

Quiz B for 2:30 Class: 10/03/12

Name Key

Note: There are no points for solving this problem. All points are for setting up the equations, plugging in the relevant numbers, and stating what you want to solve for (if you are not simply solving the equation).

Given the following returns over the past four years for J.P. Morgan Chase (JPM), Tyco(TYC), and the Standard & Poor's 500 (S&P500), calculate the beta of J.P. Morgan Chase and the beta of a portfolio where you invest \$600,000 in J.P. Morgan Chase and \$400,000 in Toyota which has a beta of 0.75. Assume the risk-free interest rate is 1%.

Year	JPM	TYC	S&P500
2012	+21%	-37%	+15%
2011	-6%	+21%	+6%
2010	-9%	+17%	+14%
2009	+3%	+37%	+7%

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

$$+6 \left( \beta_{JPM} = \frac{\text{cov}(R_{JPM}, R_{S\&P})}{\text{var}(R_{S\&P})} \right) \textcircled{6}$$

$$+6 \left( \text{cov}(R_{JPM}, R_{S\&P}) = \frac{1}{3} \left( (21 - \bar{R}_{JPM})(15 - \bar{R}_{S\&P}) + (-6 - \bar{R}_{JPM})(6 - \bar{R}_{S\&P}) + (-9 - \bar{R}_{JPM})(14 - \bar{R}_{S\&P}) + (3 - \bar{R}_{JPM})(7 - \bar{R}_{S\&P}) \right) \right) \textcircled{24}$$

$$+3 \left( \bar{R}_{JPM} = \frac{1}{4} (21 - 6 + 9 + 3) \right) \textcircled{9}$$

$$+3 \left( \bar{R}_{S\&P} = \frac{1}{4} (15 + 6 + 14 + 7) \right) \textcircled{9}$$

$$+6 \left( \text{var}(R_{S\&P}) = \frac{1}{3} \left( (15 - \bar{R}_{S\&P})^2 + (6 - \bar{R}_{S\&P})^2 + (14 - \bar{R}_{S\&P})^2 + (7 - \bar{R}_{S\&P})^2 \right) \right) \textcircled{12}$$

$$+6 \left( \beta_p = .6 (\beta_{JPM}) + .4 (.75) \right) \textcircled{15}$$