

Midterm Exam I

Name _____

Id # _____

Instructions: There are two parts to this midterm. Part A consists of multiple choice questions. Please mark the answers to the multiple choice questions on the exam paper and fill in the relevant bubble on the Scantron sheet. Part A is worth 60%. Part B is worth 40% and consists of short answer questions. Please answer in the space provided. Please attempt both parts and turn the exam in at the end.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) If the expected return on ABC stock rises from 5 to 10 percent and the expected return on CBS stock is unchanged, then the expected return of holding CBS stock _____ relative to ABC stock and the demand for CBS stock _____.

A) rises; rises B) rises; falls C) falls; rises D) falls; falls

Answer: D

- 2) If interest rates are expected to rise in the future, the demand for long-term bonds _____ and the demand curve shifts to the _____.

A) falls; left B) falls; right C) rises; right D) rises; left

Answer: A

- 3) Which of the following can be described as involving indirect finance?

A) A pension fund manager buys a short-term security from the issuing corporation.
B) A corporation buys a short-term security issued by another corporation.
C) A corporation's stock is traded in an over-the-counter market.
D) Both A and B of the above.

Answer: C

- 4) Financial intermediaries lower costs by spreading them over a large number of customers, thereby taking advantage of

A) economies of scale.
B) asymmetric information.
C) diversification.
D) transactions costs.
E) risk sharing.

Answer: A

- 5) The interest rate that equates the present value of payments received from a debt instrument with its value today is the
- A) yield to maturity. B) real interest rate. C) discount rate. D) simple interest rate.

Answer: A

- 6) With an interest rate of 10 percent, the present value of a security that pays \$1,100 next year and \$1,460 four years from now is:
- A) \$2,000. B) \$1,000. C) \$3,000. D) \$2,560.

Answer: A

- 7) A consol paying \$20 annually when the interest rate is 5 percent has a price of
- A) \$100. B) \$200. C) \$400. D) \$1000. E) \$800.

Answer: C

- 8) If there are three goods in a barter economy, one needs to know three prices in order to exchange one good for another. If, however, there are five goods in a barter economy, then one needs to know _____ prices in order to exchange one good for another.

A) 8 B) 6 C) 5 D) 10

Answer: D

- 9) If an individual redeems a U.S. savings bond for currency

A) M1 increases and M2 increases.
B) M1 increases and M2 stays the same.
C) M1 increases and M2 decreases.
D) M1 stays the same and M2 stays the same.
E) M1 stays the same and M2 decreases.

Answer: A

- 10) Which of the following are true of simple loans?

A) Installment loans and mortgages are frequently of the fixed payment type.
B) A simple loan requires the borrower to repay the principal and interest at the maturity date.
C) The borrower repays the loan by making the same payment every month.
D) Both A and B of the above.
E) Both B and C of the above.

Answer: B

- 11) If the interest rates on all bonds rise from 5 to 6 percent over the course of the year, which bond would you prefer to have been holding?

A) A bond with ten years to maturity B) A bond with twenty years to maturity
C) A bond with five years to maturity D) A bond with one year to maturity

Answer: D

- 12) The return on a 5 percent coupon bond that initially sells for \$1,000 and sells for \$950 next year is

A) 5 percent. B) 0 percent. C) -10 percent. D) -5 percent.

Answer: B

- 13) When people revise upward their expectations of future interest rates, the _____ curve for bonds shifts to the _____.
- A) demand; right B) demand; left C) supply; left D) supply; right

Answer: B

- 14) When the interest rate on a bond is below the equilibrium interest rate, in the bond market there is excess _____ and the interest rate will _____.
- A) demand; fall B) supply; rise C) demand; rise D) supply; fall

Answer: B

- 15) The growth rates of monetary aggregates
- A) follow one another exactly.
B) tend to move together in the long run but can diverge in the short run.
C) tend to move together in the short run but not in the long run.
D) are most closely related during the 1990s.
E) are unrelated in the long run.

Answer: B

- 16) The current yield on a \$10,000, 5 percent coupon bond selling for \$5,000 is
- A) 7.5 percent. B) 12.5 percent. C) 10.0 percent. D) 5.0 percent.

