

UNIVERSITY OF MASSACHUSETTS

Isenberg School of Management

Department of Finance and Operations Management

FOMGT 353-Introduction to Management Science

Homework #5 – Using Excel.

Show your work completely and in an organized manner to receive maximum credit. Correct answers without supporting calculations or diagrams will not receive credit. Incorrect answers using the correct method and a good presentation will receive substantial credit.

My name is:

Risk Minimization

You are an investment advisor. Andrew is your client. He has a maximum of \$100,000 to invest. He has identified four different types of investment and will accept no others:

Investment	Rate of Return	The Risk Value you have allocated to the investment.
FarEast	16%	10
European	15%	8
USIndustrial	15%	6
USTreasuries	5%	2

Andrew also wants to invest at least \$10,000 in the FarEast, at least \$15,000 in Europe, at least \$20,000 in USIndustrials and at least \$ 30,000 in US Treasury Bills.

He wants to have an income of at least \$10,000, but is very risk averse so he would like this to come with the lowest possible risk.

1. Formulate the model.

2. Express the model in Excel, and print out the worksheet and attach it to your Homework.
3. Use the Solver to obtain a solution. Print out the Answer worksheet and the Sensitivity worksheet and attach them to your Homework.
4. What Portfolio do you recommend to Andrew?

5. Use the Sensitivity Report to work out how much extra risk Andrew would take on and by how much his income would be increased, if his income were increased as much as possible without changing the Basic Variables in the solution. (Or to put it another way, without causing another constraint to become binding!)

Extra Risk =

Extra Income =