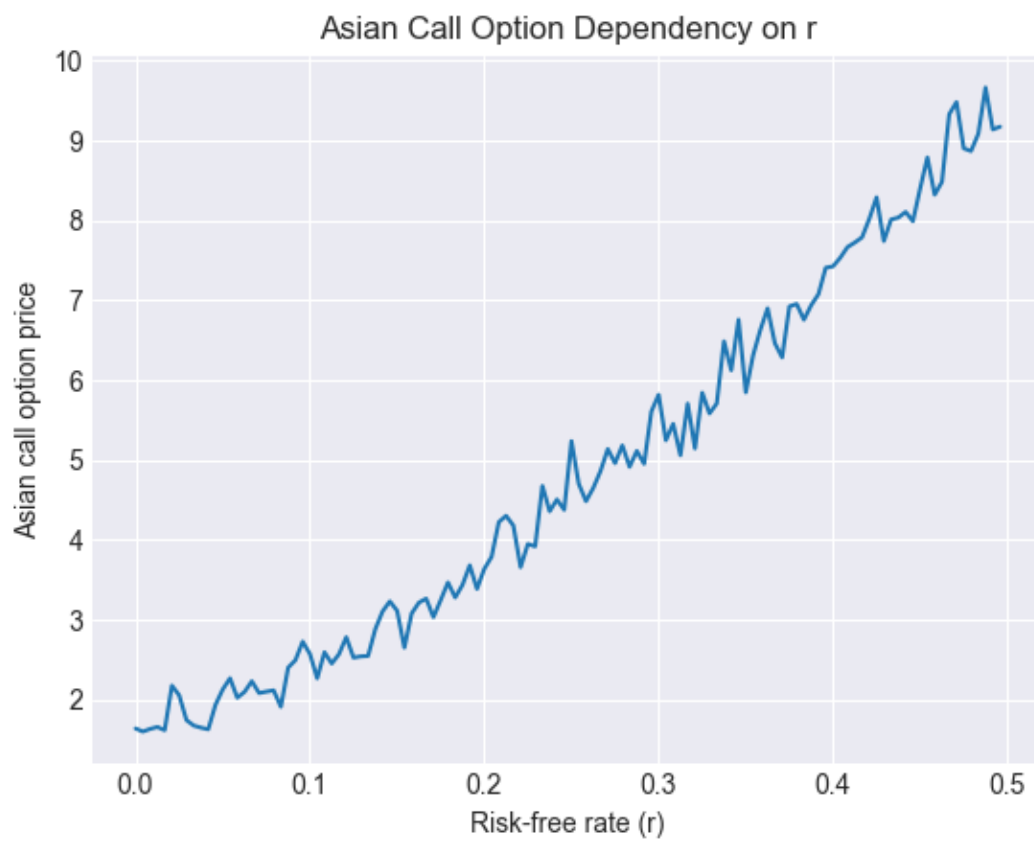
6 month fixed-strike Asian option prices without variance Reduction

	Call Price	Put Price
K = 90	11.424858557212225	0.25854532232979355
K = 105	1.6157005399662574	5.767000008427804
K = 110	0.6796220496380144	9.921189160769176

