# 05-Risk Management and Investment Management

单项选择题

1. Fenn Tomnick is a risk analyst at one of the major equity research firms specializing in Eurozone banks. In a recent review of the European financial crisis, Tomnick indicated that in times of distress of systematically important financial institutions, sovereign governments are often compelled to provide financial support to the struggling institution. Which of the following statements best describes Tomnick's example?

A. The example describes one of the charnels through which sovereign risk is transmitted to the finan

B. The example describes one of the channels through which financial sector risk is transmitted to so

C. The example describes a key way in which financial institutions are vulnerable to exposure to priv

D. The example provides an illustration of the interconnectedness of the global financial system.

参考答案：B

【莽学解析】The example describes one of the channels through whichfinancial sector risk is transmitted to sovereigns. These channels include (1)improper government policies (e.g., unsustainable spending increases) as aresult of one-off boosts to fiscal balances from financial institutions, (2)lending constraints of financial institutions that result in larger publicsector deficit and deteriorating sovereign creditworthiness, and (3) necessarygovernment support to struggling financial institutions in order to preservefinancial stability. (2)

2. During the 2007—2008 financial crisis, there was a grave concern that Bear Stearns and Lehman Brothers were highly interconnected to many other financial firms. It ended up being true. The interdependency of financial firms can lead to:

A. negative kurtosis.

B. lower variance of returns.

C. fat tailed distributions.

D. excess system-wide leverage.

参考答案：C

【莽学解析】Interdependencies can lead to fat tails. This increasesrisk in the overall financial system and increases the likelihood ofcatastrophic risks, as evidenced by the financial crisis. Firms were sodependent on each other that a problem at one bank, say Lehman Brothers, meantfrozen short-term credit markets for other banks. Interactions are at leastpartially to blame for fat rails. The central limit theorem assumes events areindependent. Analysis of the financial crisis makes it clear that events aregenerally not independent. (1)

3. Which of the following statements best describes the use of heuristics in decision- making models?

A. Research studies suggest simple models based on heuristics are more successful in decision making

B. Heuristics are simple rules of thumb that are used in decision making.

C. Models based on heuristics tend to have more parameter assumptions.

D. A drawback of heuristic models is that they tend to over-fit sample data and perform poorly in pre

参考答案：B

【莽学解析】Heuristics are simple rules of thumb that are used indecision making. Research studies find that simple models based on heuristicsoften are more successful in decision making than more complex models. Simplemodels have fewer parameter assumptions. More complex models tend to over-fitsample data and perform poorly in predicting future outcomes. (0)

4. A risk manager is evaluating the risk profile for a portfolio of stocks. Currently, the portfolio is valued at JPY 128 billion and contains JPY 25 billion in stock XYZ. The standard deviation of returns of stock XYZ is 11% annually and that of the overall portfolio is 18% annually. The correlation of returns between stock XYZ and the portfolio is 0.6. Assuming the risk analyst uses a 1-year 95% VaR and that returns are normally distributed, what is the estimated component VaR of stock XYZ?
A. JPY 2.714 billion
B. JPY 3.838 billion
C. JPY 4.524 billion
D. JPY 6.397 billion

参考答案：A

【莽学解析】

$$VaR_{XYZ} = w_{XYZ} * \sigma_{XYZ} * \alpha(95\%) = JPY\ 25\ million \times 0.11 \times 1.645 = JPY\ 4.524\ billion$$

$$Component\ VaR_{XYZ} = \rho * VaR_{XYZ} = 0.6 \times 4.524 = JPY\ 2.714\ billion.$$

5. A company's pension fund is established as a defined benefit plan, and therefore the board must consider funding risk. Which of the following statements about the pension fund's funding risk is correct?
A. The longer the horizon for expected payouts, the lower\nthe funding risk.
B. Decreases in interest rates will reduce funding risk.
C. The funding risk has been effectively transferred to\nthe employees.
D. Funding risk represents the true long-term risk to the\nplan sponsor.

参考答案：D

【莽学解析】The time horizon of payouts does not eliminate fundingrisk.  In fact it is the mismatch betweenassets and liabilities that creates funding risk. In an low interest rateenvironment the value of equities will rise, however the value of theliabilities are likely to increase more thereby exacerbating funding risk.Funding risk is transferred to employees with a defined contribution plan.Immunizing the portfolio, essentially matching duration of assets andliabilities, will reduce funding risk.  (0)

6. A portfolio manager wants to invest a small amount of new money that has recently come into a fund. The fund is benchmarked to an index and, rather than adding a new holding, the manager is considering increasing the holdings of one of the four assets described in the following table:

| Asset | Portfolio Weight | Expected Return | |
|---|---|---|---|
| A | 1.2% | 12% | |
| B | 0.8% | 10% | |
| C | 0.75 | 10% | |
| D | 0.35 | 8% | |

The portfolio manager wants to select the asset that has the lowest marginal VaR as long as its Treynor ratio is at least 0.1. Assuming the risk free rate is 2%, which asset should the portfolio manager select?

A. Asset A
B. Asset B
C. Asset C
D. Asset D

参考答案：C

【莽学解析】

| Asset | Portfolio Weight | Expected Return | Beta to the Index | th |
|---|---|---|---|---|
| A | 1.2% | 12% | 1.2 | |
| B | 0.8% | 10% | 0.7 | |
| C | 0.75 | 10% | 0.6 | |
| D | 0.35 | 8% | 0.3 | |

7. An analyst regresses the returns of 100 stocks against the returns of a major market index. The resulting pool of 100 alphas has a residual risk of 18% and an information coefficient of 9%. If the alphas are normally distributed with a mean of 0%, roughly how many stocks have an alpha greater than 4% or less than −4%?

A. 5

B. 10

C. 20

D. 25

参考答案：A

【莽学解析】The standard deviation (std) of the alphas = ResidualRisk (volatility) x Information Coefficient (IC) = 0.20 * 0.10 = 0.02. So, 4%is twice the standard deviation of the alphas. The alphas follow normaldistribution with mean 0, so about 5% of the alphas are out of the interval[-4%, 4%]. The total number of stocks is 100, so roughly there are 5 alphasthat are out of the range.    (3)

8. A useful measure for assessing liquidity risk for hedge funds is the Q-statistic. Which of the following statements is true regarding the statistical significance of the Q-statistic measure?