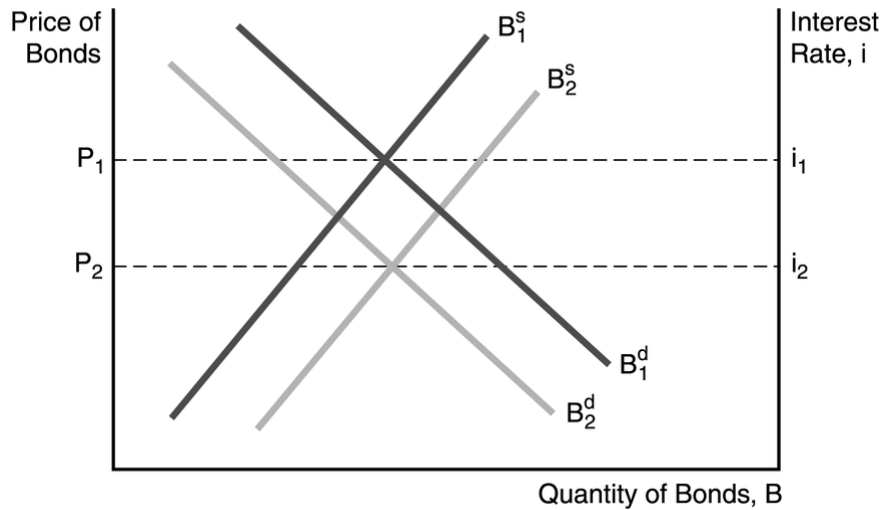
Answer: C

- 17) The narrowest measure of money that the Fed reports is
- A) M1. B) M3. C) M0. D) M2.

Answer: A

- 18) The _____ is a better approximation for the _____, the nearer the bond's price is to the bond's par value and the longer the maturity of the bond.
- A) current yield; yield to maturity B) yield to maturity; coupon rate
C) current yield; coupon rate D) yield to maturity; current yield

Answer: A



The following two questions refer to the diagram above

- 19) In the figure above, one factor that would not have caused the demand for bonds to decrease (shift to the left) is
- A) a decrease in the expected return on bonds relative to other assets.
 - B) an increase in the expected return on bonds relative to other assets.
 - C) an increase in the riskiness of bonds relative to other assets.
 - D) a decrease in wealth.

Answer: B

- 20) In the figure above, factors that could cause the supply of bonds to shift to the right include:
- A) a decrease in expected inflation.
 - B) a decrease in government budget deficits.
 - C) a recession.
 - D) a business cycle expansion.

Answer: D

Part B: SHORT ANSWER QUESTIONS (40%)

Write brief answers to the questions below being as succinct and clear as possible. **Show any calculations** as necessary in answering the questions. Note: You will not receive full credit for just simply writing down the answer, without showing any working!

21. (20%) Each part of this question is worth 4 points. In this question, you may assume that the market interest rate, $i=10\%$.

a. Suppose asset A pays coupon payments of \$100 per year forever. What is the price, P_A , of such an asset?

Answer:

Asset A is a perpetuity since it pays out forever. The price is the annuity value of its coupon payments.

$$P_A = \frac{C}{i} = \frac{\$100}{0.1} = \$1000$$

b. Suppose asset B is an asset, which if purchased, starts paying out coupons of \$100 from year six. What would be the price, $P_{B,5}$, of this asset in **year 5**?

Answer:

Asset B is also a perpetuity with the same characteristics as asset A. Hence in year 5, its price would be the same as that of asset A today, i.e. $P_{B,5}=\$1000$

c. What is the price, P_B , of asset B today?

Answer:

Price of asset B today, is the discounted value of $P_{B,5}$:

$$P_B = \frac{P_{B,5}}{(1+i)^5} = \frac{\$1000}{1.1^5} = \$620.92$$

d. Assume that there is an asset C that pays out \$100 each year for 5 years (starting paying out in year 1). How is the price of asset C, P_C , related to the price of assets A and B, P_A and P_B respectively? (Note: Here I am just looking for the relationship between P_A , P_B and P_C – you don't need to calculate P_C)