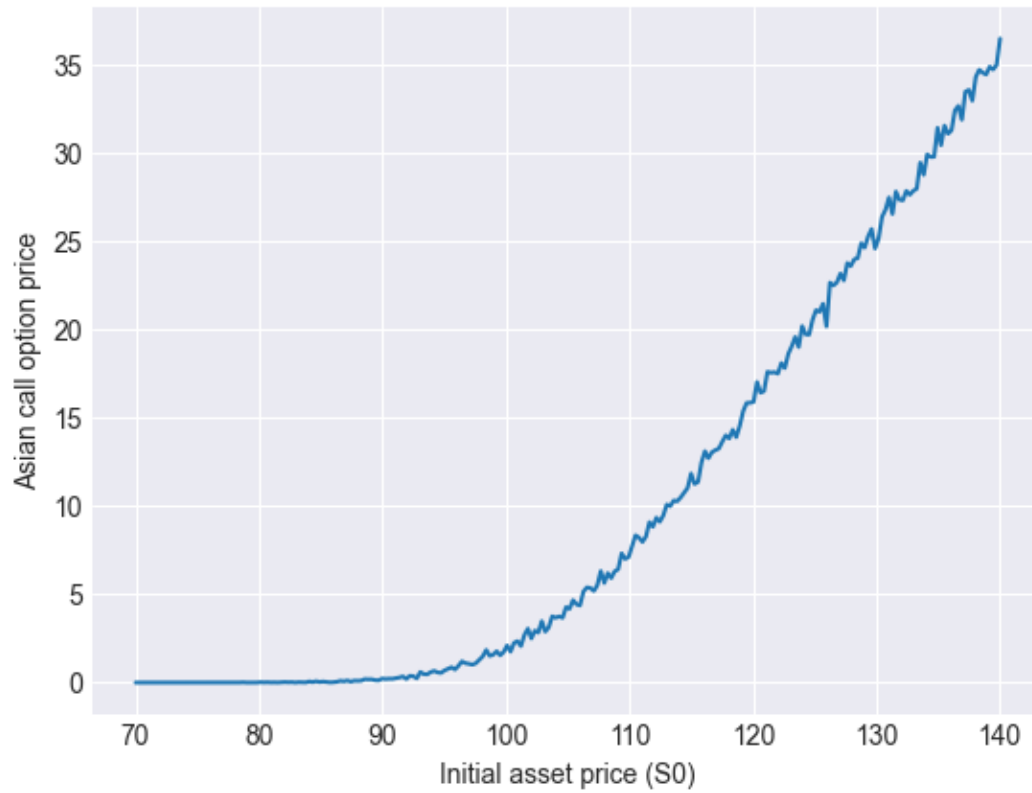
	Call Price Variance	Put Price Variance
K = 90	45.300228766942574	1.4711346112983659
K = 105	10.274103283334757	27.251915226002723
K = 110	5.425311870180101	37.62995324104211

Sensitivity analysis:

