

CA FINAL

RISK MANAGEMENT

IN-HOUSE

CASE STUDY SERIES

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Case Study 25 Questions

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Case Study

There are a number of tools that are available for risk management, with the objective of developing and implementing a good risk management system. Precise risk measurement requires a description of a model of how each position is affected by key factors such as interest rates or shocks to a particular industry, and a catalogue of possible values for key variables in the associated scenarios. For example, the equity funds may be driven by factors such as size of the industry or whether it is growth or value oriented. Similarly, one of the major determinants of the value of gilt funds is the expected change in the interest rate scenario. For assessing the risk it is important to know how liabilities and asset values are related to size and growth factors, interest rates, and also understanding the fluctuations and correlations of these rates and returns. For example the fund managers require the estimates of maturities and the expected volatility in the interest rates for dealing in gilts.

An easy-to-implement risk management system will include both an accurate database covering the universal set of publicly traded securities and a facility for updating their characteristics on time. Therefore, the update mechanism has to readily access new market data, translate it into the relevant factors, and create new estimates to produce risk forecasts based on most current information. To estimate the risk across portfolios that cut across domestic as well as global equities and fixed income securities, the fund managers must estimate the volatilities and correlations between them, in order to calculate the Value at Risk thus calculating the error as compared to a benchmark.

Portfolio managers have utilized risk management techniques for over two decades now using quantitative tools. For example, construction of index portfolios minimizes the risk of difference between the return of a portfolio and the benchmark portfolio. Apart from this, all the industry experts swear by the golden rule of diversification. The need for diversification to reduce risk and the futility of trying to time the market are important points investors should bear in mind. A long-term approach to investing, which encourages investors to invest in phases at various index levels, is likely to deliver superior returns, compared to investors who attempt to strike at a particular time in the long run. The fund managers must disclose as to

what they are doing to hedge their risks. They must tell the investors the steps they take in face of high fluctuations in the stock or the gilt markets. In India, the normal perception is that during the time of boom in the capital markets, the funds tend to outperform the broad market indices and at the time of a bear phase, they tend to under perform.

Multiple Choice Questions

(2 × 5 = 10 Marks)

1. The global financial crises that began in late 2008 falls into this category for many institutions, especially those that were involved in the creation and sale of the subprime mortgage securities. Identify the category of scenario.
 - A. Normal Stress Scenario
 - B. Near-Default Stress Scenario
 - C. Severe Stress Scenario
 - D. Stress to Default Scenario

2. Which of the following statements accurately reflects a Basel Committee stress-testing principle?
 - A. Stress-testing models should be reviewed at least twice per year.
 - B. Stress-test results should not be communicated beyond senior management and the board.
 - C. The risk captured in a stress-testing framework should be comprehensive, ranging from mild to extreme.
 - D. Stress-testing framework objectives should be aligned with the overall risk management framework.

3. A portfolio has a 5% weekly VAR of \$3 million. Which of the following is most accurate?
 - A. The same portfolio's 1% weekly VAR is more than \$3 million.
 - B. The same portfolio's 1% weekly VAR is \$3 million.
 - C. The same portfolio's 1% weekly VAR is less than \$3 million.
 - D. None are correct.

4. Which of the following statements regarding the measurement of risk for nonlinear derivatives is true?
 - I. A disadvantage of the delta-normal approach is that it is highly computational.
 - II. The full revaluation approach is most appropriate for portfolios containing mortgage-backed securities or options with embedded features.

- A. I only
 - B. II only
 - C. Both I and II
 - D. Neither I nor II
5. Which of the following is not a reason that expected shortfall (ES) is a more appropriate risk measure than value at risk (VaR)?
- A. For normal distributions, only ES satisfies all the properties of coherent risk measurements.
 - B. For nonelliptical distributions, the portfolio risk surface formed by holding period and confidence level is more convex for ES.
 - C. ES gives an estimate of the magnitude of a loss.
 - D. ES has less restrictive assumptions regarding risk/return decision rules than VaR.

Descriptive Questions

6. According to the case, a risk management system will include both an accurate database and also facilities for updating the content of the database regularly. Describe the approach to VaR that depends on historical pattern of observations.

(4 Marks)

7. What are the different objectives you propose to an income fund manager with investors of different risk appetite.

(4 Marks)

8. Explain how index futures contracts can be used to manage the beta of a portfolio.

(7 Marks)