A. Smaller p-values indicate that autocorrelations are\nmore statistically significant.

B. We will be 99% confident that we can reject the null\nhypothesis of no correlation when the test sta

C. The null hypothesis of positive autocorrelations can\nbe rejected when each lagged autocorrelation i

D. Larger p-values indicate that autocorrelations are\nmore statistically significant.

参考答案：A

【莽学解析】The Q-statistic reflects the absolute magnitudes of thecorrelations, because it sums the squared autocorrelations. Thus, the signs donot cancel each other oul, and funds with large positive or negative autocorrelationcoefficients will result in large Q-statistics. Fund managers have an incentivefor smoothing the rectums of illiquid funds. This smoothing process results inserial autocorrelations. As with most statistics, the smaller the p-value forthe statistic, the greater our confidence in the inference made by rejectingthe null hypothesis. (0)

9. In distinguishing between strategy risks and structural risks that stem from a fund of hedge funds, which of the following would be considered strategy risk(s)? I. Trading liquidity risk. II. The extent and form of management oversight. III. The risk of poor information reporting systems IV. The risk of high ownership concentration of hedge fund shares.

A. I, III, and IV only

B. I only

C. II and III only

D. II and IV only

参考答案：B

【莽学解析】Hedge funds face structural risks that stem from a hedgefund's operations. These risks include the potential for deterioration in afirm's reputation, poor information reporting systems, inadequate managementoversight, etc. Strategy risks derive from a hedge fund's investment strategy.They include a fund's exposure to price swings from different asset classes(market risk), the risk of non-performance by counterparties (credit risk), therisk of price impact from executing large trades (trading liquidity risk), andthe risk of not being able to meet interim cash flows obligations before strategiesare able to become profitable (funding liquidity risk). (3)

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10. Hedge fund managers following a convertible arbitrage strategy are said to be:

A. long gamma and short vega

B. short gamma and short vega

C. long gamma and long vega

D. short gamma and long vega

参考答案：C

【莽学解析】Convertible arbitrage managers hedge their equityexposure by shorting stocks using the delta hedge ratio. Because they areexposed to changes in the hedge ratio, they are said to be long gamma. They arealso exposed to changes in the price volatility of the stock underlying theoption embedded in the convertible security, so they are said to be long Vega. (1)

11. You are asked to estimate the exposure of a hedge fund to the S&P 500. Though the fund claims to mark to market weekly, it does not do so and marks to market once a month. The fund also does not tell investors that it simply holds an Exchange Traded Fund (ETF) indexed to the S&P 500. Because of the claims of the hedge fund, you decide to estimate the market exposure by regressing weekly returns of the fund on the weekly return of the S&P 500. Which of the following correctly describes a property of your regression estimates?

A. The intercept of your regression will be positive, showing that the\nfund has a positive alpha when

B. The beta will be misestimated because hedge fund exposures are nonlinear.

C. The beta of your regression will be one because the fund holds the S&P\n500.

D. The beta of your regression will be zero because the fund returns\nare not synchronous with the S&am

参考答案：D

【莽学解析】The weekly returns are not synchronized with those of the S&P. Asa result, the estimate of beta from weekly data will be too low. (4)

12. For a portfolio of illiquid assets, hedge fund managers often have considerable discretion in portfolio valuation at the end of each month and may have incentives to smooth returns by marking values below actual in high-return months and above actual in low-return months. Which of the following is not a consequence of return smoothing over time?

A. Higher Sharpe ratio

B. Lower volatility

C. Higher serial correlation

D. Higher market beta

参考答案：D

【莽学解析】Illiquidity creates an understatement of the total risk measure. As aresult, the Sharpe ratio will be artificially higher. Illiquidity createstrends in returns (higher serial correlation), as market shocks during a monthwill be partially recorded in two consecutive months. Illiquidity, however,biases down the market beta. (3)

13. Risk management of hedge funds has challenges not generally faced in traditional investment management companies. Which of the following statements are correct about hedge fund risk management? I. Because hedge funds can hold long and short positions, and can use derivatives and leverage, their exposure to market risks can experience large and rapid changes that make it difficult to assess these exposures using only monthly returns. II. Many hedge funds use

over-the-counter derivatives, which are valued by models or quoted prices and often hold illiquid assets; as a result, the returns of these strategies generally exhibit much lower serial correlation than mutual fund returns. III. For hedge fund strategies that use leverage to amplify returns and rely on their ability to move out of trades quickly when they turn against them, liquidity risk must be closely monitored and managed. IV. Hedge fund returns are often similar to the return of a basket of exotic derivatives with nonlinear payoffs, and therefore assessing risk based on past performance can be misleading.

A. I, II, III, and IV

B. I, III, and IV

C. I and III

D. II and IV

参考答案：B

【莽学解析】Statement I, III, and IV are correct. Statement II. Is false becauseilliquid asset creates higher serial correlation. (1)

14. A portfolio manager currently holds 20,000 shares of Costiuk Inc. in a particular portfolio. The daily volume of Costiuk shares traded on the stock exchange is 50,000. Additionally, on any given day, the portfolio manager wishes to trade no more than 15% of the daily trading volume of Costiuk. Which of the following amounts is closest to the liquidity duration of Costiuk in this portfolio?

A. 0.06

B. 0.375

C. 2.67

D. 16.67

参考答案：C

【莽学解析】Liquidity duration is an approximation of the number ofdays necessary to dispose of a portfolio's holdings (of a particular share inthis case) without a significant market impact. ft is calculated as: $20,000/(0.15 \times 50,000) = 2.67$. (2)

15. Given the following information, what is the percent of contribution to VAR from Asset A? There are two assets in a portfolio: A and B.    Asset A marginal VAR:    0.05687    Asset A value: $7,000,000    Asset B marginal VAR:    0.17741    Asset B value: $4,000,000

A. 64.06%

B. 24.27%

C. 35.94%

D. 63.64%

参考答案：C

【莽学解析】The component VAR factors in both the marginal VAR andthe asset value.  For Asset A:0.05687*$7,000,000=$398.090  For Asset B:0.17741*$4,000,000=$709,640  Asset A's percentof contribution to VAR is A's component VAR as a percent of total VAR: $398,090/($398,090+$709.640)=35.94%  Choice A isincorrect because it is the percent of contribution to VAR from Asset B.  Choice B isincorrect because it is the Marginal VAR weight for Asset A. Choice D is incorrect because it is just the asset weightfor Asset A. (1)

16. A portfolio is composed of two securities ans has the following

characteristics:    Investment in X:    USD 1.8 million    Investment in Y:    USD 3.2 million

Volatility of X: 8%   Volatility of Y: 4%   Correlation between X and Y: 15%   The portfolio diversified VAR at the 95% confidence level is closest to:

