FINM3093 Investments

Lecture 2 Exercises

Solutions

1. a. If businesses reduce their capital spending, then they are likely to decrease their demand for funds. This will shift the demand curve in Figure 5.1 to the left and reduce the equilibrium real rate of interest.

   b. Increased household saving will shift the supply of funds curve to the right and cause real interest rates to fall.

   c. Open market purchases of U.S. Treasury securities by the Federal Reserve Board are equivalent to an increase in the supply of funds (a shift of the supply curve to the right). The FED buys treasuries with cash from its own account or it issues certificates which trade like cash. As a result, there is an increase in the money supply, and the equilibrium real rate of interest will fall.

2. a. The "Inflation-Plus" CD is the safer investment because it guarantees the purchasing power of the investment. Using the approximation that the real rate equals the nominal rate minus the inflation rate, the CD provides a real rate of 1.5% regardless of the inflation rate.

   b. The expected return depends on the expected rate of inflation over the next year. If the expected rate of inflation is less than 3.5% then the conventional CD offers a higher real return than the inflation-plus CD; if the expected rate of inflation is greater than 3.5%, then the opposite is true.

   c. If you expect the rate of inflation to be 3% over the next year, then the conventional CD offers you an expected real rate of return of 2%, which is 0.5% higher than the real rate on the inflation-protected CD. But unless you know that inflation will be 3% with certainty, the conventional CD is also riskier. The question of which is the better investment then depends on your attitude towards risk versus return. You might choose to diversify and invest part of your funds in each.

   d. No. We cannot assume that the entire difference between the risk-free nominal rate (on

conventional CDs) of 5% and the real risk-free rate (on inflation-protected CDs) of 1.5% is the expected rate of inflation. Part of the difference is probably a risk premium associated with the uncertainty surrounding the real rate of return on the conventional CDs. This implies that the expected rate of inflation is less than 3.5% per year.

3. a. $$r_{\text{real}} = \frac{1 + r_{\text{nominal}}}{1 + i} - 1 = \frac{r_{\text{nominal}} - i}{1 + i} = \frac{0.80 - 0.70}{1.70} = 0.0588, or\ 5.88\%$$

b. $$r_{\text{nominal}} - i = .80 - .70 = .10 \approx r_{real}$$

Clearly, the approximation gives a real HPR that is too high.

4. The probability distribution of the dollar return on CD plus call option is:

State of the Economy	Probability	Ending Value of CD	Ending Value of Call	Combined Value
Excellent	0.25	$ 114.00	$16.50	$130.50
Good	0.45	114.00	0.00	114.00
Poor	0.25	114.00	0.00	114.00
Crash	0.05	114.00	0.00	114.00