

Reading 6**SIMULATION METHODS**

1. (B) **The full dataset is used, and the samples are all the same size.**

Explanation

With bootstrap resampling, the samples pulled from the full dataset are all the same size. Partial datasets are not used.

(Module 6.1, LOS 6.c)

2. (B) **both of these variables.**

Explanation

One of the advantages of Monte Carlo simulation is that an analyst can specify any distribution for inputs.

(Module 6.1, LOS 6.b)

3. (A) **may appear in multiple samples.**

Explanation

Bootstrap resampling involves drawing repeated samples of a given size from a full data set, replacing the sampled observations each time so that they might be redrawn in another sample.

(Module 6.1, LOS 6.c)

4. (A) **Outcomes of a simulation can only be as accurate as the inputs to the model.**

Explanation

Monte Carlo simulations can be set up with inputs that have any distribution and any desired range of possible values. However, a limitation of the technique is that its output can only be as accurate as the assumptions an analyst makes about the range and distribution of the inputs.

(Module 6.1, LOS 6.b)

5. (C) **Lognormal distribution returns are used for asset pricing models because they will not result in an asset return of less than -100%.**

Explanation

Lognormal distribution returns are used for asset pricing models because this will not result in asset returns of less than 100% because the lowest the asset price can decrease to is zero which is the lowest value on the lognormal

distribution. The normal distribution allows for asset prices less than zero which could result in a return of less than -100% which is impossible.

(Module 6.1, LOS 6.a)

6. (B) normally distributed.

Explanation

For any random variable that is log normally distributed its natural logarithm (\ln) will be normally distributed.

(Module 6.1, LOS 6.a)

7. (A) cannot provide the insight that analytic methods can.

Explanation

The major limitations of Monte Carlo simulation are that it is fairly complex and will provide answers that are no better than the assumptions used and that it cannot provide the insights that analytic methods can. Monte Carlo simulation is useful for performing "what if" scenarios. One of the first steps in Monte Carlo simulation is to specify the probably distribution along with the distribution parameters. The distribution specified does not have to be normal.

(Module 6.1, LOS 6.b)

8. (C) negatively skewed.

Explanation

A lognormal distribution is positively skewed and is bounded below by zero. If stock returns are continuously compounded, then prices follow a lognormal distribution under certain conditions.

(Module 6.1, LOS 6.a)

9. (C) remain the same size.

Explanation

With resampling, the starting point is the original sample, and subsamples are repeatedly drawn from it. Each subsample will have the same number of observations.

(Module 6.1, LOS 6.c)

10. (B) overall population.

Explanation

Samples are often used in a simulation to estimate parameters for a population. Resampling is just taking the original observed sample and repeatedly drawing sub samples to estimate population parameters, such as mean and variance.

(Module 6.1, LOS 6.c)

11. (C) normally distributed.

Explanation

For any random variable that is log normally distributed, its natural logarithm (\ln) will be normally distributed.

(Module 6.1, LOS 6.a)

12. (C) approximate solutions to complex problems.

Explanation

This is the purpose of this type of simulation. The point is to construct distributions using complex combinations of hypothesized parameters.

(Module 6.1, LOS 6.b)