A. 1

B. $14,074

C. $206,500

D. $404,740

参考答案：D

【莽学解析】

$$Variance_{X,Y} = w_X^2\sigma_X^2 + w_Y^2\sigma_Y^2 + 2 \times w_X \times w_Y \times \sigma_X \times \sigma_Y \times Corr_{X,Y}$$

$$Variance_{X,Y} = 0.36^2 \times 0.08^2 + 0.64^2 \times 0.04^2 + 2 \times 0.36 \times 0.64 \times 0.08 \times 0.04 \times 0.15$$

$$Variance_{X,Y} = 0.00082944 + 0.00065536 + 0.000221184$$

$$Variance_{X,Y} = 0.001705984$$

$$\text{Standard deviation} = \sqrt{0.001705984} = 4.13\%$$

Step 2: Calculate the VAR VVAR=1.65*volatility*portfolio value VAR=1.65*0.0413*$ 5m
VAR=$340,725 (1)

17. The AT&T pension fund has 68%, or about $13 billion invested in equities. Assume a normal distribution and volatility of 15% per annum. The fund measures absolute risk with a 95%, one-year VAR, which gives $3.2 billion. The pension plan wants to allocate this risk to two equity managers, each with the same VAR budget. Given that the correlation between managers is 0.5, the VAR budget for each should be

A. $3.2 billion

B. $2.4 billion

C. $1.9 billion

D. $1.6 billion

参考答案：C

【莽学解析】

18. SkyLine Airways has a defined benefit pension scheme with assets of $165 million and liability of $150 million. The annual growth of the liabilities is expected to be 4.5% with 2.4% volatility. The annual return on the pension assets has an expected value of 7.8% with 12%

Call x the risk budget allocation to each manager. This should be such that:

$$x^2 + x^2 + 2pxx = \$3.2^2 .$$

Solving for:

$$x\sqrt{1+1+2\rho} = x\sqrt{3} = \$3.2 \text{, we find x} = \$1.85\text{billion}.$$

volatility. The correlation between asset return and liability growth is 0.35. What is the 95% surplus at risk for SkyLine?

A. $24.97million

B. $54.81million

C. $18.84million

D. $6.12million

参考答案：A

【莽学解析】

$$Var_{A\&L} = 165^2 \times 0.12^2 + 150^2 \times 0.024^2 - 2 \times 165 \times 150 \times 0.12 \times 0.024 \times 0.35$$

$$Var_{A\&L} = 392.04 + 12.96 - 49.896$$

$$Var_{A\&L} = 355.104$$

$$\text{Standard deviation} = \sqrt{355.104} = 18.84m$$

Step 3: Calculate VAR of the assets. VAR=Z-score *volatility VAR=1.65*$18.84m VAR=$31,086,000 Surplus at risk=expected growth in surplus-VAR Surplus at risk=$6.12m-$31.086m=-$24.97m Note: Although it is a negative, it is usually expressedas a positive figure as it is assumed that it is a shortfall. (1)

19. A hedge fund is long USD 315 million in certain stocks and short USD 225 million in other stocks. The hedge fund's equity is USD 185 million. The fund's overall beta is 0.75. Calculate the Gross and Net leverage.

A. 2.91 and 0.48

B. 2.18 and 0.36

C. 2.91 and 0.36

D. 2.18 and 0.48

参考答案：A

【莽学解析】

$$\text{Gross leverage} = \frac{315+225}{185} = 2.91, \text{Net leverage} = \frac{315-225}{185} = 0.48$$

20. The Peyton Formika Fund is a global macro asset allocation hedge fund designed to provide low correlations with U.S. assets. Dominic James is a fund of hedge funds manager that is analyzing the Peyton Formika Fund for signs of style drift. James makes note of the following findings about the fund: I. The R2 of the fund versus the global macro peer group has changed from 0.72 to 0.78 over the past 12 months. II. Due to outstanding returns, assets in the fund have increased from $70 million to $430 million over the past 12 months. III. The fund made a major shift in allocation by moving 40 percent of its holdings from Eastern European equities to Asian equities. IV. After a recent trip to India, the fund manager gained confidence in his existing Indian equity holdings and levered his existing 5% weighting in India only by a 10 to 1 ratio. Which of James' findings are indicators that the Peyton Formika Fund is at risk for style drift?
A. II and IV only
B. I and II only
C. II and III only
D. I, III and IV only

参考答案：A

【莽学解析】Hedge fund style drift occurs when there are changes in the risk factor exposures of the fund or changes in the overall risk of the fund, notably through leverage. Using leverage only for his Indian equity position would definitely be an indicator of style drift. Even though the initial position is small, a 10 to 1 leverage ratio would significantly change the risk of the fund. An excessive cash inflow which may be more money than the manager can sustain is also a potential indicator of style drift. The change in allocation from Eastern European equities to Asian equities is within the objectives of a global allocation fund, so that would not indicate style drift. Also, style drift would be a concern with a decrease, not an increase in the R-squared measure against the peer group. (2)

21. Rick Walter works in the risk management department of a hedge fund. The fund is headquartered in the United 5tates (U.5.) but trades internationally. Walter has been tasked with explaining the differences between regulatory authorities and the requirements of each of the authorities in the United States, the European Union (EU), and 5ingapore with respect to over-the-counter (OTC) derivatives trading. He will produce a report that will be presented to senior management and the board of directors at the board's next meeting. Regarding requirements in thc various jurisdictions, which statement is correct?
A. Central\ncounterparties (CCPs) in the EU must be mutualized and a default fund must be\nestabli
B. The United\nStates exempts pension funds from clearing requirements, unlike Singapore and\nthe
C. Singapore is\nthe least flexible with respect to the choice of a CCP, requiring clearing\nthrou
D. The United\nStates, along with the EU and Singapore, requires initial and variation

margin, \nbu

参考答案：A

【莽学解析】Generallyspeaking, the EU has the strictest regulations with respect to centralclearing. The EU does not contain an exemption based on a threshold size of a financialentity. Both Singapore and the United States have a threshold ($10 billion in theUnited States). However, the EU, not the United States, exempts pension fundsfrom clearing requirements. The choice of CCP is most flexible in Singapore.Singapore allows for central clearing using both domestic and foreignCCPs. The United States and the EU mustanalyze the regulations and agreements of the foreign regulators beforeallowing clearing by a foreign CCP. The EU is most prescriptive regarding theorganization and choice of model for the CCP, requiring the CCP to be mutualized,where member losses are shared through a default fund. All three jurisdictionsrequire initial and variation margin, but U.S. regulation includes netting arrangementsand margin requirements for payments above a minimum transfer amount.　　　(1)

22. There has been a recent push for financial market participants to consider increasing the number of available reference rates, providing alternatives to the London Interbank Offered Rate (LIBOR) and Euribor, two of the most commonly used rates. Which of the following criticisms of the commonly used reference rates has encouraged the need for alternative reference rates?

