

Korea University
IIE 301 - Money & Banking
Summer 2006

Midterm Exam key

This exam is closed book and closed notes, though you may use a calculator. Leave all bags & books at the front of the classroom and turn off all electronic devices, such as cell phones and PDAs. You may use a paper dictionary to look up unfamiliar words, but electronic dictionaries are not allowed. There are 3 pages and 14 questions to this exam. Good luck.

Section I (short answers, 10 points each)

Answer in the space provided, using any (clearly labeled) graphs you think are appropriate. Keep your answers concise and to the point. Points will be deducted for answers which are correct, but irrelevant to the question.

1. What is the yield to maturity on a \$100,000 T-bill that comes due in 3 months and which sells for a price today of \$97,000? Show your reasoning.

$$(\$100,000/\$97,000)^4 - 1 = 12.96\%$$

2. What is the current yield on a 25-year coupon bond with a face-value of \$1,000,000 and yearly coupons of 10% that sells for \$850,000? Show your reasoning.

Payments are \$100,000 (10% of face-value)
 $\$100,000/\$850,000 = 11.76\%$

3. What is the discount yield on a bond coming due in 30 days if the price is \$9850 and the face value is \$10,000? Show your reasoning.

$$[(\$10,000 - \$9850)/\$10,000] \times 360/30 = .015 \times 12 = 18.00\%$$

4. Assuming there is no risk premium (perhaps because investors are risk neutral), calculate the price of a no-coupon corporate bond that comes due in one year. Assume the rate on T-bills is 5%. Assume the corporate bond has the following payoff schedule:

pays \$1,000,000 with 95% probability
pays \$500,000 with 5% probability (firm goes bankrupt and pay 50% face value)

Expected future value is $.95(\$1,000,000) + .05(\$500,000) = \$975,000$

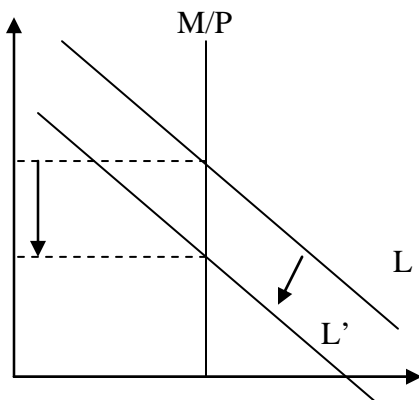
If there is no risk premium then this bond must carry an expected yield to maturity of 5%

$PV = \$975,000/(1.05) = \$928,571$

5. Given the following data, calculate the CPI for each year, using 2000 as the base year. The market basket is 15 shirts and 3 pairs of shoes

Year	price of a shirt	price of pair of shoes	Price of basket	CPI
2000	\$10	\$10	\$180	100.0
2001	\$12	\$10	\$210	116.7
2002	\$15	\$11	\$258	143.3
2003	\$15	\$12	\$261	145.0
2004	\$15	\$15	\$270	150.0

6. Using the Liquidity Preference Model and the appropriate graph, illustrate the effects of an increase in technology in the banking sector on the interest rate and the quantity of money in circulation.



An increase in technology decreases the demand for money, since it is easier to convert interest bearing assets into money quickly.

The drop in demand shifts the L curve to the left.

The interest rate falls, but the amount of money in circulation stays the same.

Section II (multiple choice, 5 points each)

Clearly circle the letter of the answer that is most correct.

7. Finance Companies, Mutual Funds and Money Market Mutual Funds are all examples of...
 - a. depository institutions
 - b. contractual savings institutions
 - c. mutual savings institutions
 - d. investment intermediaries**
 - e. none of the above

8. The market for securities with a maturity of greater than one year is referred to as...
 - a. the capital market**
 - b. the secondary market
 - c. the exchange market
 - d. the equity market
 - e. none of the above

9. A tradable security which pays small annual payments of a fixed amount in addition to a large final payment is called...
 - a. a simple bond
 - b. a coupon bond**
 - c. a fixed payment loan
 - d. a simple loan
 - e. none of the above

10. A good example of a fixed-payment or fully amortized loan is...
 - a. a US treasury bill
 - b. a retirement annuity
 - c. an automobile insurance policy
 - d. a home mortgage**
 - e. none of the above

11. The Fisher equation show a relation between...
- a. the real interest rate, the nominal interest rate and the rate of economic growth
 - b. the rate of economic growth, the nominal interest rate and the expected rate of inflation
 - c. the real interest rate, the rate of economic growth and the expected rate of inflation
 - d. the real interest rate, the nominal interest rate and the expected rate of inflation**
 - e. none of the above
12. The short-run drop in interest rates observed when the money supply rises is known as...
- a. the price effect
 - b. the liquidity effect**
 - c. the domino effect
 - d. the Fisher effect
 - e. none of the above
13. A liquidity premium on a bond is the difference between...
- a. the price and the intrinsic value of a bond
 - b. the price and the face-value of a bond
 - c. the present-value and the face-value of a bond
 - d. the difference between the price of a bond and the price of a perfectly liquid bond**
 - e. none of the above
14. The risk premium on an asset is determined by the risk aversion of investors and by...
- a. the asset's variance
 - b. the asset's liquidity
 - c. how the asset is correlated with investor income or utility**
 - d. the asset's tax properties
 - e. none of the above