6. In year 1, $1000 is equal to 6150 FF (since the exchange rate is 6.15 FF per dollar and $1000 \cdot 6.15 \text{ FF} \cdot 6.15$). In year 2, the U.S. government bond pays $1090 (since the interest rate is 9%), which is worth 7085 FF (since it’s assumed that the exchange rate one year ahead will be 6.50 FF per dollar and $1090 \cdot 6.5 = 7085$). So, the realized French Franc rate of return is given by:

\[ r_{FF} = \frac{7085 - 6150}{6150} = 0.152 \text{ (or 15.2%).} \]

7. From the previous problem we know that in year 1, the $1000 is equal to 6150 FF. If the realized French Franc rate of return equals 4%, then in year 2 the bond must pay the equivalent of 6396 FF (since $1000 \cdot 1.04 = 6396$). We also know that in year 2, the bond pays $1090. So, we need to compute the FF/$ exchange rate such that $1090 equals 6396 FF. This is given by the following:

\[ \text{FF/$} = \frac{6396}{1090} \approx 5.87. \]

9. Using the definition of a stock’s rate of return, we have:

\[ r = \frac{\text{Capital Gain} \% \text{Cash Dividend}}{\text{Initial Price of Stock}} = \frac{(49 - 45.50) \% 1.20}{45.50} = 0.1033 \text{ (or 10.33%).} \]

11. Using the definition of the real interest rate (which gives the expected real rate of return in this case), we have:

\[ \text{Real Rate} = \frac{\text{Nominal Interest Rate} \% \text{Inflation Rate}}{1 \% \text{Inflation Rate}} = \frac{0.06 \% 0.04}{1.04} = 0.0192 \text{ (or 1.92%).} \]

12. The arbitrage opportunity you face comes from the fact that you earn only 4% interest in the bank account while you pay 18% interest on your unpaid credit card balance. So, the arbitrage opportunity you have is to take $3000 out of your bank account and pay off your unpaid credit balance. This amounts to a net savings of:

\[ 3000(0.18 - 0.04) = 420. \]

This net savings is your “arbitrage opportunity.”

16. Recall that:

\[ \text{Yield on Preferred Stock} = \text{Annual Dividend} / \text{Price}. \]

So, for this problem we compute:

\[ \text{Yield} = 2.28 / 110 = .0207 \text{ (or 2.07%).} \]
17. Recall that:

\[ EFF = \left(1 \frac{\text{APR}}{m}\right)^m \times 1, \text{where} \]

\( m \) is the number of compounding periods. So, for this problem we compute:

\[ EFF = \left(1 \frac{(0.115/4)}{4}\right)^4 \times 1 \approx 1.1201 \approx 0.1201 \text{ (or 12.01\%)} \]

18. We have \( PV = 12000, \text{APR} = 14\%, \) maturity of 5 years, and quarterly compounding. With quarterly compounding and maturity of 5 years, the number of compounding periods is 20. Also, with quarterly compounding and an \( \text{APR} \) of 14\%, the quarterly interest rate is 3.5\%. So, we can compute:

\[ FV \approx 12000 \times (1.035)^{20} \approx 23877. \]

19. Recall that a bond’s internal rate of return is the discount rate that makes the present value of the future cash inflows ($1050 to be received 4 years later) equal to the present values of cash outflows ($990, the price of the bond). So, we need to solve for \( i \) in the following:

\[ \frac{990}{(1+i)^4} + \frac{1050}{(1+i)^4} = 1.0148 \quad Y \quad i \approx 0.0148 \text{ (or 1.48\%)} \]

22. This problem requires that we solve for the \( FV \) of an ordinary annuity. Recall that for an ordinary annuity that lasts for \( n \) periods, the \( FV \) of $1 per period with interest rate \( i \) is given by:

\[ FV = \frac{(1+i)^n \times 1}{i} \]

If a payment of \( PMT \) is made each period, then the \( FV \) is given by:

\[ FV = \frac{(1+i)^n \times PMT}{i} \]

In this problem the annuity lasts for 10 years (since there will be 10 years of making quarterly deposits of $300 into the bank account). But since there is quarterly compounding, the number of periods is 40. Likewise, with quarterly compounding the quarterly interest rate is 3\% (since 12\% divided by 4 is 3\%). So, the \( FV \) of the $300 per period annuity payment in this example is given by:

\[ FV = \frac{(1.03)^{40} \times 300}{0.03} \approx 22620. \]
24. We have $FV' = 100,000$, $APR' = 6\%$, maturity of 15 years, and daily compounding. Thus, we compute $FV$ as follows:

$$FV' = \frac{100,000}{(1\% \cdot 0.6/365)^{365 \times 15}} = 40,660.$$