FOREIGN TRADE UNIVERSITY
HCMC CAMPUS
PROFESSIONAL OPERATION FACULTY

PAPER NO. 1

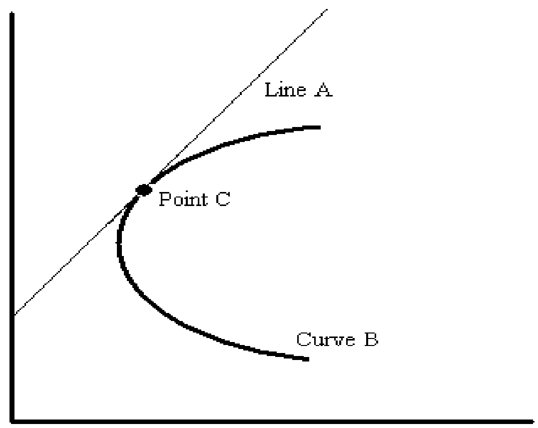
FINAL EXAM QUESTIONS
PORTFOLIO MANAGEMENT

Semester: 1 Academic year: 2018 – 2019
Full-time/Part-time: Full time
Class code: 07
Form of Exam: Writen and Multiple choice
Duration: 90 minutes *(excluding paper distribution time)*

SECTION A. MULTIPLE CHOICE (4 points)

There are 20 questions in this exam. Please choose ONE answer for each question. Each question is worth 0.2 points.

1. Which of the following is not true regarding the diagram below?



A) Point C represents a portfolio with a zero weight in the risk free asset.
B) Some portfolios on Curve B may have a non-zero weight in the risk-free asset.
C) Every portfolio on line A below point C has a positive weight in the risk-free asset.

2. In contrast to the CAPM model, APT:
A) Uses risk premiums based on micro variables.
B) Specifies the number and identifies specific factors that determine expected returns.
C) Does not require the restrictive assumptions concerning the market portfolios.

3. Which of the following statements about the efficient frontier is *least* accurate?
A) Investors will want to invest in the portfolio on the efficient frontier that offers the highest rate of return.
B) Portfolios falling on the efficient frontier are fully diversified.
C) The efficient frontier shows the relationship that exists between expected return and total risk in the absence of a risk-free asset.

4. Which of the following statements about portfolio management is *most* accurate?
A) The security market line (SML) measures systematic and unsystematic risk versus expected return; the CML measures total risk.
B) Combining the capital market line (CML) (risk-free rate and efficient frontier) with an investor's indifference curve map separates out the decision to invest from the decision of what to invest in.
C) As an investor diversifies away the unsystematic portion of risk, the correlation between his portfolio return and that of the market approaches negative one.

5. Luis Green is an investor who uses the security market line to determine whether securities are properly valued. He is evaluating the stocks of two companies, Mia Shoes and Video Systems. The stock of Mia Shoes is currently trading at $15 per share, and the stock of Video Systems is currently trading at $18 per share. Green expects the prices of both stocks to increase by $2 in a year. Neither company pays dividends. Mia Shoes has a beta of 0.9 and Video Systems has a beta of (-0.30). If the market return is 15% and the risk-free rate is 8%, which trading strategy will Green employ?

	Mia Shoes	Video Systems
A)	Sell	Buy
B)	Buy	Sell
C)	Buy	Buy

The required return for Mia Shoes is 0.08 + 0.9 × (0.15-0.08) = 14.3%. The forecast return is $2/$15 = 13.3%. The stock is overvalued and the investor should sell it. The required return for Video Systems is 0.08 - 0.3 × (0.15-0.08) = 5.9%. The forecast return is $2/$18 = 11.1%. The stock is undervalued and the investor should buy it.

6. An investment policy statement does NOT provide which of the following?
   A) Long-term investment decision making guidelines.
   B) Guaranteed investment returns.
   C) Weighting ranges for asset allocation.

7. Brad Piasecki is a successful 35 year old executive in the technology industry with a company that is growing rapidly. Piasecki has a pre-tax income of $150,000 per year, and manages to live well below his means. Piasecki is currently saving for both his retirement, which will take place in 30 years, as well as funding his daughter's college education, which will begin in 15 years. Piasecki's investment manager has determined that based on contributions to his portfolio, Piasecki requires at a minimum, an 8 percent annualized return on his investments in order to meet his goals. He also states that Piasecki should invest in a diversified stock and corporate bond portfolio that provides total return with an emphasis on capital gains. When his investment manager gives Piasecki his recommendations, Piasecki replies "I have seen too many of my colleagues buy risky stocks and have their portfolios wiped out. I only want to buy Treasury bonds for my portfolio". Piasecki checks the yields on Treasury bonds, and sees that best yield he can obtain is 4.5 percent. Which of the following would be the best course of action for Piasecki's investment manager?
   A) Invest 50 percent in Treasury bonds and 50 percent in the diversified stock/corporate bond portfolio to provide a balance between Piasecki's risk tolerances and required return.
   B) Invest in the Treasury bonds since willingness to take risk always supersedes ability to take risk.
   C) Recommend investor education and a reassessment of portfolio objectives since the investor's view is inconsistent with his goals and ability to take risk.

