

COMPREHENSIVE CASE 5: INTERNATIONAL INVESTMENTS

Charles Rosen relaxes in a plush, overstuffed recliner by the fire, enjoying the final vestiges of his week-long winter vacation. As a financial analyst working for a large investment firm in Britain, Charles has very few occasions to enjoy these private moments since he is generally catching red-eye flights around the world to evaluate various investment opportunities. Charles pats the loyal golden retriever lying at his feet and takes a swig of brandy, enjoying the warmth of the liquid. He sighs and realizes that he must begin attending to his own financial matters while he still has the time during the holiday. He opens a folder placed conspicuously on top of a large stack of papers. The folder contains information about an investment Charles made when he graduated from college four years ago...

Charles remembers his graduation day fondly. He obtained a degree in business administration and was full of investment ideas that were born while he had been daydreaming in his numerous finance classes. Charles maintained a well-paying job throughout college, and he was able to save a large portion of the college fund that his parents had invested for him.

Upon graduation, Charles decided that he should transfer the college funds to a more lucrative investment opportunity. Since he had signed to work in Britain, he evaluated investment opportunities in that country. Ultimately, he decided to invest 30,000 British pounds sterling (£) in so-called B bonds that would mature in seven years. Charles purchased the bonds just four years ago last week (in early January of what will be called the "first year" in this case). He considered the bonds an excellent investment opportunity since they offered high interest rates (see Table 1) that would rise over the subsequent seven years and because he could sell the bonds whenever he wanted after the first year. He calculated the amount that he would be paid if he sold bonds originally worth £100 on the last day of any of the seven years (see Table 2). The amount paid included the principle plus the interest. For example, if he sold bonds originally worth £100 on December 31 of the sixth year, he would be paid £163.51 (the principle is £100 and the interest is £ 63.51).

Table 1 Interest Rates Over the Seven Years

<i>Year</i>	<i>Interest Rate</i>	<i>Annual Percentage Yield</i>
1	7.50%	7.50%
2	8.50%	8.00%
3	8.50%	8.17%
4	8.75%	8.31%
5	9.00%	8.45%
6	9.00%	8.54%
7	9.00%	8.61%

Charles did not sell any of the bonds during the first four years. Last year, however, the British government introduced a capital gains tax on interest income. The British government designated that the first £6,100 a single individual earns in interest per year would be tax-free. Any interest income beyond £6,100 would be taxed at a rate of 30 percent. For example, if Charles earned

interest income of £10,100, he would be required to pay 30 percent of £4,000 (£10,100 - £6,100) in taxes, or £1,200. His after-tax income would therefore be £8,900.

Table 2 Total return on £100

<i>Year</i>	£
1	107.50
2	116.64
3	126.55
4	137.62
5	150.01
6	163.51
7	178.23

Because of the new tax implemented last year, Charles has decided to reevaluate the investment. He knows that the new tax affects his potential return on the B bonds, but he also knows that most likely a strategy exists for maximizing his return on the bonds. He might be able to decrease the tax he has to pay on interest income by selling portions of his bonds in different years. Charles considers his strategy viable because the government requires investors to pay taxes on interest income only when they sell their B bonds. For example, if Charles were to sell one-third of his B bonds on December 31 of the sixth year, he would have to pay taxes on the interest income of £ (6,351 - 6,100).

Charles asks himself several questions. Should he keep all the bonds until the end of the seventh year? If so, he would earn 0.7823 times £30,000 in interest income, but he would have to pay very substantial taxes for that year. Considering these tax payments, Charles wonders if he should sell a portion of the bonds at the end of this year (the fifth year) and at the end of next year.

If Charles sells his bonds, his alternative investment opportunities are limited. He could purchase a certificate of deposit (CD) paying 4.0 percent interest, so he investigates this alternative. He meets with an investment advisor from the local branch of a bank, and the advisor tells him to keep the B bonds until the end of the seventh year. She argues that even if he had to pay 30 percent in taxes on the 9.00 percent rate of interest that the B bonds would be paying in their last year (see Table 1), this strategy would still result in a net rate of 6.30 percent interest, which is much better than the 4.0 percent interest he could obtain on a CD.

Charles concludes that he would make all his transactions on December 31, regardless of the year. Also, since he intends to attend graduate business school in the United States in the fall of the seventh year and plans to pay his tuition for his second, third, and fourth semester with his investment, he does not plan to keep his money in Britain beyond December 31 of the seventh year.

(For the first two questions, assume that if Charles sells a portion of his bonds, he will put the

money under his mattress earning zero percent interest. For the subsequent parts, assume that he could invest the proceeds of the bonds in the certificate of deposit.)

Identify and formulate a model to be used in answering the following questions:

- a. What is the optimal investment strategy for Charles?
- b. What is fundamentally wrong with the advice Charles got from the investment advisor at the bank?
- c. Now that Charles is considering investing in the certificate of deposit, what is his optimal investment strategy?
- d. What would his optimal investment strategy for the fifth, sixth, and seventh years have been if he had originally invested £50,000?
- e. Charles and his fiancée have been planning to get married after his first year in graduate business school. However, Charles learns that for married couples, the tax-free amount of interest earnings each year is £12,200. How much money could Charles save on his £30,000 investment by getting married this year (the fifth year for his investment)?
- f. Due to a recession in Britain, interest rates are low and are expected to remain low. However, since the American economy is booming, interest rates are expected to rise in the United States. A rise in interest rates would lead to a rise of the dollar in comparison to the pound. Analysts at Charles' investment bank expect the dollar to remain at the current exchange rate of £0.4886 per dollar for the fifth year and then to rise to £0.558 per dollar by the end of the seventh year. Therefore, Charles is considering investing at the beginning of the sixth year in a two-year American municipal bond paying 3.6 percent tax-exempt interest to help pay tuition. How much money should he plan to convert into dollars by selling B bonds for this investment?