

FN452: Asset Management and Portfolio Analysis

Practice problems for midterm exam (No solutions provided)

1. (10 points) Answer the following questions.
 - 1.1 (3 points) What is strategic asset allocation? How is it important to investors?
 - 1.2 (4 points) Explain mutual fund fees in fund investment. How do these fees affect investment performance in the long term?
 - 1.3 (3 points) State three benefits of indices provided by MSCI or FTSE to investors.
2. (9 points) An investor forecasts a stock price next year with projected probabilities as follows.

Current stock price	Stock price next year	Probability
25	30	30%
	25	50%
	20	20%

- 2.1 (2 points) What is the expected return of the stock?
 - 2.2 (3 points) What is the standard deviation of returns of the stock?
 - 2.3 (4 points) Currently, the investor hold this stock in total value of 100,000 Baht. In the past three years, this stock has generated annualized returns of 30%, -20%, and 5%, respectively. Compute the value per share of this stock three years ago, number of shares that the investor invested in this stock, and geometric average return.
3. (8 points) A fund manager is considering three mutual funds The first if a stock fund, the second is a corporate bond fund, and the third is a money market fund that provides a safe return of 5%. The characteristics of the risky funds are as follows.

Fund	Expected return	Standard deviation
Bond fund	10%	20%
Stock fund	15%	50%

The correlation between the fund returns is -0.20.

- 3.1 (2 points) What are the investment proportions in the optimal risky portfolio?
 - 3.2 (3 points) Compute expected return, standard deviation, and Sharpe ratio of the optimal risky portfolio.
 - 3.3 (3 points) From 3.1 and 3.2, investors invest 22.22% of his initial endowment in the optimal risky portfolio and the rest in the money market fund. Compute expected return, standard deviation, and Sharpe ratio of the complete portfolio.

4. (26 points) Use the Excel file “**Thai stock and market data_202012**” which contains stock price data in sheet “Stock price”, stock market data in sheet “SETTRI”, and factor data in sheet “Factor”, to answer the following questions.
- 4.1 (8 points) Select **two** companies from different industries. Compute their expected returns, risks, and correlation coefficients using **60-month return data**. Explain the process of calculation.
- 4.2 (7 points) Construct the efficient frontier from various combinations of investment in the above two stocks. Explain the process of calculation.
- 4.3 (3 points) What are the investment proportions in the minimum-variance portfolio of these two stocks?
- 4.4 (8 points) Perform regressions for **CAPM** model and **Fama-French three-factor** model on the selected two stocks. Tabulate the regression and interpret the results.
5. (25 points) A fund manager in an asset management company have been asked to set up a new actively managed investment portfolio **on December 31, 2018**. The fund’s investments are to be made in **six stocks**, which are shown in the table below. The table also reports analyst forecasts of the under- or over-performance of the six stocks over the investment horizon of 12 months, relative to their market-implied expected returns. The Excel file “**Thai stock and market data_202012**” contains stock price data in sheet “Stock price”. Use **60-month return** of data to calculate for relevant inputs. Assume that the risk-free rate is constant at 1.00% per year, and that the expected return on the market is 7.50% per year.

Ticker	Company name	Market capitalization (THB millions)	Analyst forecast (% per year) At 31 December 2018
TISCO	Tisco Financial Group	62,650.52	-1.00%
TOP	Thai Oil	135,151.85	0.00%
BTS	BTS Group	113,122.10	1.00%
DTAC	Total Access Communication	102,407.83	0.00%
LH	Land and Houses	118,302.16	-1.00%
GLOBAL	Siam Global House	78,028.66	1.00%

- 5.1 (5 points) Construct the **variance-covariance matrix**. Explain the process of computation.
- 5.2 (20 points) Assume that the current date is December 31, 2018. Construct the following portfolios for the six stocks. Explain the process of constructing these portfolios (For portfolios 3 and 4, use the variance-covariance matrix from (5.1) to solve for investment proportions)
- Portfolio A: The market capitalization weighted portfolio
 - Portfolio B: The equal-weighted portfolio
 - Portfolio C: The optimal risky portfolio with short-sale restrictions
 - Portfolio D: The optimal active portfolio, incorporating the analyst forecasts of performance (with short-sale restrictions)