8. Joanne Sparta is a 48-year old, successful physician who earns in excess of $500,000 per year. She has also been successful speculating on small business startups, which has added an average of $200,000 to her annual income over the last 10 years. Sparta travels extensively. She likes to consider herself someone who lives in the fast lane and possesses refined tastes in both the arts and entertainment. Sparta's annual expenses, including travel and entertainment, average $375,000. Sparta has no foreseeable liquidity needs, legal, regulatory, or tax concerns, and has no unique circumstances. Which of the following most appropriately describes Sparta's ability and willingness to bear risk? Sparta is:
   A) willing, but unable to accept risk.
   B) both willing and able to accept risk.
   C) neither able or willing to accept risk.

9. Which of the following investors would be more likely to pursue passive equity management strategies?
   A) A taxable investor who believes markets are efficient.
   B) A nontaxable investor who believes markets are efficient.
   C) A taxable investor who believes markets are inefficient.

Questions 10 and 11 are based on the following information

Welch employs a multifactor model to evaluate individual stocks and portfolios. Welch examines several possible risk factors and finds two that are priced in the marketplace. These two factors are inflation (IF) risk and GDP (GDP) risk. According to the APT, an arbitrage opportunity exists unless

$$E\left(R_p\right) = \lambda_0 + \lambda_1\beta_{p,1} + \lambda_2\beta_{p,2}$$

Welch examines four portfolios J, K, L and M. Portfolios J, K and L are well-diversified no-arbitrage portfolios. Portfolio M is not. The expected returns, and sensitivity to each factor of each fund are shown below in Exhibit 1.

Exhibit 1.

Portfolio	Expected return	Sensitivity to inflation factor	Sensitivity to GDP factor
J	14%	1.0	1.5
K	12%	0.5	1.0
L	11%	1.3	1.1
M	13.5%	1.1	1.433

10. Estimate the three parameters of the APT model according to Exhibit 1:

	λ_0	λ_1	λ_2
A)	7%	-2%	6%
B)	6%	0.5%	5%
C)	8%	-3%	7%

11. To exploit the arbitrage opportunities, we should
    A) sell portfolio M using the money from buying a portfolio consist of 2/3 in portfolio J and 1/3 in portfolio L.
    B) buy portfolio M using the money from selling a portfolio consist of 2/3 in portfolio J and 1/3 in portfolio L.
    C) buy portfolio M using the money from selling a portfolio consist of 4/5 in portfolio L and 1/5 in portfolio L.

12. What is the expected return of the three stock portfolio described below?

Common Stock	Market Value	Expected Return
Ando Inc.	51,000	12.0%
Bee Co.	24,000	9.0%
Cool Inc.	45,000	15.0%

A) 13.44% B) 12.53% C) 13.27%

13. Correlations among stock market indexes in different countries have generally _____________ over time because ______________.
    A) remained relatively constant; country-specific risk has remained relatively constant
    B) increased; country-specific risk has decreased
    C) increased; of greater economic integration

14. Which of the following client portfolios is most likely to generate the highest trading costs?

Portfolio	*Allocation*	*Rebalancing Discipline Employed*
A	40% Corporate Bonds; 30% Mortgage-Backed Bonds; 30% Government Bonds	Rebalanced on the last day of each calendar quarter.
B	25% Domestic Equity; 25% Real Estate; 25% International Equity; 25% Corporate Bonds	Rebalanced within an allowable range of 5% for each asset class.
C	40% Domestic Equity; 30% International Equity; 30% Government Bonds	Rebalanced to precise target weights if allocation strays from target.

A) Portfolio C. B) Portfolio A. C) Portfolio B.

15. Given the following data, how is the manager's performance most accurately characterized?

Manager's Return	5.2%
Benchmark Return	6.3%
Market Index Return	4.3%

A) The manager earned an excess return from style and active management.
B) The manager earned an excess return from style but not from active management.
C) The manager earned an excess return from active management but not from style.