Answer:

$$P_C = P_A - P_B$$

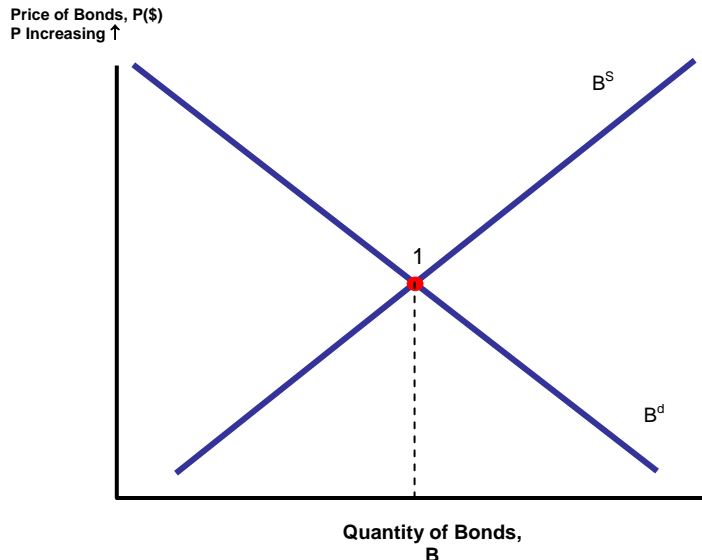
- e. Suppose asset A also pays \$100 today and \$1610 in year 5. Show the algebraic relationship between the new price of asset A, P_A^{new} and the old price, P_A^{old} , without substituting in for interest rates. (That is, do not replace i with 0.1). You should have an expression for P_A^{new} in terms of P_A^{old} and i .

Answer:

To work out and see the relationship between the new price of asset A and the old price, we have to discount the new payoffs appropriately and add them to the old price:

$$P_A^{new} = \$100 + \frac{\$1610}{(1+i)^5} + P_A^{old}$$

22. (20%) Each part is weighted equally. Consider the market for bonds below.



- a. Which curve (i.e. demand or supply) represents the lenders in the market?

Answer:

B^d represents the lenders on the market.

- b. Which curve (i.e. demand or supply) represents the borrowers in the market?

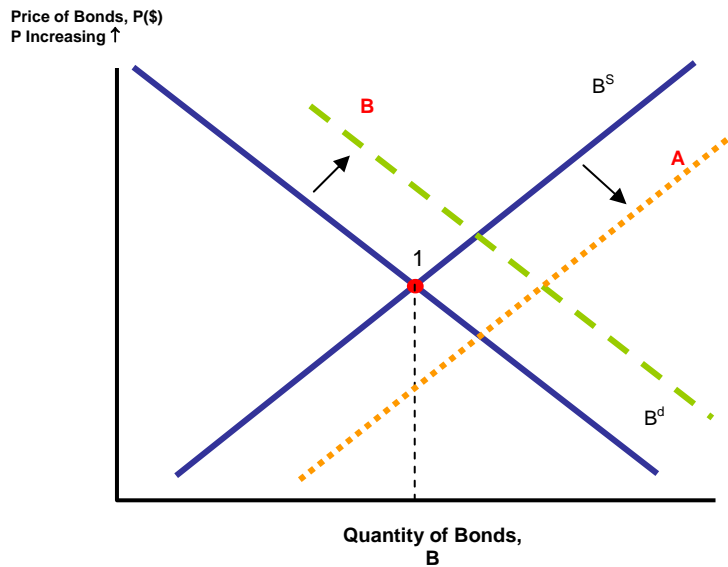
Answer:

B^s represents the borrowers on the market.

- c. Suppose that the government decides to increase its deficit. Depict the effect (using dashed lines) on the diagram above. Label the new curve A.

Answer: (see next page)

An increase in the government's deficit means that the government is collecting relatively less taxes to what it's intending on spending. As a result, the only way it can do that is by borrowing more, and issuing more t-bills. Thus government debt will increase and the supply of bonds increases, shifting the Bond supply curve out to the right. (See figure below):



- d. At the same time, the Federal Reserve announces an upcoming interest rate decrease. Depict this effect on the diagram above using dashed lines. Label the new curve B.

Answer: (see figure above)

An announcement of an interest rate decrease in the future increases people's expected return on longer term bonds, and so the demand curve for bonds shifts out to the right.

- e. As a result of both these actions in parts (c) and (d), what happens to the equilibrium price, quantity and interest rate?

Answer:

As a result, we know that equilibrium quantity of bonds increases, but without further information, we do not know what happens to either the equilibrium price or interest rate. They may increase, decrease, or stay the same depending on the relative magnitudes of the shifts of the demand and supply curves.