A. Commonly used\nrates contain credit risk, making them unsuitable for some transactions.

B. Overnight markets\nare less liquid, making them unappealing for use in swap contracts.

C. Banks have\nbecome increasingly reliant on unsecured funding to better manage credit risks.

D. LIBOR and Euribor are not consistently published on dedicated sites.

参考答案：A

【莽学解析】Until the recent financial crisis (2007-2009), referencerates, including LIBOR and Euribor, were intended to measure the bank creditrisk premiums of "prime banks" (i.e., the rates reflect the risk-freerate and common bank risk). However, as a result of the financial crisis, bankrisks became widely dispersed, making commonly used reference rates unsuitablefor some transactions. Different market participants look for different riskfactors and, as a result, would need reference rates that are specific to theirrisk requirements. Overnight markets have little or no credit risk, making themsuitable for some transactions such as overnight indexed swaps (OISs).Overnight markets are more liquid, not less liquid. Banks are becoming increasinglyreliant on wholesale funding to manage credit risks, not unsecured funding. Finally,LIBOR and Euibor are readily available to market participants. Credit riskpremiums that are embedded in commonly used reference rates pose a problem forsome transactions. (0)

23. A portfolio manager estimates the VaRs for the two positions in his portfolio as follows: VaR1 = $4.8 million and VaR2 = $2.6 million. What is the VaR for the portfolio if the returns of the two securities are uncorrelated, and what is the VaR for the portfolio if the returns of the two securities are perfectly correlated?

A. For zero correlation, \nVaR is $5.46 million, and for perfect for relation, VaR is $7.40 millio

B. For zero correlation, \nVaR is $4.46 million, and for perfect correlation, VaR is $6.40 million

C. For zero correlation, \nVaR is $7.46 million, and for perfect correlation, VaR is $3.40

million

D. For zero\ncorrelation, VaR is \$5.46 million, and for perfect correlation, VaR is \$9.40\nmillion

参考答案：A

【莽学解析】

$$\text{VaR for zero correlation} := \left( \sqrt{VaR_1^2 + VaR_2^2} = \sqrt{(4.8)^2 + (2.6)^2} \right) = \$5.46 \text{ million}$$

$$\text{VaR for perfect correlation} = VaR1 + VaR2 = \$4.8 \text{ million} + \$2.6 \text{ million} = \$7.40 \text{ million} \quad (1)$$

24. Glenn Funds uses the information ratio (IR) as a performance measure. The firm compares portfolio managers based on their IRs and uses this information to help determine performance compensation. Which of the following statements does not represent a strength of the IR in terms of its usefulness in comparing asset managers? The information ratio:

A. can be applied\nto industries as well as individual asset and portfolio returns.

B. is easy to\nunderstand when used to compare a manager's performance to the performance of a\npe

C. uses the\nportfolio's forecasted tracking error in the calculation, making it a forward\nlookin

D. makes it easy\nfor senior supervisors to rank order managers based on their generated excess\nr

参考答案：C

【莽学解析】Strengths of the Sharpe and information ratios are (1) easy to use as measures of relative performance compared to a benchmark or peer group; (2) easy to determine if a manager has generated sufficient excess returns in relation to the amount of risk taken; and (3) easy to apply to industrial sectors and countries. Weaknesses include (1) insufficient data to perform the calculation and (2) the use of realized risk (instead of potential risk) may result in overstated performance calculations. The Sharpe and information ratios use historical data (not forecasted tracking errors) and thus are not forward looking. (0)

25. Hedge fund manager Bill Deschler has managed a portfolio for 15 years. During the financial crisis of 2007-2009, he observed that his portfolio returns fell dramatically along with the market. This was surprising because the fund was structured such that the portfolio beta was uncorrelated with the market index. He identifies several concepts that might be used to explain the phenomenon. Which of the following risk-related items could not be used to explain Deschler's observation?

A. Nonlinearity\nrisk.

B. Systemic\ncorrelation.

C. Asymmetric\ncorrelation.

D. Phase-locking\nbehavior.

参考答案：B

【莽学解析】Phase-locking behavior occurs with events that cause normally uncorrelated actions to become highly correlated. Asymmetric correlation refers to the notion that beta coefficients are more highly correlated with the market index in down markets than they are in up markets. Asymmetric correlation creates a type of nonlinearity risk that traditional risk

measurement models do not capture. Systemic risks often leadto higher correlation coefficients but there is no such thing as systemiccorrelation.　　　(0)

26. A database of hedge fund returns is constructed as follows. The first year of the database is 1994. All funds existing as of the end of 1994 that were willing to report their verified returns for that year are included in that year. The database was extended by asking the funds for verified returns before1994. Subsequently, funds are added as they are willing to report verified returns to the database. If a fund stops reporting returns, its returns are deleted from the database, but the database has an agreement with funds that they will keep reporting verified returns even if they stop being open to new investors. Consider the four following statements: I. The database suffers from backfilling bias. II. The database suffers from survivorship bias. III. The database suffers from an errors-in-variables bias. IV. The equally-weighted annual return average of fund returns will underestimate the performance one would expect from a hedge fund. Which one of the following is correct?

A. All the above statements are\ncorrect.

B. Statements I and II are\ncorrect.

C. Statements I, II, and III\nare correct.

D. Statements II and IV are\ncorrect.

参考答案：B

【莽学解析】The database includes histories before 1994 and therefore suffers frombackfill bias. Next, funds that stop reporting are deleted from the database, so this has survival bias. Errors-in-variables biases arise in other contexts, such as regression. Finally, the average of fund returns will be too high (nottoo low) because of these two biases. Hence, I. and II. are correct. (0)

27. The pension management analysts at Big Inc. use a two-step process to manage the assets and risk in the pension portfolio. First, they use a VAR-based risk budgeting process to determine the asset allocation across four broad asset classes. Then, within each asset class, they set a maximum tracking error allowance from a benchmark index and determine an active risk budget to distribute among individual managers. Assume the returns are all normally distributed. From the first step in the process, the following information is available.

Which of the following statements is/are correct? I. Using VAR as the risk budgeting measure, the emerging markets class has the smallest risk budget. II. If an additional dollar were added to the portfolio, the marginal impact on portfolio VAR would be greatest if it were invested in small caps. III. As the maximum tracking error allowance is lowered, the individual managers have more freedom to achieve greater excess returns. IV. Setting well-defined risk limits and closely monitoring risk levels guarantee that risk limits will not be exceeded.

