Financial Markets Homework 2

Due Date: 2025-11-24 23:59

Q1. Under what conditions will a discount bond have a negative nominal interest rate? Is it possible for a coupon bond or a perpetuity to have a negative nominal interest rate?

Q2. If the interest rate is 10%, what is the present value of a security that pays you $1,100 next year, $1,210 the year after, and $1,331 the year after that?

Q3. Which $1,000 bond has the higher yield to maturity, a twenty-year bond selling for $800 with a current yield of 15% or a one-year bond selling for $800 with a current yield of 5%?

Q4. A bank has two 3-year commercial loans with a present value of $70 million. The first is a $30 million loan that requires a single payment of $37.8 million in three years, with no other payments till then. The second loan is for $40 million. It requires an annual interest payment of $3.6 million. The principal of $40 million is due in three years.

a. What is the duration of the bank's commercial loan portfolio?

b. What will happen to the value of its portfolio if the general level of interest rates increases from 8% to 8.5%?

Q5. Explain why you would be more or less willing to buy gold under the following circumstances:

a. Gold again becomes acceptable as a medium of exchange.

b. Prices in the gold market become more volatile.

c. You expect inflation to rise, and gold prices tend to move with the aggregate price level.

d. You expect interest rates to rise.

Q6. In the aftermath of the global economic crisis that started to take hold in 2008, U.S. government budget deficit increased dramatically, yet interest rates on U.S. Treasury debt fell sharply and stayed low for quite some time. Does this make sense? Why or why not?

Q7. The demand curve and supply curve for one-year discount bonds with a face value of $1,000 are represented by the following equations:

B^d: Price = -0.6 × Quantity + 1140

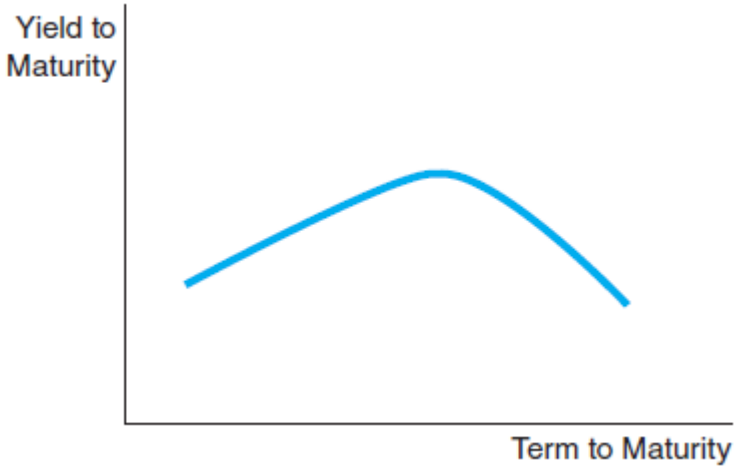
B^s: Price = Quantity +700

a. What is the expected equilibrium price and quantity of bonds in this market?

b. Given your answer to part (a), what is the expected interest rate in the market?

Q8. If the income tax exemption on municipal bonds were abolished, what would happen to the interest rates on these bonds? What effect would the change have on interest rates on U.S. Treasury bonds?

Q9. If a yield curve looks like the one shown in the figure below, what is the market predicting about the movement of future short-term interest rates? What might the yield curve indicate about the market's predictions for the inflation rate in the future?



Q10. Short-term (one-year) interest rates over the next 3 years are expected to be 2%, 3%, and 3.55%. If you are ready to buy a three-year bond that yields 3%, what is your minimum required liquidity premium for this period?