38 BACKTESTING AND SIMULATION

1. Which of the following most accurately describes a scenario analysis?
   (A) Backtesting a model for large-cap securities as well as for medium-cap securities.
   (B) Backtesting a model during periods of high volatility and periods of low volatility.
   (C) Backtesting a model using U.S. market data as well as using the European market data.

2. Which of the following statements about backtesting an investment strategy is least accurate? Backtesting:
   (A) is incompatible with quantitative and systematic investment styles.
   (B) can take the randomness of the future into account.
   (C) is based on the implied assumption that the future will somewhat resemble history.

3. Bill Cassidy, CFA, is the portfolio manager for Applied Logistics pension fund. Cassidy is meeting with Alex Swary, the senior quantitative analyst, to discuss the results of backtesting of a model developed by Swary. The model uses several factors in selecting stocks, including EPS growth over the past year, the industry competitiveness index, and price-to-book ratio. The model makes picks on the first trading day of each calendar year with annual rebalancing.
   While evaluating the results of backtesting, Cassidy should be most likely concerned with:
   (A) data snooping bias.
   (B) survivorship bias.
   (C) look-ahead bias.

4. Which of the following most accurately describes the steps in backtesting an investment strategy?
   (A) Obtain estimates of the regression parameters, determine the assumed values of the independent variables, and compute the predicted value of the dependent variable.
   (B) Conceptualization of the modeling task, data collection, data preparation and wrangling, data exploration, and model training.
   (C) Strategy design, historical investment simulation, and analysis of output.

5. Which of the following identifies problems that are most likely to arise in a backtest of an investment strategy?
   (A) Heteroskedasticity, serial correlation, and multicollinearity.
   (B) Including lagged dependent variables as independent variables.
   (C) Survivorship bias, look-ahead bias, and data snooping.

6. In the presence of return distribution asymmetry and excess kurtosis, the most appropriate approach would be to make use of a Monte Carlo simulation using a:
   (A) normal distribution.
   (B) skewed Student's t-distribution.
   (C) F-distribution.

7. Which of the following is least likely an example of historical stress testing?
   (A) Backtesting the performance of the strategy during the high market return period of 2017-2018.
   (B) Backtesting the performance of the strategy during the great recession, a period following the global financial crisis of 2008.
   (C) Backtesting the performance of the strategy, assuming that the CBOE VIX Index is greater than 55.

8. A risk-averse investor is most likely to desire which of the following attributes of a multivariate return distribution?
   (A) Negative skewness.
   (B) Excess kurtosis.
   (C) Positive skewness.

9. Which of the following statements about backtesting an investment strategy is least accurate? Backtesting:
   (A) approximates the real-life investment process.
   (B) lends rigor to the investment process.
   (C) ensures that a strategy will perform well in the future.

10. A rolling-window backtesting is most accurately described when:
   (A) a data set is divided into two distinct samples.
   (B) repeated sampling from the same data set leads to the use of redundant sources.
   (C) the out-of-sample data becomes the in-sample data for the subsequent period.

11. Which of the following is the least likely to result from using information that would have been unavailable at the time of the investment decision?
   (A) Data snooping.
   (B) Survivorship bias.
   (C) Look-ahead bias.

12. In conducting a sensitivity analysis, an analyst is most likely to take fat tails and negative skewness into account by repeating a Monte Carlo simulation using a multivariate:
    (A) Bernoulli distribution.
    (B) skewed Student's t-distribution.
    (C) normal distribution.

13. Which of the following metrics are most likely to be reported in a backtest of an investment strategy?
    (A) Maximum drawdown, Sharpe ratio, and Sortino ratio.
    (B) Altman Z-score, Sloan ratio, and Beneish M-score.
    (C) Enterprise value, volume, and market capitalization.

14. Which of the following statements about backtesting an investment strategy is least accurate? Backtesting is:
    (A) a new methodology that is slowly gaining acceptance in the investment community.
    (B) widely used by managers that use a fundamental investment style.
    (C) useful as a rejection or acceptance criterion for an investment strategy.

15. In the historical simulation approach, bootstrapping is most likely to be used when:
    (A) zero-coupon rates are available but par yields are unknown.
    (B) the number of trials is larger than the dataset.
    (C) a merger transaction impacts earnings.

16. Which of the following most accurately describes a step in backtesting an investment strategy?
    (A) In the "historical investment simulation" step, we rebalance the portfolio periodically.
    (B) In the "strategy design" step, we form investment portfolios for each period.
    (C) In the "historical investment simulation" step, we calculate portfolio performance statistics.