A. I and II only

B. I, II, III, and IV

C. II and III

D. I only

参考答案：A

【莽学解析】Risk budget is represented by the individual VAR, which is thesmallest for emerging markets, so statement I. is correct. The marginal VAR ishighest for small caps, so adding one

| | Expected | | |
|---|---|---|---|
| | Return (%) | Volatility (%) | |
| Small Cap | 0.20% | 2.66% | |
| Large Cap | 0.15% | 2.33% | |
| Commodities | 0.10% | 1.91% | |
| Emerging markets | 0.15% | 2.70% | |
| | | | Tot |

dollar to that asset class would have thelargest impact on the portfolio. Statement III. Is incorrect, as lowering TEVwould give less, not more freedom to manages. Finally, setting risk limits doesnot ensure they will not be exceeded, Bad luck and exceptions can happen, evenif the risk model is correct. (2)

28. A fund of hedge funds combines a mix of strategy sectors, managers, and styles, and therefore fund of funds risk managers need to understand the common attributes of hedge fund strategies. Which of the following statements is incorrect?
A. Equity market neutral funds\naim to generate returns that have low correlation to the overall
B. Convertible arbitrage funds\ntypically purchase securities that are convertible into the issue
C. Merger arbitrage funds buy\nthe stock of an acquisition target company and simultaneously shor
D. Equity short-selling funds\nsell stocks not currently owned by the seller in order to take a d

参考答案：D
【莽学解析】Statement a.,b., and c. are correct. Funds that short-sell, however,have negative correlation with long-only portfolio. They cannot beuncorrelated. (2)

29. Identify the risks in a fixed-income arbitrage strategy that takes long positions in interest rate swaps hedged with short positions in Treasuries.
A. The strategy could lose from\ndecreases in the Swap-Treasury spread.
B. The strategy could lose from\nincreases in the Treasury rate, all else fixed.
C. The payoff in the strategy\nhas negative skewness.
D. The payoff in the strategy\nhas positive skewness.

参考答案：C
【莽学解析】The strategy has no exposure to the level of rates but is exposed to awidening of the Swap-Treasury spread. Assume for instance that the swap andTreasury rates are initially 5.5% and 5%. If these rates change to 5.3% and4.5%, for example, both values for the swap and the Treasury bond wouldincrease. Because the drop in the Treasury rate is larger, however, the

priceof the Treasury bond would fall more than the swap, leading to a net loss onthe position. The strategy should gain from decreases in the Swap-Treasuryspread, so a. is wrong. The strategy should gain from increases in the Treasuryrate, all else equal, so b. is wrong. Finally, the distribution of the payoffdepends on the distribution of the swap-Treasury spread. Because this cannot gobelow zero, there is a limit on the upside. The position has negative skewness,so c. is correct.(8)

30. The Big Bucks Hedge fund has the following description of its activities. It uses simultaneous long and short positions in equity with a net beta close to zero. Which of the following statements about Big Bucks are correct? I. It uses a directional strategy. II. It is a relative value hedge fund. III. This fund is exposed to idiosyncratic risks.
A. I and II
B. II and III
C. I and III
D. II only
参考答案：B
【荬学解析】This fund has zero beta, so is a relative value fund. It is, however,exposed to idiosyncratic, stock-specific risk. (0)

31. An analyst reports the following fund information to the advisor of a pension fund that currently invests in government and corporate bonds and carries a surplus of USD 10 million:

| Pension Assets | Pension | Liabilities |
|---|---|---|
| Amount (in USD million) | 100 | 90 |
| Expected Annual Growth | 6% | 7% |
| Modified Duration | 12 | 10 |
| Annual Volatility of Growth | 10% | 5% |

To evaluate the sufficiency of the fund's surplus, the advisor estimates the possible surplus values at the end of one year. The advisor assumes that annual returns on assets and the annual growth of the liabilities are jointly normally distributed and their correlation coefficient is 0.8. The advisor can report that, with a confidence level of 95%, the surplus value will be greater than or equal to:
A. USD -11.4 million
B. USD -8.3 million
C. USD -1.7 million
D. USD 0 million
参考答案：C
【荬学解析】The lower bound of the 95% confidence interval is equalto: Expected Surplus - (95% confidence factor * Volatility of Surplus). The required variables can be calculated asfollows:Variance of the surplus = 1002 * 10%2 + 902 * 5%2 - 2 *100 * 90 * 10% * 5% * 0.8 =

48.25 Volatility of the surplus = √48.25 =6.94, The expected surplus = 100 * 1.06 - 90 * 1.07 = 9.7. Therefore, the lower bound of the 95% confidence interval= 9.7 - 1.645 * 6.94 = - 1.725(4)

32. A due diligence specialist is evaluating the risk management process of a hedge fund in which his company is considering making an investment. Which of the following statements best describes criteria used for such an evaluation?
A. Because of the overwhelming importance of tail risk,\nthe company should not invest in the fund unle
B. Today's best practices in risk management require that\na fund employ independent risk service provi
C. When considering a leveraged fund, the specialist\nshould assess how the fund estimates risks relate
D. d. It is crucial to assess the fund's valuation policy, and in general if more than 10% of asset prices are based on model prices or broker quotes,the specialist should recommend against investment in the fund regardless of other information available about the fund.
参考答案：C
【莽学解析】Generally speaking, with a leveraged fund, an investorwill need to evaluate historical and current changes in leverage, as well asthe level of liquidity of the portfolio, particularly during times of marketstress. Certain strategies may in fact expose an investor to tail risk, sowhile an investor should inquire whether the manager believes that tail riskexists, and whether or not it is hedged, it is then up to the investor todecide whether to accept the risk unhedged or hedge it on their own. Many fundsemploy independent risk service providers to report risks to investors, butthese firms do not get involved in risk related decision making. And finally,while it is important to know what percentage of the assets is exchange-tradedand marked to market, what might be acceptable may differ depending on thestrategy of the fund. (2)

33. Gail Gordon has been discussing the causes of the recent financial crisis with her colleagues. During the discussion, Gordon commented that three initial key conditions caused the spread of the crisis: (1) lack of adequate reserves in the banking system, (2) lack of adequate capital and high leverage, and (3) lack of investor confidence in the financial system. How many of the initial key crisis conditions has Gordon correctly identified?
A. None.
B. One.
C. Two.
D. Three.
参考答案：C
【莽学解析】Gordon identified only two of thethree key initial conditions correctly. The three conditions were: (1)inadequate capital of the banking system coupled with high leverage, (2) inadequatefiscal reserves, and (3) large degree of interconnectedness of the global financialmarkets. (0)

34. Samantha Moore manages a hedge fund for a mid-sized money management firm. The fund frequently changes styles according to identified profit opportunities. At the beginning of the year, the fund took a long position in 10-year subordinated 8% coupon debt issued by a firm

expected to undergo reorganization under Chapter 11. Moore felt that analysts had been paying too little attention to the issuer. Six months later, the fund completed a second transaction involving a long position in Swiss Francs and a short position in Japanese Yen based on forecasted movements in interest rates in the two countries. What two hedge fund strategies are most likely being employed by Moore's hedge fund?

