

Money and Banking, Assignment 2

Due date: **March 24st** (Thursday, in-class)

Part I Multiple Choices: (only one of the four options is correct)

- 1) Compared to an economy that uses a medium of exchange, in a barter economy **A**
 - A) transaction costs are higher.
 - B) transaction costs are lower.
 - C) liquidity costs are higher.
 - D) liquidity costs are lower.

- 2) In a barter economy the number of prices in an economy with N goods is **A**
 - A) $[N(N - 1)]/2$.
 - B) $N(N/2)$.
 - C) $2N$.
 - D) $N(N/2) - 1$.

- 3) The evolution of the payments system from barter to precious metals, then to fiat money, then to checks can best be understood as a consequence of the fact that **C**
 - A) paper is more costly to produce than precious metals.
 - B) precious metals were not generally acceptable.
 - C) precious metals were difficult to carry and transport.
 - D) paper money is less accepted than checks.

- 4) Introduction of checks into the payments system reduced the costs of exchanging goods and services. Another advantage of checks is that **A**
 - A) they provide convenient receipts for purchases.
 - B) they can never be stolen.
 - C) they are more widely accepted than currency.
 - D) the funds from a deposited check are available for use immediately.

- 5) Compared to an electronic payments system, a payments system based on checks has the major drawback that **B**
 - A) checks are less costly to process.
 - B) checks take longer to process, meaning that it may take several days before the depositor can get her cash.
 - C) fraud may be more difficult to commit when paper receipts are eliminated.
 - D) legal liability is more clearly defined.

- 6) Which of the following is not a form of e-money? **B**
 - A) a debit card
 - B) a credit card
 - C) a stored-value card

D) a smart card

7) _____ is the narrowest monetary aggregate that the Fed reports. B

A) M0

B) M1

C) M2

D) M3

8) If an individual uses money from a demand deposit account to purchase a U.S. savings bond, D

A) M1 decreases and M2 stays the same.

B) M1 stays the same and M2 increases.

C) M1 stays the same and M2 stays the same.

D) M1 decreases and M2 decreases.

9) If a security pays \$55 in one year and \$133 in three years, its present value is \$150 if the interest rate is B

A) 5 percent.

B) 10 percent.

C) 12.5 percent.

D) 15 percent.

10) Economists consider the _____ C _____ to be the most accurate measure of interest rates.

A) simple interest rate.

B) current yield.

C) yield to maturity.

D) real interest rate.

11) Which of the following are true concerning the distinction between interest rates and returns? A

A) The rate of return on a bond will not necessarily equal the interest rate on that bond.

B) The return can be expressed as the difference between the current yield and the rate of capital gains.

C) The rate of return will be greater than the interest rate when the price of the bond falls between time t and time $t + 1$.

D) The return can be expressed as the sum of the discount yield and the rate of capital gains.

12) Suppose you are holding a 5 percent coupon bond maturing in one year with a yield to maturity of 15 percent. If the interest rate on one-year bonds rises from 15 percent to 20 percent over the course of the year, what is the yearly return on the bond you are holding? **C**

- A) 5 percent
- B) 10 percent
- C) 15 percent
- D) 20 percent

13) An equal decrease in all bond interest rates **B**

- A) increases the price of a five-year bond more than the price of a ten-year bond.
- B) increases the price of a ten-year bond more than the price of a five-year bond.
- C) decreases the price of a five-year bond more than the price of a ten-year bond.
- D) decreases the price of a ten-year bond more than the price of a five-year bond.

14) Which of the following are generally true of bonds? **A**

- A) The only bond whose return equals the initial yield to maturity is one whose time to maturity is the same as the holding period.
- B) A rise in interest rates is associated with a fall in bond prices, resulting in capital gains on bonds whose terms to maturity are longer than the holding periods.
- C) The longer a bond's maturity, the smaller is the size of the price change associated with an interest rate change.
- D) Prices and returns for short-term bonds are more volatile than those for longer-term bonds.

15) Which of the following are generally true of all bonds? **B**

- A) The longer a bond's maturity, the greater is the rate of return that occurs as a result of the increase in the interest rate.
- B) Even though a bond has a substantial initial interest rate, its return can turn out to be negative if interest rates rise.
- C) Prices and returns for short-term bonds are more volatile than those for longer term bonds.
- D) A fall in interest rates results in capital losses for bonds whose terms to maturity are longer than the holding period.

Part II Analytical Exercises

1. Consider a bond with 5% annual coupon and a face value of \$1,000. Complete the following table. What relationship you observe between years to maturity, yield to maturity, and the current price?

Years to Maturity	Yield to Maturity	Current Price
2	2%	1058.25
2	4%	1018.86
3	4%	1027.75
5	2%	1141.40
5	6%	957.88

Answer:

As shown in the table, the current price is positively related to the years to maturity *when the coupon rate is higher than the yield to maturity (which you cannot see from the table, but you should know using the equation calculating current price)* and negatively related to the yield to maturity.

2. In the class we have seen a table showing the change of one year returns on different maturity 10%-coupon-rate bonds when the interest rates rise from 10% to 20%. (Table 2). Construct a similar table for the case where the interest rates rise from 10% to 25%.

Hint: Though you can obtain the numbers using a standard calculator, it is far more efficient to use a *financial calculator*. If you do not have a financial calculator in hand, you can find an online one at <http://www.arachnoid.com/lutusp/finance.html>. Note that for our case, the payment time should be set as at the end, and the payment amount (PMT) is simply the coupon payment.

Answer:

Year to Maturity	Initial current yield	Initial price	Price next year	Rate of capital gain	Rate of return
30	10%	1,000	401	-59.9%	-49.9%
20	10%	1,000	409	-59.1%	-49.1%
10	10%	1,000	481	-51.9%	-41.9%
5	10%	1,000	646	-35.4%	-25.4%
2	10%	1,000	880	-12%	-2%
1	10%	1,000	1,000	0	10%