Portfolio management
Final exam #3, August 22nd 2011
Writing time: 5 hrs Accessories: Calculator
Maximum points 50p. 25p required to pass.

1. Statement: "Taking into account management fees, the mutual fund investment industry as a whole represents a negative-sum game for investors".
   a) Explain what the statement means. (4p)
   b) If the statement is true what are its implications for the mutual fund industry and the investing public? (2p)
   c) Must the statement necessarily hold? Why/why not? (4p)

2. Why has overweighting value and/or small capitalization stocks usually returned more than the overall stock market portfolio? Should everybody then follow those investment styles? Discuss. (10p)

3. a) What are the main problems in implementing Markowitz portfolio theory in practice? (5p)
   b) What kind of remedies have been suggested in the literature to improve the practical applicability of the Markowitz model? (5p)

4. Three investors I,II and III measure the attractiveness of investment portfolio p with the utility function $U(p) = E[r_p] - 0.5*A*Var[r_p]$, where $E[r_p]$ is the expected return of portfolio p and $Var[r_p]$ the variance of portfolio p:s returns. A is the coefficient of relative risk aversion which is 10 for investor I, 4 for investor II, and 1 for investor III. Five risky investment portfolios a-e have following forecasts:

Portfolio	Expected return (% p.a)	Standard deviation of return (% p.a)
a	5%	8%
b	8%	10%
c	10%	15%
d	12%	16%
e	13%	20%

a) Given that investment into *only one* of above portfolios a-e is feasible, indicate the preferred choice for each of the three investors I, II and III. (2p)

b) Now suppose, besides investment into a single risky portfolio a-e, *also* borrowing or lending at the riskfree asset yielding 3% p.a. is allowed. There are no borrowing, lending or short sales constraints. Indicate how our three investors might adjust their original portfolio choice under this scenario. Explain. (2p)

c) Suppose borrowing at riskfree rate is restricted to a maximum of 60% debt of total portfolio value. Would this additional constraint on leverage affect portfolio choice for our three investors, if any? Explain. (2p)

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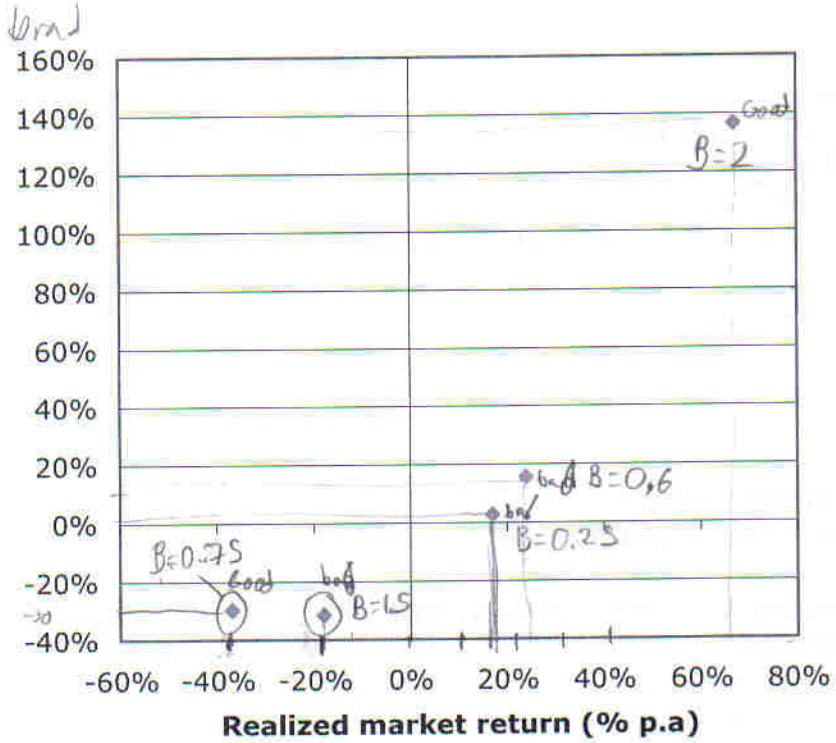
5. Investor Joe McClowdy currently invests half of his money in a well-diversified stock portfolio closely tracking a broad stock market, and the other half in riskfree Tbills. The consensus stock market total return forecast is 10% p.a. for the next 12 months. Stock market volatility is 30% p.a. and the risk free Tbills return 3% p.a.

a) Assuming the stock market index offers the best available return/risk tradeoff, what is Joe McClowdys implied constant relative risk aversion coefficient? (1p)

b) Joe's investment adviser Brad Ticker is, however, quite bullish forecasting the stock market can be expected to deliver 16% next year instead of the consensus forecast of 10% p.a. As a result, Brad advises Joe to now abandon Tbills totally and invest everything in the stock market. Do you think Brad's advice is justified? On what grounds or conditions can the advice be justified? (5p)

c) You now receive a graphical "report" (below) on Brad's forecasting track record for the past five years compared to the stock market index performance. What is your opinion on Brad's bullish investment advice to Joe in the light of this? (Tips: Would a portfolio that actually delivered Brad's returns have been attractive compared to the market portfolio? Does the chart confirm or reject the idea that Brad is an unbiased forecaster?)



(8p)

$R_m = 0.6 \cdot 0.8 \cdot 1.15 \cdot 1.2 \cdot 1.2 = 1.126$

$R_b = 0.7 \cdot 0.7 \cdot 1.05 \cdot 1.15 \cdot 2.35 = 1.39$