

The exam gives a maximum of 50 points (10 points for each question).

1. Discuss how market timing ability could be taken into account when portfolio managers are being evaluated.
2. The rationality assumption made in conventional finance has for some time been criticized by behavioral economists. Give some examples of how informational processing errors or behavioral irrationalities might affect investment decisions.
3. Give a brief overview of the Arbitrage Pricing Theory (APT) by Ross.
4. Plot the following risky portfolios on a graph:

| Portfolio | A | B | C | D | E | F | G | H |
|-----------------------|----|------|----|----|----|----|----|----|
| Expected return, % | 10 | 12.5 | 15 | 16 | 17 | 18 | 18 | 20 |
| Standard deviation, % | 23 | 21 | 25 | 29 | 29 | 32 | 35 | 45 |

- a) Which of these portfolios are efficient? Which portfolios are inefficient?
 - b) Suppose you can also borrow and lend at an interest-rate of 12 percent. Which of the above portfolios is the best one?
 - c) Suppose you are prepared to tolerate a standard deviation of 25 percent. What is the maximum expected return that you can achieve if you cannot borrow nor lend?
 - d) What is your optimal, if you can borrow or lend at 12 percent and are prepared to tolerate a standard deviation of 25 percent? What is the maximum expected return you can achieve?
5. You have the following information concerning 5 mutual funds:

| <u>Fund</u> | <u>Return</u> | <u>Standard Deviation</u> | <u>Beta</u> |
|-------------|---------------|-------------------------------|-------------|
| A | 14% | 6% | 1.5 |
| B | 12% | 4% | 0.5 |
| C | 16% | 8% | 1.0 |
| D | 10% | 6% | 0.5 |
| E | 20% | 10% | 2.0 |

The market return is 13%, the standard deviation of its return is 5%, and the risk-free rate is 3%.

- a) Compute the Sharpe ratio, Treynor measure, and Jensen's alpha for the funds as well as for the market.
- b) How do these measures rank the funds? Why do they not rank them in a similar fashion?
- c) You consider investing your total wealth into one fund. Which measure would you use and why?

GOOD LUCK !!!