Key to 4:00 Quiz: 2/29/12

Quiz: Use the following information to calculate the beta of WFC (Wells Fargo) and the beta of a portfolio where you invest $600,000 in WFC and $400,000 in Microsoft which has a beta of 0.97.

Return on:

Year	WFC	S&P500
2011	-8%	+2%
2010	+14%	+20%
2009	+54%	+30%
2008	-42%	-40%

Note: You don't have to solve anything. Just set up the appropriate equations and plug in all possible numbers.

$$\beta_p = \left(\frac{600,000}{600,000+400,000}\right)\beta_{WFC} + \left(\frac{400,000}{600,000+400,000}\right)0.97$$

$$\beta_{WFC} = \frac{Cov(R_{WFC}, R_{S\&P})}{Var(R_{S\&P})}$$

$$Cov(R_{WFC}, R_{S\&P}) = \frac{1}{3}\left(\left((-8 - \bar{R}_{WFC})(2 - \bar{R}_{S\&P}) + (14 - \bar{R}_{WFC})(20 - \bar{R}_{S\&P}) + (54 - \bar{R}_{WFC})(30 - \bar{R}_{S\&P}) + (-42 - \bar{R}_{WFC})(-40 - \bar{R}_{S\&P})\right)\right)$$

$$\bar{R}_{WFC} = \frac{1}{4}(-8 + 14 + 54 - 42)$$

$$\bar{R}_{S\&P} = \frac{1}{4}(2 + 20 + 30 - 40)$$

$$Var(R_{S\&P}) = \frac{1}{3}\left((2 - \bar{R}_{S\&P})^2 + (20 - \bar{R}_{S\&P})^2 + (30 - \bar{R}_{S\&P})^2 + (-40 - \bar{R}_{S\&P})^2\right)$$

Note: Bonus WSJ Questions on back of page