INVESTMENTS

Midterm Exam – Thursday, April 25, 2019 – 10:00 a.m. – 1:00 p.m.

Spring 2019 – Instructor Han-Hsing Lee

I. Multiple Choices (40%)

1. Which of the following is not a component of the money market?
   A. Repurchase agreements
   B. Eurodollars
   C. Real estate investment trusts
   D. Money market mutual funds
   E. Commercial paper

2. Which of the following is not a mortgage-related government or government-sponsored agency?
   A. The Federal Home Loan Bank
   B. The Federal National Mortgage Association
   C. The U.S. Treasury
   D. Freddie Mac
   E. Ginnie Mae

3. The Treasury bill listing is as the following figure.

MATURITY	DAYS TO MAT	BID	ASKED	CHG	ASK YLD
Apr 05 07	90	4.91	4.90	−0.01	5.03

What is the price of a bill with $10,000 face value that a dealer is willing to purchase?
   A. $9,877.500
   B. $9,877.250
   C. $9,879.178
   D. $9,878.932
   E. $9,869.315

4. An investor purchases one municipal and one corporate bond that pay rates of return of 7.5% and 10.3%, respectively. If the investor is in the 25% marginal tax bracket, his or her after tax rates of return on the municipal and corporate bonds would be _____ and _____, respectively.
   A. 7.5% and 10.3%
   B. 7.5% and 7.73%
   C. 5.63% and 7.73%
   D. 5.63% and 10.3%
   E. 10% and 10%

5. Investment bankers
A. act as intermediaries between issuers of stocks and investors.
B. act as advisors to companies in helping them analyze their financial needs and find buyers for newly issued securities.
C. accept deposits from savers and lend them out to companies.
D. A and B.
E. A, B, and C.

6. You sold JCP stock short at $80 per share. Your losses could be minimized by placing a _____:
A. limit-sell order
B. limit-buy order
C. stop-buy order
D. stop-loss order
E. none of the above

7.Advantages of ECNs over traditional markets do not include which of the following?
A. Lower transactions costs
B. Anonymity of the participants
C. Small amount of time needed to execute an order
D. Ability to handle very large orders
E. none of the above

8. Which one of the following statements regarding closed-end mutual funds is false?
A. The funds sometimes trade at a discount from NAV.
B. The funds are sold at the prevailing market price.
C. The funds offer investors professional management.
D. The funds redeem shares at their NAV.
E. The funds sometimes trade at a premium to NAV.

9. Diversified Portfolios had year-end assets of $279,000,000 and liabilities of $43,000,000. If Diversified's NAV was $42.13, how many shares must have been held in the fund?
A. 43,000,000
B. 6,488,372
C. 5,601,709
D. 1,182,203
E. 5,402,761

10. Practitioners often use a _____ % VaR, meaning that _____ % of returns will exceed the VaR, and _____ % will be worse.
A. 25, 75, 25
B. 25, 25, 75
C. 95, 5, 95
D. 5, 95, 5
E. 5, 5, 95

11. Kurtosis is a measure of _____.
A. how fat the tails of a distribution are
B. the downside risk of a distribution
C. the normality of a distribution
D. the dividend yield of the distribution
E. how fat the tails of a distribution are and the normality of a distribution

12. Over the past year you earned a nominal rate of interest of 12.5 percent on your money. The inflation rate was 2.6 percent over the same period. The exact actual growth rate of your purchasing power was
A. 9.15%.
B. 9.90%.
C. 9.65%.
D. 10.52%.
E. 4.35%.

13. The risk premium for common stocks
A. cannot be zero, for investors would be unwilling to invest in common stocks.
B. must always be positive, in theory.
C. is negative, as common stocks are risky.
D. cannot be zero, for investors would be unwilling to invest in common stocks and must always be positive, in theory.
E. cannot be zero, for investors would be unwilling to invest in common stocks and is negative, as common stocks are risky.

14. A coupon bond is reported as having an ask price of 113% of the $1,000 par value in the Wall Street Journal. If the last interest payment was made two months ago and the coupon rate is 12%, the invoice price of the bond will be _____.
A. $1,100
B. $1,110
C. $1,150
D. $1,160
E. None of these is correct.

15. Bond analysts might be more interested in a bond's yield to call if
A. the bond's yield to maturity is insufficient.
B. the firm has called some of its bonds in the past.
C. the investor only plans to hold the bond until its first call date.
D. interest rates are expected to rise.
E. interest rates are expected to fall.

16. A convertible bond has a par value of $1,000 and a current market value of $1150. The current price of the issuing firm's stock is $65 and the conversion ratio is 15 shares. The bond's conversion premium is _____.
A. $40
B. $150
C. $175
D. $200
E. None of these is correct.

