ECON2113 Macroeconomics

Chapter 8 Exercises

Solutions

1.

a. The future value (FV) of your debt after 10 years can be calculated in the following way (assuming yearly compounding):

$$FV = \$6{,}000(1 + 0.05)^{10} = \$9{,}773.37.$$

b. Since your nominal interest rate is i = 5%, but the inflation rate is π= 6%, your real interest rate r (according to the Fisher equation) is

$$r = i - \pi = 5\% - 6\% = -1\%.$$

Now the future value of your debt will be less than the original loan in real terms and can be calculated as follows:

$$FV = \$6{,}000[1 + (-0.1)]^{10} = \$6{,}000(0.9)^{10} = \$5{,}426.29.$$

c. In this scenario, since the inflation rate was higher than the interest rate that the bank charged you, the bank is the loser and you are the winner.

2.

a. Since the inflation rate is 3%, you will lose 3% or (0.03)*$250 of your real purchasing power. Therefore the real value of your $250 after one year will be

$$\$250(1 - 0.03) = \$242.50.$$

b. Had you deposited your money in a bank, your real interest rate would have been

$$r = i - \pi = 1\% - 3\% = -2\%.$$

Therefore after one year your money would have had a real value of

$$\$250(1 - 0.02) = \$245.$$

In other words, you would have lost $2.50 less in real purchasing power if you had deposited the money in a bank rather than kept it under your mattress.