A. Distressed\nsecurities strategy and equity long\/short strategy.

B. Fixed-income\narbitrage and global macro strategy.

C. Distressed\nsecurities strategy and global macro strategy.

D. Fixed-income\narbitrage and equity long\/short strategy.

参考答案：C

【莽学解析】Ina distressed securities strategy, the manager takes a long position in the financialsecurities of a financially troubled company, holding the securities throughthe restructuring or bankruptcy process to capture value that is unrecognizedby the marker. The manager may also utilize short positions, but this is not anecessary element of the strategy. Global macro strategies take long and shortpositions in financial instruments (such as currencies, interest rates, debt,equities, and commodities) based on expected changes in global capital markets.    (1)

35. The Westover Fund is a portfolio consisting of 42% fixed-income investments and 58% equity investments. The manager of the Westover Fund recently estimated that the annual VaR (5%), assuming a 250-day year, for the entire portfolio was $1,367,000 based on the portfolio's market value of $12,428,000 and a correlation coefficient between stocks and bonds of zero. If the annual loss in the equity position is only expected to exceed $1,153,000 five percent of the time, then the daily expected loss in the bond position that will be exceeded five percent of the time is closest to:

A. 46445

B. 72623

C. 55171

D. 21163

参考答案：A

【莽学解析】

$$VaR^2_{portfolio} = VaR^2_{Stocks} + VaR^2_{Bonds} + 2VaR_{Stocks}VaR$$

$$(1,367,000)^2 = (1,153,000)^2 + VaR^2_{Bonds} + 2(1,153,0$$

$$VaR_{Bonds} = [(1,367,000)^2 - (1,153,000)^2]^{0.5} = 734,$$

Next convert the annual $VaR_{Bonds}$ to daily $VaR_{Bonds}$:

36. During the financial crisis of 2007-2009, reference rates such as the London Interbank Offered Rate (LIBOR) were less usable for market participants. This evidence calls into question which of the characteristics of an effective reference rate?

A. Reliability.

B. Robustness.

C. Availability

D. Representativeness.

参考答案：B

【莽学解析】Reliabilityand robustness are important characteristics of an effective reference rate. Reliabilityrefers to the degree to which governance and administration protects against manipulationand error and is particularly important for market integrity and functioning.Robustness indicates the availability and usability of reference rates during periodsof stress. Unsecured interbank markets were considered robust and reliable untilthe financial crisis. Since then, the notion has been challenged. Availabilityrefers to whether rates are readily available and published on dedicated sites.Representativeness refers to the relevance of rates to contracts and isimportant for correct pricing.      (4)

37. How many of the following statements regarding risk budgeting are correct? I. Tracking error is defined as the standard deviation of the difference between the returns on a portfolio and the benchmark portfolio. II. Using only information ratios allows risk of entire (firm) portfolios to be budgeted (allocated) across various portfolios managed by separate managers. III. The optimal weights of the allocations to various fund managers (of a firm) do not necessarily have to sum to one. IV. The benchmark portfolio cannot be assigned any weight under the optimal allocation scheme across active fund managers of a firm.

A. One.

B. Two.

C. Three.

D. Four.

参考答案：B

【莽学解析】Optimalallocation is not only dependent on information ratios but also on the trackingerrors. So Statement II is incorrect. Statement III is correct; any difference(in case of less than 100% optimal allocation) can be assigned to the benchmarkportfolio. Therefore, Statement IV is incorrect. Tracking error is defined asthe standard deviation of the difference between the returns on a portfolio andthe benchmark portfolio.      (1)

38. Brenden Hemme, a portfolio manager with Quantum Funds, is constructing an equally weighted, two-asset portfolio. Asset returns are normally distributed. Hemme would like to limit the portfolio VaR to $45 million at the 95% confidence level. He will invest $200 million in each asset. Given the following information, determine which two-asset portfolio allows Hemme to remain within the proposed risk budget.

| Asset | Standard Deviation | Correlation |
|---|---|---|
| Asset A | 10% | Correlation of A with B = 0 |
| Asset B | 9% | Correlation of B with C = −0 |
| Asset C | 11% | Correlation of C with A = |

A. Portfolio AB.

B. Portfolio AC.

C. Portfolio BC.

D. All three potential portfolios exceed Hemme's\nrisk budget.

参考答案：C

【莽学解析】Standard deviation of returns for Portfolio AB = ［(0.5)2(10)2 + (0.5)2(9)2 + (2x0.5x0.5x10x9x0.6)]1/2 =8.50% VaRAB = 1.6 x 0.085 x $400 = $56.1 million Standard deviation of returns for Portfolio AC = [(0.5)2(10)2 + (0.5)2(11)2 + (2x0.5x0.5x10x11x0.0)]1/2 = 7.43% VaRAC = 1.65 x 0.743 x $400 = $49.04 million Standard deviation of returns for Portfolio BC = ［(0.5)2(9)2 + (0.5)2(11)2 + (2x0.5x0.5x9x11x(-0.4))]1/2 = 5.54% VaRBC = 1.65 x 0.0554 x $400 = $36.56 million Based on a limit of $45 million, Portfolio BCremains in Hemme's risk limit. The portfolio standard deviation is lower forPortfolio BC because the correlation coefficient is negative, reducing the VaR. (1)

39. Donna Fenstine, FRM, is a credit analyst. In a presentation to investors on the recent Eurozone crisis, Fenstine mentioned that during the first stages of the crisis, there was generally a positive correlation between bank and sovereign credit default swap (CDS) spreads as both sovereign and bank CDS spreads rose dramatically. However, as the euro-area banking sector problems became much more evident, the correlation turned negative as bank CDS spreads rose while sovereign spreads declined. Are Fenstine's statements with regard to positive and negative correlation correct?