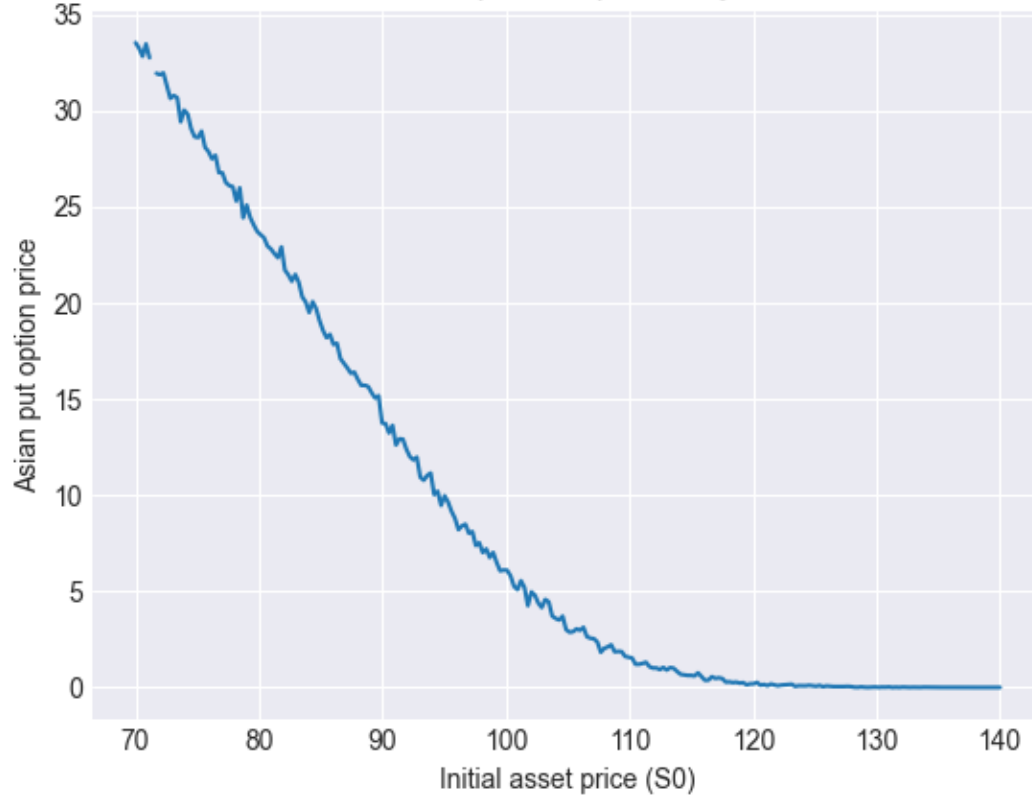




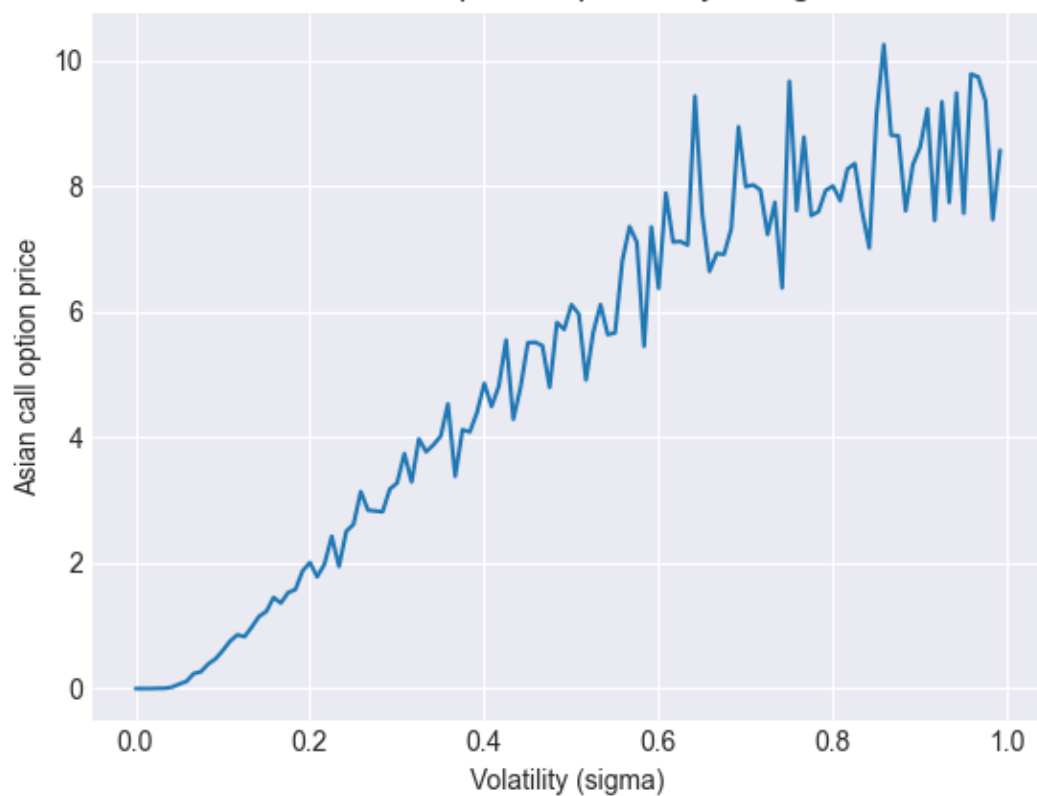
Asian Call Option Dependency on S_0



Asian Put Option Dependency on S_0



Asian Call Option Dependency on sigma



Asian Put Option Dependency on sigma