16. Which of the following statements about risk/return investment manager performance measures is *least* accurate?
    A) The Sharpe measure includes company-specific risk as part of its performance measurement.
    B) When measuring the performance of an equity fund, if the Sharpe ratio is 0.55, and the Treynor measure is 0.47, the difference is attributable to unsystematic (company-specific) risk.
    C) The Treynor measure includes company-specific risk as part of its performance measurement.

17. Bill Smith is evaluating the performance of four large-cap equity portfolios: Funds A, B, C and D. As part of his analysis, Smith computed the Sharpe ratio and the Treynor measure for all four funds. Based on his finding, the ranks assigned to the four funds are as follows:

Fund	*Treynor Measure Rank*	*Sharpe Ratio Rank*
A	1	4
B	2	3
C	3	2
D	4	1

The difference in rankings for Funds A and D is *most likely* due to:
A) different benchmarks used to evaluate each fund's performance.
B) a difference in risk premiums.
C) a lack of diversification in Fund A as compared to Fund D.

Use the following information to answer Questions 18 through 20

Millennium Investments (MI), an investment advisory firm, relies on mean-variance analysis to advise its clients. MI's advisors make asset allocation recommendations by selecting the mix of assets along the capital allocation line that is most appropriate for each client. One of Ml's clients, Edward Alverson, 60 years of age, requests an analysis of four risky mutual funds (Fund W, Fund X, Fund Y, and Fund Z). After examining the four funds, MI finds that all four mutual funds are equally weighted portfolios, and that all of the funds, except Fund Z, are mean-variance efficient. MI also finds that the correlations between all pairs of the mutual funds are less than one. MI calculates the average variance of returns across all assets within each mutual fund, the average covariance of returns across all pairs of assets within each mutual fund, and each mutual fund's total variance of returns. The results of MI's calculations are reported in Exhibit 2.

Exhibit 2: Mutual Fund Risk Statistics

	Average Asset Variance	Average Covariance	Fund Total Variance
Fund W	0.60	0.24	0.25
Fund X	0.60	0.24	0.36
Fund Y	0.40	0.10	0.16
Fund Z	0.40	0.10	0.25

During his meeting with the MI advisors, Alverson explains that he will retire soon, and, consequently, is highly risk-averse. Alverson agrees with MI's reliance on mean-variance analysis and makes the following statements:

Statement 1: All portfolios lying on the minimum variance frontier are my desirable portfolios.

Statement 2: Because I am highly risk-averse, I expect that my investment portfolio on the capital allocation line will have risk and return equal to that of the global minimum variance portfolio.

Ml operates under the assumption that all investors agree on the forecasts of asset expected returns, variances, and correlations. Based on these assumptions, Ml created the Millennium Investments 5000 Fund (MI-5000), which is a market value-weighted portfolio of all assets in the market. MI derives the forecasts for the MI-5000 Fund and for a fund comprising short-term government securities shown in Exhibit 3.

Exhibit 3: Capital Market Forecasts Asset Expected Return Standard Deviation

Asset	*Expected Return*	*Standard Deviation*
MI-5000 Fund	0.12	0.20
Government Securities Fund	0.05	0

After assessing Alverson's level of risk aversion, MI's advisors determine that the appropriate standard deviation for Alverson's investment portfolio equals 12%, and that Alverson can achieve his target standard deviation through appropriate allocations to the MI-5000 Fund and to the Government Securities Fund.

18. Of the four mutual funds listed in Exhibit 3, which is most likely to include the largest number of assets?

    A) Fund W. B) Fund X. C) Fund Z.

19. Are Statements 1 and 2 made by Alverson correct?
    A) Statement 1 is incorrect.
    B) Statement 2 is incorrect.
    C) Both statements are incorrect.

20. Given the data in Exhibit 4 and MI's determination that Alverson's investment portfolio should have a standard deviation equal to 12%, what is the highest possible expected return for Alverson, and what percentage should Alverson invest in the MI-5000 fund?

	Highest expected return	Percentage invested in MI-5000
A)	7.2%	40%
B)	7.2%	60%
C)	9.2%	60%

SECTION B. EXERCISES (6 points)

Question 1. Individual Investors (3 points)

Barney Smythe, 40, and his wife Heather, 39, are considering what to do with a recent windfall they received after the untimely death of Heather's mother. The windfall is estimated to be \$2,500,000 (after taxes). Barney is currently a supervising mechanic at a local luxury car dealership and has a salary of \$48,750 annually. Heather is, and always has been, a stay-at-home mom. The Smythes have two children, Lenny, 12, and Buford, 10. By design, . the Smythes owe no debt and pay their expenses on a monthly basis. Family expenses last year amounted to approximately \$150,000.