A.

| | Positive correlation | Negative correlation |
| --- | --- | --- |
| a. | Correct | Correct |
| b. | Correct | Incorrect |
| c. | Incorrect | Correct |
| d. | Incorrect | Incorrect |

B. 无

C. 无

D. 无

参考答案：D

【莽学解析】During the first stages of the crisis, there wasgenerally a negative correlation between bank and sovereign CDS spreads as mostsovereign CDS spreads rose dramatically while bank CDS spreads declined. However,as the euro-area banking sector problems became much more evident, thecorrelation turned positive as both bank and sovereign CDS spreads rose. (3)

40. Fixed income arbitrage funds attempt to obtain profits by exploiting inefficiencies and price anomalies between related fixed-income securities. The fund managers try to limit volatility by hedging exposure to interest rate risk. Which of the following types of fixed-income trades bets that the fixed side of a spread will stay higher than the floating side of a spread?

A. Swap spread\ntrade.

B. Credit\narbitrage trades.

C. Mortgage spread\ntrades.

D. Fixed-income\nvolatility trades.

参考答案：A

【萪学解析】A swap spread trade is a bet that the fixed side of thespread will stay higher than the floating side of the spread, and stay in a reasonablerange according to historical trends.(5)

41. A risk analyst is evaluating the risk of a portfolio of stocks. Currently, the portfolio is valued at EUR 110 million and contains EUR 10 million in stock A. The standard deviation of returns of stock A is 12% annually and that of the overall portfolio is 19% annually. The correlation of returns between stock A and the portfolio is 0.5. Assuming the risk analyst uses a 1-year 99% VaR and that returns are normally distributed, how much is the component VaR of stock A?

A. EUR 0.254 million

B. EUR 0.986 million

C. EUR 1.396 million

D. EUR 3.499 million

参考答案：C

【萪学解析】Let (99%) represent the 99% confidence factor forthe VaR estimate, which is 2.326. VaRA=wA* σA*α(99%) =EUR10million x 0.12x 2.326= EUR 2.792 million Component VaRA= ρ*VaRA = 0.5*2.792=EUR 1.396 million(4)

42. Rick Masler is considering the performance of the managers of two funds, the HCM Fund and the GRT Fund. He uses a linear regression of each manager's excess return (ri) against the excess returns of a peer group (rB): $r_i = a_i + b_i* r_B + \varepsilon_i$ The information he complies is as follows:

| Fund | Initial Equity | Borrowed Funds | Total Investm |
|------|----------------|----------------|---------------|
| HCM | USD 100 | USD 0 | USD 100 |
| GRT | USD 500 | USD 3,000 | USD 3,500 |

Based on this information, which of the following statements is correct?

A. The regression suggests that both managers have\ngreater skill than the peer group.

B. The ai term measures the extent to which\nthe manager employs greater of lesser amounts of leverage

C. If the GRT Fund were to lose 10% in the next period,\nthe return on equity would be -60%.

D. The sensitivity of the GRT fund to the benchmark\nreturn is much higher than that of the HCM fund.

参考答案：D

【莽学解析】Statement d is correct as can be seen from the bi coefficient. It is higher for GRT and lower for HCM. This indicates that the sensitivity of the GRT fund to the benchmark return is much higher than that of the HCM fund. (9)

43. A risk manager assumes that the joint distribution of returns is multivariate normal and calculates the following risk measures for a 2-asset portfolio:

| Asset | Position | Individual VaR | Margina |
|---|---|---|---|
| 1 | USD 100 | USD 23.3 | 0.17 |
| 2 | USD 100 | USD 46.6 | 0.44 |
| Portfolio | USD 200 | USD 61.6 | |

If asset 1 is dropped from the portfolio, what will be the reduction in portfolio VaR?

A. USD 15.0
B. USD 38.3
C. USD 44.0
D. USD 46.6

参考答案：A

【莽学解析】a is correct: The new portfolio VaR is that of asset 2 alone (USD 46.6), which implied a reduction in portfolio VaR of USD 61.6 - USD46.6 = USD 15.0. (2)

44. A risk manager assumes that the joint distribution of returns is multivariate normal and calculates the following risk measures for a 2-asset portfolio:

| Asset | Position | Individual VaR | Margina |
|---|---|---|---|
| 1 | USD 100 | USD 23.3 | 0.17 |
| 2 | USD 100 | USD 46.6 | 0.44 |
| Portfolio | USD 200 | USD 61.6 | |

Let $\beta i = \rho ip*\sigma i/\sigma p$ where $\rho ip$ denotes the correlation between the return of asset I and the return of the portfolio, $\sigma i$ is the volatility of the return of asset i and $\sigma p$ is the volatility of the return of the portfolio. What is $\beta 2$?

A. 0.714
B. 1.429
C. 1.513
D. Cannot determine from information provided.

参考答案：B

【莽学解析】Marginal VaRi = βi*PortfolioVaR/Portfolio ValueSo, βi = Marginal VaRi*PortfolioValue/Portfolio VaRβ2 = 0.44*200/61.6 = 1.429  (1)

45. You are evaluating the performance of Valance, an equity fund designed to mimic the performance of the Russell 2000 Index. Based upon the information provided below. what is the best estimate of the tracking error of Valance relative to the Russell 2000 Index?

- Annual volatility of Valance: 35%
- Annual volatility of Russell 2000 Index: 40%
- Correlation between Valance and the Russell 2000 Index: 0.90

A. 3.1%
B. 17.5%
C. 39.6%
D. 53.2%

参考答案：B

【莽学解析】

$$\omega^2 = \sigma(p - B)^2$$
$$= \sigma(p)^2 + \sigma(B)^2 - 2 \times \sigma(p) \times \sigma(B) \times \rho$$
$$= 0.35^2 + 0.4^2 - 2 \times 0.35 \times 0.4 \times 0.9 = 0.0305$$
$$\omega = 17.5\%$$

Where, p = portfolio returnsB = benchmark returnsP = correlation between benchmark and portfolio(2)

46. Consider a USD 1 million portfolio with an equal investment in two funds. Alpha and Omega, with the following annual return distributions:

| Fund | Expected Return | Volatility |
|------|-----------------|------------|
| Alpha | 5% | 20% |
| Omega | 7% | 25% |

Assuming the returns follow the normal distribution and that there are 252 trading days per year, what is the maximum possible daily 95% Value-at-Risk (VaR) estimate for the portfolio?

