Key to 2:30 Quiz: 2/29/12

Quiz: Use the following information to calculate the beta of and required return on MRK (Merck) if the market risk premium is 6% and the risk-free rate is 2%.

	Return on:	
Year	MRK	S&P500
2011	+21%	+2%
2010	-9%	+20%
2009	+41%	+30%
2008	-35%	-40%

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

$$\beta_{MRK} = \frac{Cov(R_{MRK}, R_{S\&P500})}{Var(R_{S\&P500})}$$

$$Cov(R_{MRK}, R_{S\&P500}) = \frac{1}{3}\Big((21 - \bar{R}_{MRK})(2 - \bar{R}_{S\&P}) + (-9 - \bar{R}_{MRK})(20 - \bar{R}_{S\&P}) + (41 - \bar{R}_{MRK})(30 - \bar{R}_{S\&P}) + (-35 - \bar{R}_{MRK})(-40 - \bar{R}_{S\&P})\Big)$$

$$\bar{R}_{MRK} = \frac{1}{4}(21 - 9 + 41 - 35)$$

$$\bar{R}_{S\&P500} = \frac{1}{4}(2 + 20 + 30 - 40)$$

$$Var(R_{S\&P500}) = \frac{1}{3}((2 - \bar{R}_{S\&P})^2 + (20 - \bar{R}_{S\&P})^2 + (30 - \bar{R}_{S\&P})^2 + (-40 - \bar{R}_{S\&P})^2)$$

$$r = 2 + \beta_{MRK}(6)$$