

Stochastic processes in the realCourse > Week 6 > world

&gt; Problem (1-2)

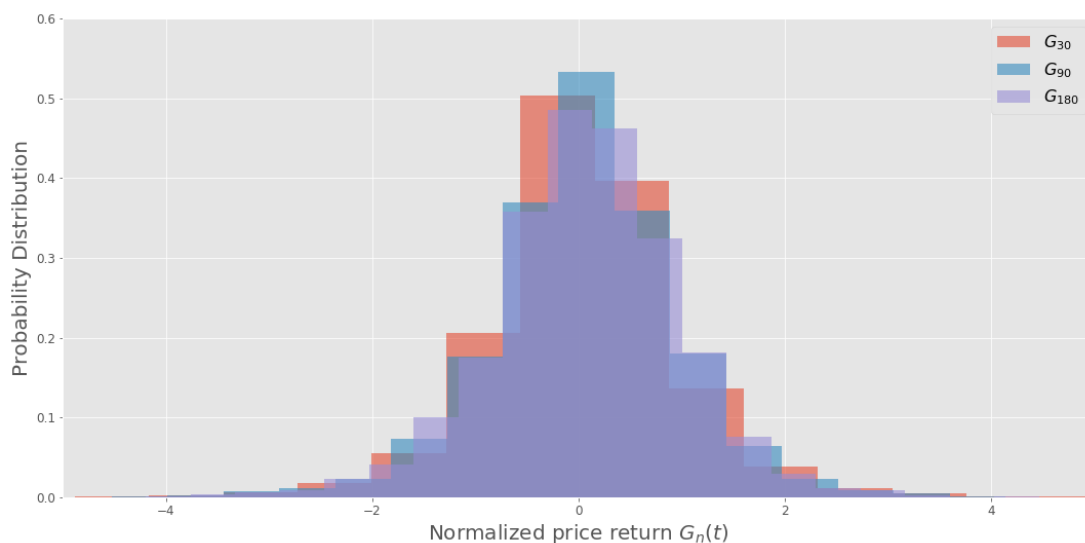
## Problem (1-2)

### Problem 1

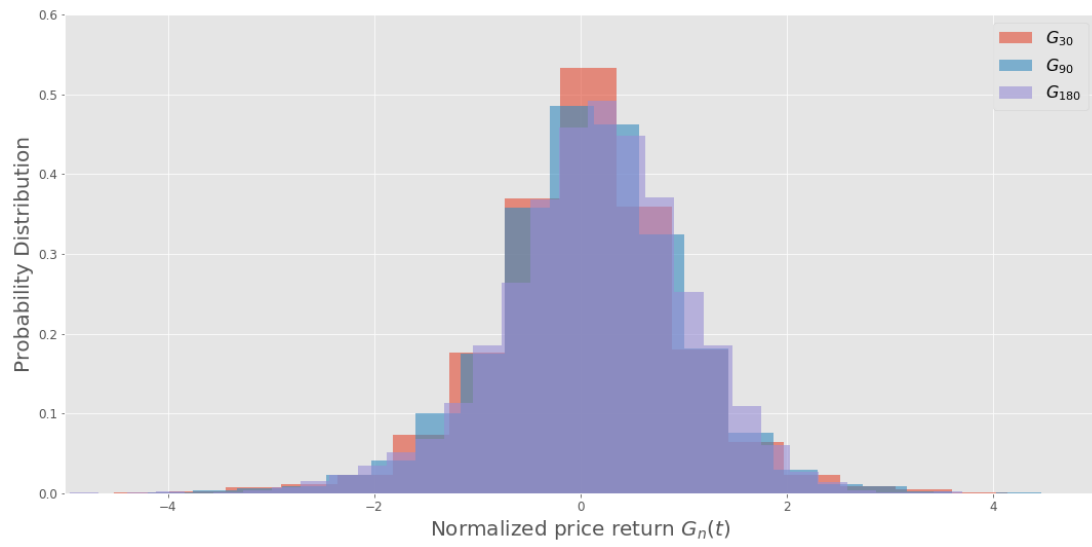
0.0/1.0 point (graded)

