

Finance 475
Solutions to Problem Set #8

1) We have the following equation (Standard Errors in Parentheses)

$$\% \text{ Change}(\$ / \text{E}) = -.05 + 1.5 (\text{Interest Differential}) + .65(\text{Growth Difference}) + \text{Error}$$

$$(.006) \quad (.57) \quad \quad \quad (.2) \quad \quad \quad (1.75)$$

a) To get the point estimate, plug in the data into the equation:

$$\% \text{ Change}(\$ / \text{E}) = -.05 + 1.5 (2) + .65(1) + 0 = 3.6\%$$

b) To get the standard error, take the square of each standard error, multiply by the number in front of it, add them all up and then take the square root.

$$SE = \sqrt{(.006)^2 + (2)^2 (.57)^2 + (1)^2 (.2)^2 + (1.75)^2} = 2.1$$

The 95% confidence interval is 3.5% +/- 4.2%

2) Given the expected depreciation of 3.5% and assuming that the current exchange rate is \$1.30, the cost of 200 cars @ E 40,000 each is

$$40,000(200) = \text{E } 8\text{M} * 1.30 (\$/\text{E}) = \$10.4\text{M}$$

$$95\% \text{ confidence interval} = \$10.4\text{M} \pm 4.2\% = \$10.4\text{M} \pm \$436,000$$

3) Your Swiss exports and British exports have a total dollar value of:

$$300,000 (.84) + 200,000 (1.85) = \$622,000$$

Your mean revenues will be:

$$300,000(.84)(.99) + 200,000(1.85)(.98) = \$612,080.$$

Therefore, Swiss exports make up \$252,000/622,000 = 40% of your sales while British exports make up 60%. Given the standard dev and correlations, we can calculate the standard dev of your portfolio:

$$SD = \sqrt{(.40)^2 (2)^2 + (.60)^2 (1.5)^2 + 2(.40)(.60)(2)(1.5)(.25)} = .014 = 1.34\%$$

Actually, you are still better off diversifying: By concentrating in Britain, the standard deviation of your revenues would be 2%.

4) Microsoft is better off pricing in dollars: If the dollar appreciates by 1%, the Euro denominated price will rise by 1% and Microsoft's sales and, hence, revenues, will fall by .5%. However, if they price in Euro, when the dollar appreciates by 1%, they lose 1% in revenues.

5) In today's global community, everyone has exchange exposure. If the dollar depreciates, for example, it makes US labor cheap. This could cause foreign plants to relocate to the US. This changes the competition that US firms face.