

1. (40 points) Use the following information of an England company, Stansfield Bicycles, to answer question (a)-(d)

	Correlation Coefficients			SD(%)	$\bar{R}$ %
	Stansfield	England	World		
Stansfield	1.00	0.90	0.60	20	?
England		1.00	0.80	18	14
World			1.00	15	12

A. What is the domestic country beta of Stansfield Bicycles ?

$$\beta_{Dom} = (.9 \times 20) / 18 = \boxed{1}$$

B. What is the world beta of Stansfield Bicycles ?

$$\beta_{World} = (.6 \times 20) / 15 = \boxed{.8}$$

C. Suppose that the British stock market is segmented from the rest of the world. Using the CAPM and a risk-free rate of 5%, estimate the cost of equity for Stansfield.

$$r_e = r_f + \beta \times MRP = .05 + 1 \times (.14 - .05) = .14 = \boxed{14\%}$$

D. Suppose that the British stock market is integrated with the rest of the world and Stansfield Company has made its shares tradable internationally via cross-listing on the NYSE. Using the CAPM and a risk-free rate of 5%, estimate the cost of equity for Stansfield.

$$r_e = r_f + \beta \times MRP = .05 + .8 \times (.12 - .05) = .106 = \boxed{10.6\%}$$

2. (30 points) Consider the following international investment opportunity. It involves a gold mine that can be opened at a cost, then produces a positive cash flow, but then requires environmental clean-up:

Year 0	Year 1	Year 2
-€64,000	€160,000	-€100,000

The current exchange rate is \$1.60 = €1.00. The inflation rate in the U.S. is 6 percent and in the euro zone 2 percent. The appropriate cost of capital to a U.S.-based firm for a domestic project of this risk is 8 percent. Find the dollar-denominated NPV of this project.

$$\begin{aligned} -64k & \quad \parallel \quad 160k & \quad \parallel \quad -100k \\ (-64 \times 1.6) = -102.4k & \quad \parallel \quad (160 \times 1.6) \times \left(\frac{1+.06}{1+.02}\right)^1 = 266.04k & \quad \parallel \quad (100 \times 1.6) \times \left(\frac{1+.06}{1+.02}\right)^2 = -172.8k \end{aligned}$$

$$\left. \begin{aligned} CF_0 &= -102,400 \\ CF_1 &= 266,039 \\ CF_2 &= -172,795 \end{aligned} \right\} \text{ using } CF_j \text{ key on Fin. Calc. with discount rate} = 8\%$$

$$\begin{aligned} \Rightarrow \boxed{NPV} &= -4211.45 & \text{using rounded calculation values} \\ \Rightarrow \boxed{NPV} &= -4,211.32 & \text{using unrounded calculation values} \end{aligned}$$

3. (15 points) Your firm has just issued five-year floating-rate notes indexed to six-month U.S. dollar LIBOR plus 1/4 percent. What is the amount of the first coupon payment your firm will pay per U.S. \$1,000 of face value, if six-month LIBOR is currently 7.2 percent?

$$\text{First Coupon Payment} = 1000 \times (.072 + .0025) / 2 = \boxed{37.25}$$

4. (15 points) In the Frankfurt market, Aldi stock closed at €5 per share. On the same day, the euro U.S. dollar spot exchange rate was €0.625/\$1.00. Aldi trades as an ADR in the OTC market in the United States. Five underlying Aldi shares are packaged into one ADR. What is the no-arbitrage U.S. price of one ADR ?

$$\text{Price of 1 ADR} = 5 \times (5 / (1 / 0.625)) = 5 \times 8 = \boxed{40 \text{ per ADR}}$$