

Quiz A: 7/24/14

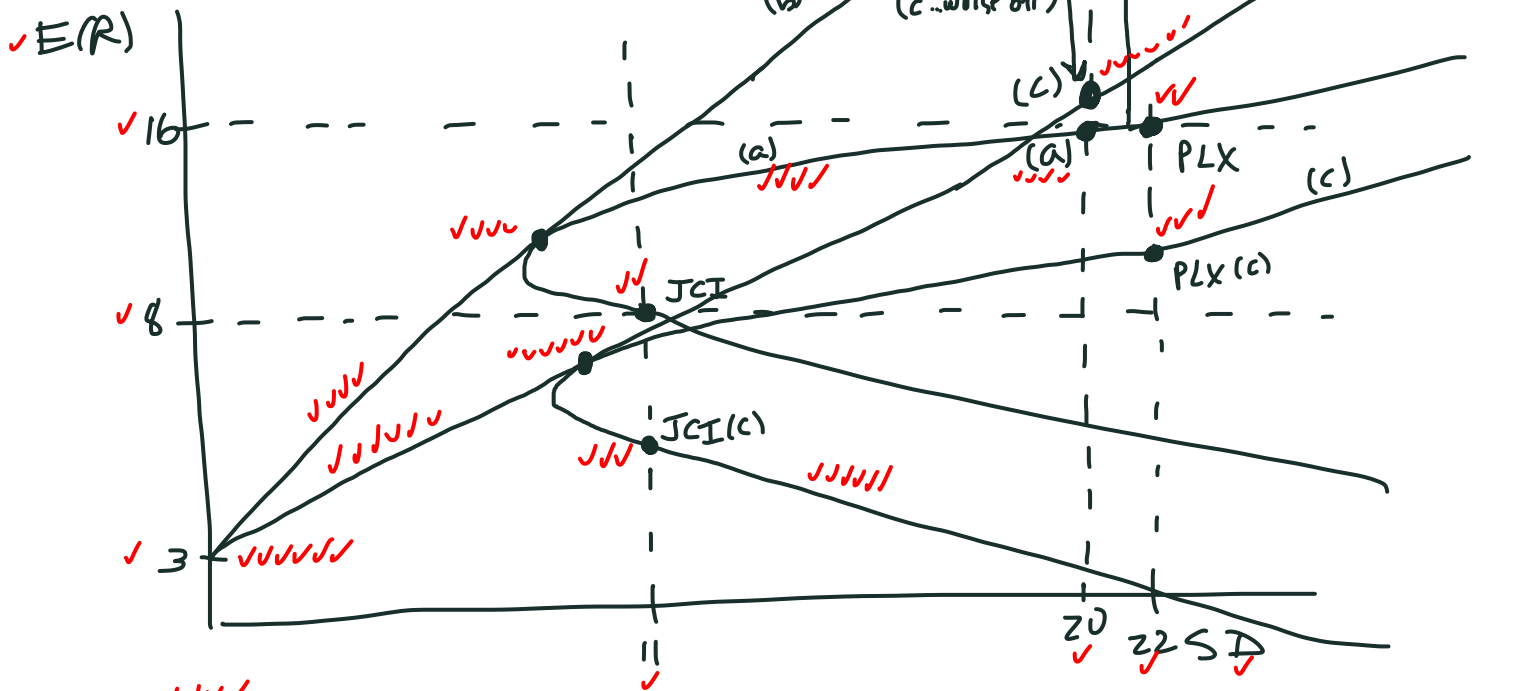
Name Key

Note: Answer parts a, b, and c on the same graph. Be sure you clearly label which part of the graph answers which part of the question.

Assume T-bills earn a return of 3%, that Johnson Controls (JCI) has a standard deviation of returns of 11% and an expected return of 8%, and that Protalix Bio Therapeutics (PLX) has a standard deviation of returns of 22% and an expected return of 16%. Assume also that the correlation between JCI and PLX is  $-0.2$ . Finally, assume that you would like to invest in a portfolio with a standard deviation of returns of 20%.

- Sketch a graph of the portfolios you can achieve if you buy or short-sell JCI and PLX. Identify your preferred portfolio.
- Sketch a graph of the portfolios you can achieve if you buy or short-sell JCI, PLX and T-bills. Identify your preferred portfolio. Show also how much better or worse off you are than in part a.
- Assume that the expected return on both JCI and PLX rise and that nothing else changes. Sketch a graph of the portfolios you can now achieve and of your preferred portfolio. Show how much better or worse off you are than in part b.
- What is the approximate mix of JCI and PLX in part a?
- What is the approximate mix of JCI, PLX, and Treasuries in part b?
- How will the mix between PLX and JCI change in part "c" (compared to part "b")?

98



d. 90% PLX

e. short-sell Treasuries equal to 125% of wealth. Mix of JCI + PLX approximately 50/50. Amt invested in JCI + PLX = 225% of wealth

f. Slightly higher percent in PLX

Points =  $75 \times \frac{\text{checks}}{98}$