**Quiz A for 9:45 Class: 7/18/12**     Name __Key__

Answer the following questions on the same graph assuming you can buy or short-sell any of the following assets. Assume also that you wish to earn an expected return of 20% in each of the questions.

| Asset | Expected Return | Standard Deviation |
|-------|-----------------|--------------------|
| Apple | 22% | 31% |
| Kellogg | 10% | 18% |
| T-bills | 3% | 0% |

The correlation between Apple and Kellogg is 0.1.

On the graph:

a. If you limit yourself to only buying shares of Apple and Kellogg, show the possible portfolios you could build and identify on your graph your best portfolio and the risk of this portfolio.

b. How would your answer in "a" change if you also allow yourself to short-sell Apple or Kellogg? Show on your graph how much better off or worse off you are.

c. How will your investment and risk change if you also allow yourself to buy or short-sell T-bills? Show on your graph how much better off or worse off you are.

d. Show whether you are better off or worse off if the return on T-bills falls before you can set everything up.

Written answer (not on the graph):

e. What transactions will be required to build your portfolio in part "a"?

f. What transactions will be required to shift from the portfolio you build in "a" to the portfolio you build in "b".

g. What transactions will be required to shift from the portfolio you build in "b" to the portfolio you build in "c"?
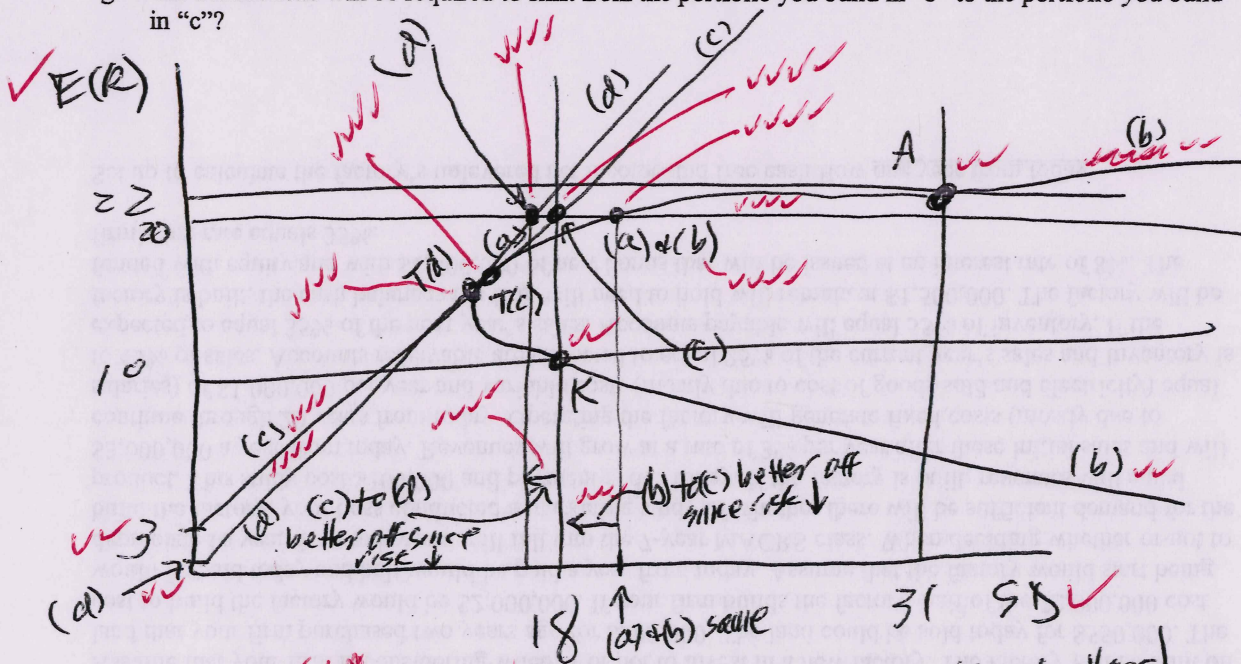


e. buy some Apple & some Kellogg (more Apple than Kellogg)

g. f. To adjust risky portfolio: sell some Apple, buy more kellogg to get to "T"
To achieve E(R)=20%, short T-Bills, buy tangent portfolio "T"

f. g. no changes needed.