A. USD 16,587

B. USD 23,316

C. USD 23,459

D. USD 32,973

参考答案：B

【莽学解析】This question teststhat the candidates understands correlation in calculating portfolio VaR. fromthe table, we can get daily volatility for each fund:Fund Alpha volatility: 0.20/2520.5=1.260%Fund Omega volatility: 0.25/2520.5=1.575%Portfolio variance:0.52*0.012592+0.52*0.015472+2*0.5*0.5*0.01259*0.01574*ρ Portfolio volatility = (portfolio variance)0.5Portfolio volatility is least when ρ=-1 → portfolio volatility = 0.1575%Portfolio volatility is greatest when ρ=1 → portfoliovolatility = 1.4175%Therefore, 95% VaR maximum is 1.645*0.014175*1,000,000 =USD 23,316(5)


47. Galileo Vehicles (GV) and Leonardo Motors (LM) are both leading car manufacturers in hybrid car designs. Earlier this year, both companies introduced new hybrid models that are comparable to each other in almost every category. However, after both companies release pricing for their new models, LM's model is 20% less expensive than GV's. As a result, GV's stock price declined sharply while LM's stock price rose dramatically. Subsequently LM and GV announce that they have entered into merger discussions where the terms of the planned merger would give GV shareholders 1 share of LM per 3 shares of GV previously held. Post the announcement, GV's stock is trading at USD 20 and LM's stock is trading at USD 58. If you are confident that the merger will be completed, assuming zero transaction costs, which of the following investments should you make?

A. Buy 300 shares of GV and short 100 shares of LM.

B. Short 300 shares of GV and buy 100 shares of LM.

C. Buy 300 shares of GV and buy 100 shares of LM.

D. Short 300 shares of GV and short 100 shares of LM.

参考答案：B

【莽学解析】If the merger goes through, the companies' prices shouldcorrespond on a 3:1 basis, with 1 share of LM corresponding to 3 shares of GV.However, at the given trading prices the ratio does not hold, with one share ofLM being equal to USD 58 / USD 20, or 2.9 shares of GV. This shows that LM isundervalued compared to GV given the terms of the merger agreement. If themerger is completed, LM's stock will appreciate and/or GV's stock willdepreciate relative to each other until the ratio reaches 3:1. In order to exploit this potential arbitrage opportunity,you can short 300 shares of the relatively overvalued stock GV, resulting in acash inflow of USD 6000, while buying 100 shares of the relatively undervaluedstock LM for USD 5800, resulting in a net cash inflow of USD 200. If the mergeris completed, then the long and the short positions will exactly offset eachother given the 3:1 ratio and the trade will be closed. The original cashinflow of USD 200 would be your profit from this arbitrage trade if the mergeris completed.(5)


48. At the end of 2007, Chad & Co.'s pension had USD 350 million worth of assets that were fully invested in equities and USD 180 million in fixed-income liabilities with a modified duration of 14. In 2008, the widespread effects of the subprime crisis hit the pension fund, causing its investment in equities to lose 50% of their market value. In addition, the immediate response from the government — cutting interest rates — to salvage the situation, caused bond yields to decline by 2%. What was the change in the pension fund's surplus in

2008?

A. USD -55.4 million

B. USD -124.6 million

C. USD -225.4 million

D. USD -230.4 million

参考答案：C

【莽学解析】The change in the pension fund's surplus for the year2008 is equal to the initial surplus S0 at the end of 2007 less the endingsurplus S1 at the end of 2008. The initial surplus is calculated as S0 =A0 - L0 = 350 - 180 = 170, where A0 = thefirm's initial assets and L0 the firm's initial liabilities.Next we have to calculate the surplus at the end of 2008.Given the 50% decline in the equity market, the new level of assets A1 at theend of 2008 is equal to: (1 - 0.5) * 350, or 175The new level of liabilities L1 can be calculated as:L1 = (1 - (MD * Δy)) * L0where MD is the modified duration, and Δy is the change in yield.Liabilities at end of 2008 are equal to:L1= (1 - (14 * -0.02)) * 180 = 230.4. Therefore, the 2008 surplus S1 is equal to A1 - L1 = 175 - 230.4 = -55.4 (which implies the pension fund isactually in a deficit situation at the end of 2008). The change in surplus for2008 is hence S1 - S0 = -55.4 - 170 = -225.4 million. (6)

49. A portfolio has USD 2 million invested in Stock A and USD 1 million invested in Stock B. The 95% 1-day VaR for each individual position is USD 40,000. The correlation between the returns of Stock A and Stock B is 0.5. While rebalancing, the portfolio manager decides to sell USD 1 million of Stock A to buy USD 1 million of Stock B. Assuming that returns are normally distributed and that the rebalancing does not affect the volatility of the individual stocks, what effect will this have on the 95% 1-day portfolio VaR?

A. There will be no effect.

B. It will increase by USD 20,370.

C. It will increase by USD 21,370.

D. It will increase by USD 22,370.

参考答案：D

【莽学解析】

$$VaR_{Port\,(A,B)} = \sqrt{(VaR_A^2 + VaR_B^2 + (2\rho * VaR_A * VaR_B)}$$

$$\sqrt{40000^2 + 40000^2 + (2 * 0.5 * 40000 * 40000)} = USD\ 69,282.$$

After the rebalance, the market value of the position inStock A is halved, so VaR(A) is now equal to $20,000. Meanwhile the marketvalue for the position in B has doubled so that VaR(B) is now $80,000. Hence wecan now calculate the VaR of the new portfolio as follows:PortfolioVaR (after) =

$$\sqrt{20000^2 + 80000^2 + (2 * 0.5 * 20000 * 80000)} = USD\ 91,652.$$

So the VaR will increase by (91,652 - 69,282), or USD22,370. (1)

50. Which statement about risk control in portfolio construction is correct?

A. Quadratic programming allows for risk control through\nparameter estimation but generally requires m

B. The screening technique provides superior risk control\nby concentrating stocks in selected sectors

C. When using the stratification technique, risk control\nis implemented by overweighting the categorie

D. When using the linear programming technique, risk is\ncontrolled by selecting the portfolio with the

参考答案：A

【莽学解析】Quadratic programming requires many more inputs thanother portfolio construction techniques because it entails estimatingvolatilities and pair-wise correlations between all assets in a portfolio. Quadratic programming is a powerful process, but given the large number ofinputs it introduces the potential for noise and poor calibration given theless than perfect nature of most data. On the other hand, the screening technique strives for riskcontrol by including a sufficient number of stocks that meet the screeningparameters and by weighting them to avoid concentrations in any particularstock. However, screening does not necessarily select stocks evenly acrosssectors and can ignore entire sectors or classes of stocks entirely if they donot pass the screen. Therefore, risk control in a screening process isfragmentary at best. Stratification separates stocks into categories (forexample, economic sectors) and implements risk control by ensuring that theweighting in each sector matches the benchmark weighting. Therefore, it doesnot allow for overweighting or underweighting specific categories. Linear programming does not necessarily select theportfolio with the lowest level of active risk. Rather, it attempts to improveon stratification by introducing many more dimensions of risk control andensuring that the portfolio approximates the benchmark for all thesedimensions. （3）