Quiz B for 2:30 Class: 10/02/13 Name Key

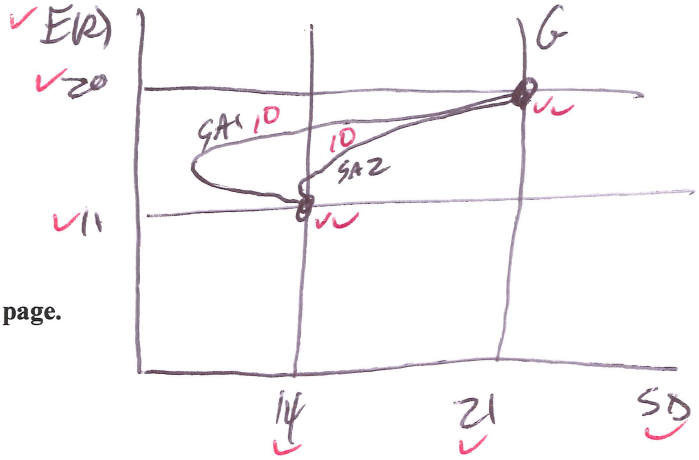
Short Answer 1 (15 points): Sketch a reasonable set of portfolios you could build if you buy (no short-selling) shares of Chevron (CVX) and Google (GOOG). Assume the expected return on CVX is 11% and on GOOG is 20%, the standard deviation of returns on CVX is 14% and on GOOG is 21%, and the correlation between CVX and GOOG is + 0.15.

Short Answer 2 (15 points): On the same graph you used to answer SA1, show how your graph would change if the correlation between CVX and GOOG rises to + 0.7. Be sure to clearly label which part of your graph answers SA1 and which part of your graph answers SA2.

Problem (75 points): Based on the past five years of returns, set up the calculations needed to determine the standard deviation of returns on Toyota (TM) and Proctor & Gamble (PG), the covariance between Toyota and Proctor & Gamble, and the standard deviation of returns on your portfolio if you short-sell $400,000 of Proctor & Gamble and buy $900,000 of Toyota.

Year	Return on: TM	PG
2013	63%	12%
2012	15%	13%
2011	– 5%	9%
2010	– 9%	7%
2009	– 8%	– 14%

Wall Street Journal Questions are on the back of this page.



+3 ($SD_{TM} = \sqrt{\frac{1}{4}((63-\bar{R}_T)^2 + (15-\bar{R}_T)^2 + (-5-\bar{R}_T)^2 + (-9-\bar{R}_T)^2 + (-8-\bar{R}_T)^2}$) (10)

+3 ($\bar{R}_T = \frac{1}{5}(63+15-5-9-8)$) (9)

+3 ($SD_{PG} = \sqrt{\frac{1}{4}((12-\bar{R}_P)^2 + (13-\bar{R}_P)^2 + (9-\bar{R}_P)^2 + (7-\bar{R}_P)^2 + (-14-\bar{R}_P)^2}$) (10)

+3 ($\bar{R}_P = \frac{1}{5}(12+13+9+7-14)$) (9)

+6 ($Cov_{TM,PG} = \frac{1}{4}((63-\bar{R}_T)(12-\bar{R}_P) + (15-\bar{R}_T)(13-\bar{R}_P) + (-5-\bar{R}_T)(9-\bar{R}_P) + (-9-\bar{R}_T)(7-\bar{R}_P) + (-8-\bar{R}_T)(-14-\bar{R}_P))$) (18)

+7 ($SD_P = \sqrt{\left(\frac{400}{500}\right)^2 SD_{PG}^2 + \left(\frac{900}{500}\right)^2 SD_{TM}^2 + 2\left(\frac{-400}{500}\right)\left(\frac{900}{500}\right) Cov_{TM,PG}}$) (19)