Modify the code example introduced in the video to calculate the normalized logarithmic return  $G_\tau(t)$  of Apple's stock for a time duration of  $\tau = 30, 90, 180$  days, using the historical data from January 1st, 1989 to December 31st, 2016. For this, you should call the `computeReturn` function three times, one for each value of  $\tau$  (be sure to give each a different label within the Data Frame). Plot the (normalized) histogram of the returns on the same plot. Which of the following graphs (G11 - G15) is the closest to what you obtained? (use  $n = 40$  bins when plotting the histograms).

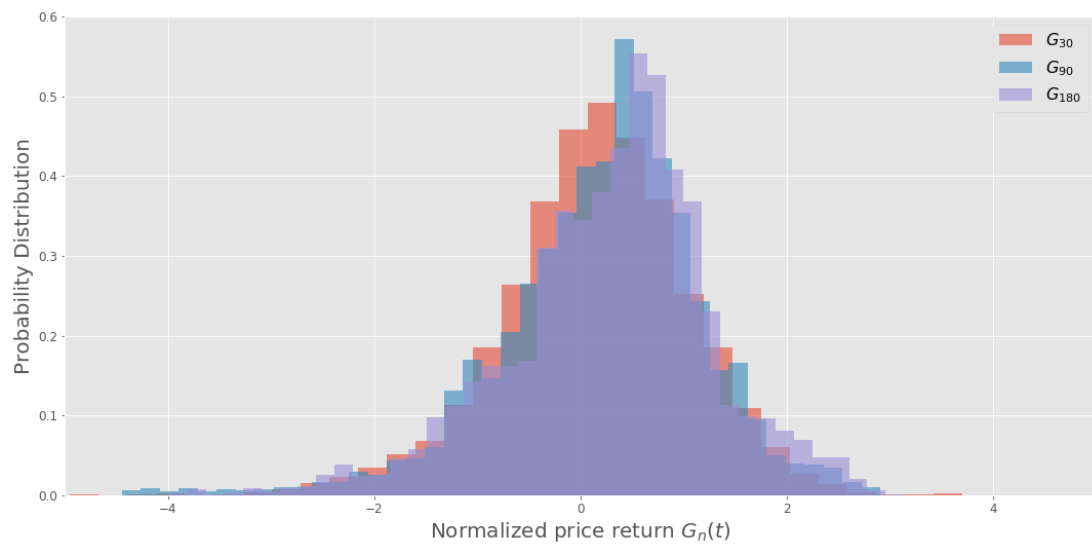
G01



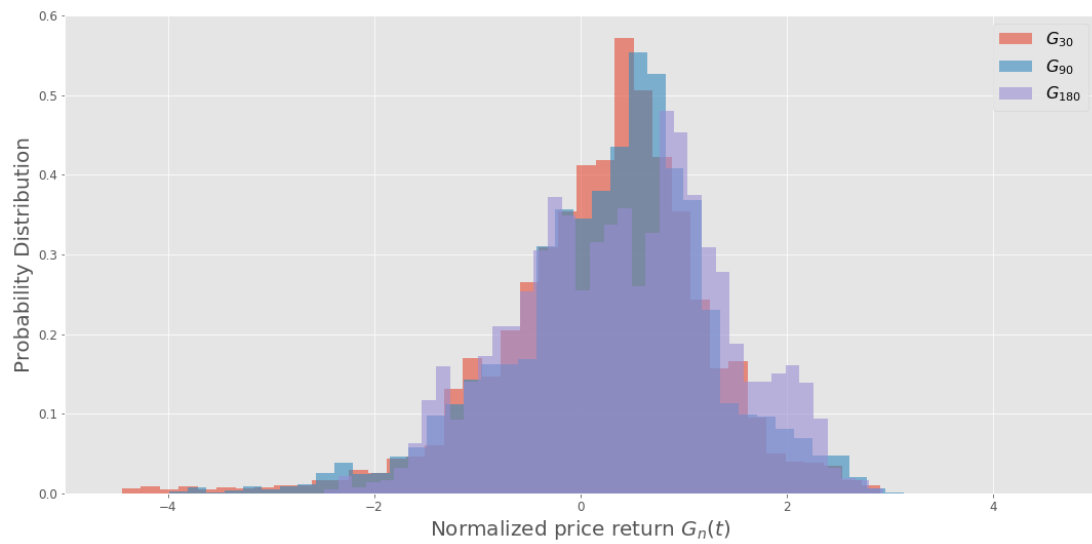
G02



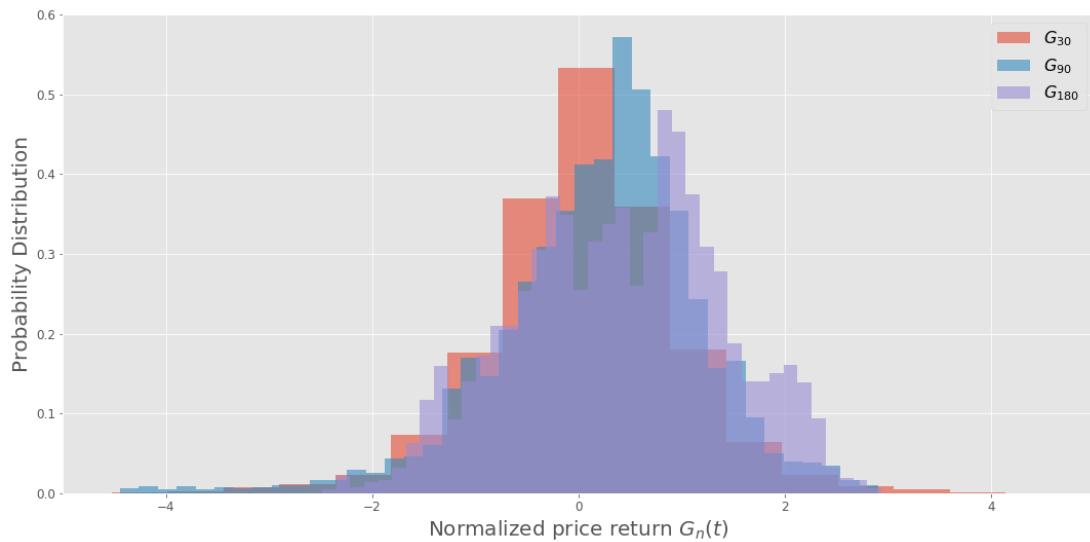
G03



G04



G05

☐ G01☐ G02☐ G03☐ G04☐ G05

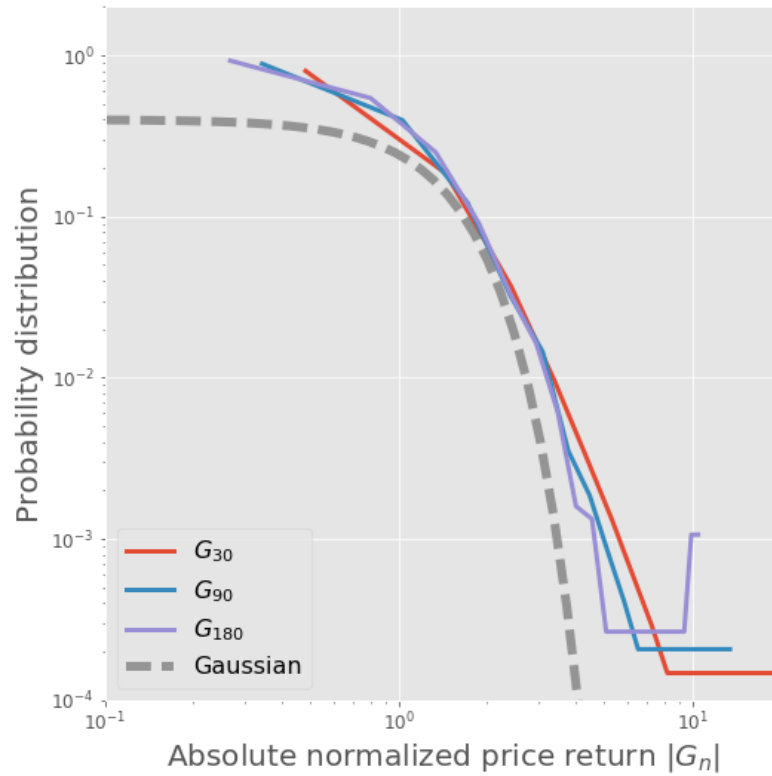
You have used 0 of 2 attempts

## Problem 2

0.0/1.0 point (graded)

Use the code example introduced in the video to calculate the probability distribution function for the absolute normalized price returns  $|G_{30}|$ ,  $|G_{90}|$ , and  $|G_{180}|$  of the previous problem. Plot the functions on a log-log scale together with a Gaussian distribution for comparison. Which of the following graphs is the closest to what you obtained? (When generating the histogram, use  $n = 20$  bins for comparison).

G11



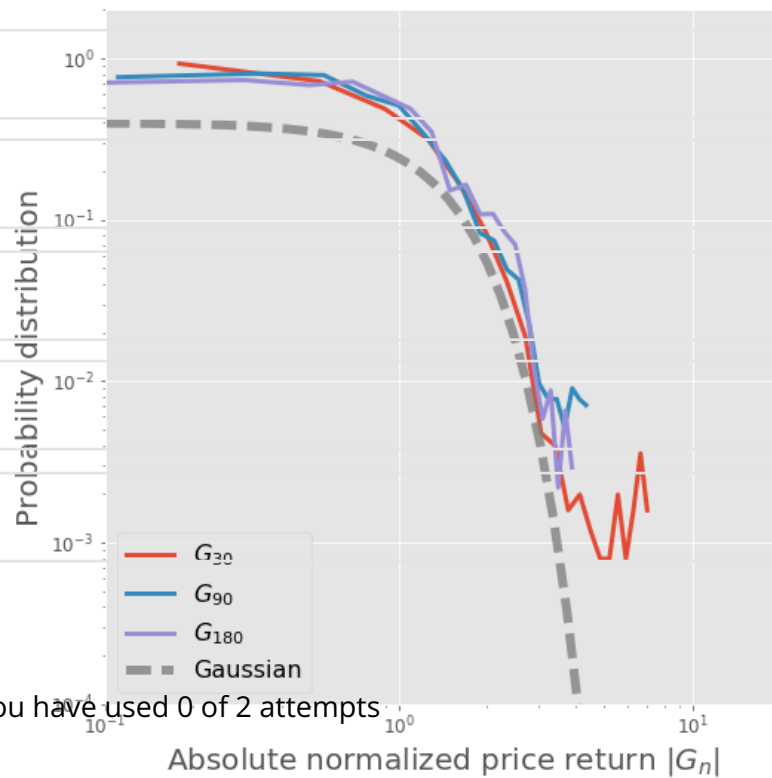
☐ G11

☐ G12

☐ G13

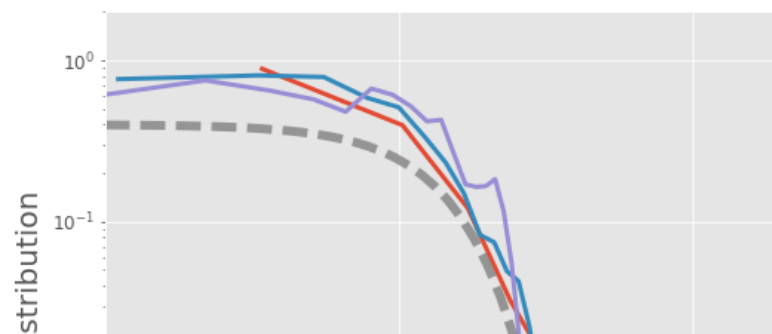
☐ G14 G12

☐ G15



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You have used 0 of 2 attempts



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