17. One year ago, you purchased a newly issued TIPS bond that has a 5% coupon rate, five years to maturity, and a par value of $1,000. The average inflation rate over the year was 3.2%. What is the amount of the coupon payment you will receive and what is the current face value of the bond?
A. $50.00, $1,000
B. $32.00, $1,032
C. $50.00, $1,032
D. $32.00, $1,050
E. $51.60, $1,032

18. A firm with a low rating from the bond rating agencies would have
A. a low times interest earned ratio
B. a low debt to equity ratio
C. a low quick ratio
D. both a low debt to equity ratio and a low quick ratio
E. both a low times interest earned ratio and a low quick ratio

19. A credit default swap is
A. a fancy term for a low risk bond.
B. an insurance policy on the default risk of a corporate bond or loan.
C. an insurance policy on the default risk of a federal government bond or loan.
D. both a fancy term for a low risk bond and an insurance policy on the default risk of a corporate bond or loan.
E. both a fancy term for a low risk bond and an insurance policy on the default risk of a federal government bond or loan.

20. A put option on a stock is said to be out of the money if
A. the exercise price is higher than the stock price.
B. the exercise price is less than the stock price.
C. the exercise price is equal to the stock price.
D. the price of the put is higher than the price of the call.
E. the price of the call is higher than the price of the put.

II. Calculation (60%)

1. (10%) Consider the three stocks in the following table. P_t represents price at time t, and Q_t represents shares outstanding at time t. Stock A splits two for one in the last period.

	P_0	Q_0	P_1	Q_1	P_2	Q_2
A	100	200	110	200	55	400
B	50	200	60	200	60	200
C	90	100	95	100	95	100

a. Calculate the rate of return on a price-weighted index of the three stocks for the first period (t=0 to t=1)
b. What must happen to the divisor for the price-weighted index in year 2?
c. Calculate the rate of return for the second period (t=1 to t=2).

Calculate the first-period (t=0~t=1) rates of return on the following indexes of the three stocks:
d. A market-value-weighted index.
e. An equally weighted index.

2. Suppose that you sell short (融券賣) 1000 shares of Xtel, currently selling for $50 per share, and give your broker $30000 to establish your margin account.
(3%) a. If you earn no interest on the funds in your margin account, what will be your rate of return after one year if Xtel stock is selling at: (i) $55; (ii) $50; (iii) $45; Assume Xtel pays no dividend.
(2%) b. If the margin maintenance margin is 25%, how high can Xtel's price rise before you get a margin call?
(5%) c. Redo parts (a) and (b). but now assume that Xtel also has paid a year-end dividend of $2 per share. The prices in part (a) should be interpreted as ex-dividend, that is, prices after the dividend has been paid.

3. The Fingroup Fund currently is worth $25 million.
a. (3%) If during the year the portfolio manager sells all of the holdings of 400,000 shares of stock A at $30 and purchases 100,000 shares of stock B at $60 per share and 200,000 shares of stock C at $40 per share, what is the portfolio turnover rate?
b. (3%) Suppose that every time a fund manager trades stock, transaction costs such as commissions and bid-asked spreads amount to 0.5% of the value of the trade. How much is the total return of the portfolio reduced by trading costs?

4. (5%) A portfolio of nondividend-paying stocks earned a geometric mean return of 6.0% between January 1, 2003, and December 31, 2011. The arithmetic mean return for the same period was 7.0%. If the market value of the portfolio at the beginning of 2003 was $100,000, what was the market value of the portfolio at the end of 2011?

5. (13%) A newly issued bond with face value $1000 pays its coupons once annually. Its coupon rate is 5%, its maturity is 10 years, and its yield to maturity is 8%.

(3%) a. Find the holding-period return for a one-year investment period if the bond is selling at a yield to maturity of 7% by the end of the year.

(4%) b. If you sell the bond after one-year investment period when yield is 7%, what taxes will you owe if the tax rate on interest income is 40% and the tax rate on capital gains income is 30%? The bond is subject to original-issue discount (OID) tax treatment.

(2%) c. What is the after-tax holding-period return on the bond?

(4%) d. Find the realized compound yield before taxes for a two-year holding period, assuming that (i) you sell the bond after two years; (ii) the bond yield is 7% at the end of the second year, and (iii) the coupon can be reinvested for one year at a 3% interest rate.

6. (10%) The yield curve for default-free zero-coupon bonds is as follows:

Maturity (years)	YTM
1	6.0%
2	7.0%
3	8.0%

(3%) a. What are the implied one-year forward rates?

(4%) b. Assume that the pure expectation hypothesis of the term structure is correct. If market expectations are accurate, what will the pure yield curve (that is, the yields to maturity on one- and two-year zero coupon bonds) be next year?

(3%) c. If you purchase a two-year zero-coupon bond now, what is the expected total rate of return over the next year? What if you purchase a three-year zero-coupon bond? (Hint: Compute the current and expected future prices.) Ignore taxes.

$\frac{1000}{811.62} = 1.23$

$\frac{1000}{711.78} = 1.40$

7. (6%) Both a call and a put currently are traded on stock XYZ; both have strike prices of $58 and maturities of six months. What will be the profit to an investor who buys the call for $5 in the following scenarios for stock prices in six months? (a) $55; (b) $60; (c) $65; . What will be the profit in each scenario to an investor who buys the put for $4?