In addition to the inheritance they will receive, the Smythes have an additional \$1,250,000 in cash equivalents. The savings are what remain from a large settlement the Smythes received when Heather was injured on the job five years ago. Barney and Heather have approached Net Worth Enhancers, PC, for assistance in managing their portfolio. The Smythes made the following statements at a recent client discovery meeting:

- "One of our goals at this stage in our lives is to pay for the college education of our children. We would like both of them to go to Heather's alma mater, which is a prestigious liberal arts institution."
- "We expect our annual expenses to increase at the general rate of inflation of 2%."
- "We want to retire at 65 and be able to live comfortably, but not extravagantly."
- "We are taxed at 25% on both income and capital gains."
- "We believe our portfolio should never suffer an annual loss of more than 5%. In addition, we do not want to invest in any individual investment or security that is too risky."
- "We do not foresee any unusual expenses over the short term. As always, we would like to have enough cash on hand for emergencies."

Required:

- **Determine** the Smythes' willingness and ability to take risk, their overall risk tolerance, and their required after-tax nominal return for the coming year. (2 points)
- **Determine** Smythes' investment constraints. (1 point)

Question 2. Portfolio Evaluation (1.5 points)

The Sterling Foundation is evaluating its equity portfolio performance over the past year. For the third consecutive year, the portfolio has posted a double digit overall return. Still, the trustees of the foundation would like a more detailed analysis of their returns. The portfolio is allocated into three segments-domestic large capitalization stocks, domestic small capitalization stocks, and international stocks. The Rawls Group, a consulting firm, makes the asset allocation decision among the three segments at the beginning of each year. The segment weights and returns for the past year are provided in the following table:

	Weights		*Returns*	
Asset Class	*Portfolio*	*Benchmark*	*Portfolio*	*Benchmark*
Large cap stocks	0.60	0.50	12.5%	10.0%
Small cap stocks	0.25	0.30	16.0%	18.5%
International stocks	0.15	0.20	10.0%	9.0%
	1.00	1.00		

In order to help evaluate the foundation's equity performance, the trustees have asked for an attribution analysis.

a. Calculate the overall returns over the past year for both the Sterling Foundation equity portfolio and the benchmark portfolio, and state whether Sterling has outperformed or underperformed the benchmark. (0.6 points)
b. Calculate both the pure sector allocation effect and the within-sector selection effect of Sterling's performance relative to the benchmark. (0.6 points)
c. Based on your answers to Parts A and B, **evaluate** Sterling's performance relative to the benchmark. (0.3 points)

Question 3. (1.5 points)

Chandra Pabst, CFA, is an equity portfolio manager at an advisory firm that provides asset management services to nonprofit organizations. The firm was recently hired by the U.S.-based Aberdeen Family Foundation. Aberdeen's board of directors was dissatisfied with its previous equity manager. Pabst is assigned to develop a strategy for the equity portion of the portfolio.

In her initial meeting with the Aberdeen investment committee, Pabst compiled the following notes:

The committee agrees that security prices reflect publicly available information.

- The committee expects a decline in interest rates.
- The board fired the previous equity manager because the portfolio had tracking risk exceeding 1%.
- Aberdeen pays taxes on interest, dividends, and realized capital gains.
- The board is willing to accept a low information ratio as long as returns are sufficient to maintain targeted spending.
- At the end of the meeting, Pabst recommends that the Aberdeen portfolio be managed using a passive approach. The committee agrees with Pabst's recommendation.

Pabst next begins to transition Aberdeen's portfolio holdings. She is constructing the portfolio using individual equities and is considering the following methods: full replication, stratified sampling, and optimization. The benchmark for the portfolio is the Russell 3000 Index, which is based on market capitalization and consists of 3,000 large U.S. publicly-traded companies. The value of Aberdeen's equity portfolio is 3,000,000 U.S. dollars (USD). The board prefers not to use complicated mathematical models that would be challenging to explain to donors.

a. **Justify**, with *three* reasons based only on Pabst's notes, why the use of a passive investment approach is the most appropriate for Aberdeen's equity portfolio.
b. **Determine**, from the three methods Pabst is considering, the most appropriate method for constructing the equity portfolio. **Justify** your response with *two* reasons related to Aberdeen's specific circumstances.

--------------------------------------*End of test*--------------------------------------

Note: *- This paper contains (number) 20 questions from Section A, 03 questions from Section B, 8 pages.*

*- Students are **not allowed** to use materials during the examination.*

- Invigilators shall not provide further explanation.

APPROVAL COURSE DIRECTOR (or DEAN/VICE DEAN OF THE FACULTY) (signature, full name)	LECTURER
	Nguyen Thi Hoang Anh