Final Exam

Fall 2019 Econ 180-266

Closed Book.
Calculators OK.
Time Allowed: 3 Hours
All Questions Carry Equal Marks

Section A: True or False

3 points for each correct answer; -3 points for each incorrect answer; 0 points for questions left unanswered. Total score on section A cannot be negative.

Please say if each of these statements is true or false.

1. The International Monetary Fund and World Bank were founded as part of the Bretton Woods agreement at the end of the Second World War.

2. By market convention, the exchange rate between the euro and dollar is quoted as the number of euros for 1 dollar.

3. Treasury bond futures are physically settled.

4. Today, the target range for the federal funds rate is 3-3.25%.

5. A Coco bond is a bond issued by a bank that converts to shares if the bank is doing poorly.

6. If an investor buys credit default protection on $10 million of Lehman bonds and Lehman files for bankruptcy with a recovery rate of 12 percent, the owner of credit default protection receives $1.2 million.

7. A basket CDS is another name for a CDS index.

8. In the last decade, most venture capital funds have exited their investments by holding initial public offerings (IPOs).

9. In 1791, the US set up a bimetallic monetary system using both silver and gold that it kept well into the 19th century.

10. Today, the voting members of the Federal Open Market Committee are the Treasury secretary and the 12 regional Federal Reserve bank presidents.

Section B: Multiple Choice.

4 points for each correct answer; -1 points for each incorrect answer; 0 points for questions left unanswered. Total score on section B cannot be negative.

1. The price at which you can enter into a contract today to buy or sell a currency one month from now is best described as a:
A. Reciprocal exchange rate.
B. Effective exchange rate.
C. Exchange rate option.
D. Forward exchange rate.
E. Multilateral exchange rate.

2. Which of the following best describes the difference between a European option and an American option?
A. A European option is short term, an American option is long term.
B. A European option is an option to buy a share, an American option is an option to sell the share.
C. A European option is an option issued by the company, an American option is issued by an investor.
D. A European option is an option based on a bond, an American option is one based on a stock.
E. A European option can be exercised only at the maturity date, an American option can be exercised any time up to the maturity date.

3. Suppose that the exchange rate between the euro and the dollar today is €1 =$1.10. Suppose that the one-year interest rate is 2 percent in the US and -0.25 percent in Europe. If covered interest parity holds, what must the one-year forward rate be?
A. €1 =$1.125
B. €1 =$1.075
C. €1 =$1.10
D. €1 =$1.05
E. €1 =$1.00

4. What name is given to the situation in which a futures price for delivery in one year is lower than the spot price?
A. Investment basis.
B. Upwardation.
C. Risk reversal.
D. Backwardation.
E. Contango.

5. Which of the kinds of money market mutual funds has a floating net asset value?
A. Only prime institutional funds.
B. Only retail institutional funds.
C. Only government only institutional funds.
D. Only government only retail funds.
E. All money market mutual funds.

6. If you want to buy a straddle, which of the following actions will you take?
A. Buy a call option and sell a put option.
B. Buy a put option and sell a call option.
C. Buy a put option and buy a call option.
D. Sell a put option and sell a call option.
E. Buy a put option and short the stock.

7. Which of the following best describes the carry trade?
A. Importing heavy goods from China.
B. Buying crude oil in dollars, selling crude oil in euros.
C. Buying crude oil in euros, selling crude oil in euros.
D. Borrowing in currencies with low interest rates, investing in currencies with high interest rates.
E. Borrow in currencies with high interest rates, investing in currencies with low interest rates.

8. A warrant on GE stock is similar to a European call option on GE stock except that:
A. The warrant has a strike price, but the option does not.
B. The warrant has a fixed expiration date, but the option does not.
C. Exercising the warrant affects the number of GE shares outstanding, but exercising the option does not.
D. The warrants can only be exercised at maturity, but the option can be exercised at any time.
E. The warrants is issued by investors, but the option is issued by GE.

9. Which of the following best describes the Balassa Samuelson effect?
A. Countries with higher productivity have a higher overall price level, expressed in dollars.
B. Countries with higher productivity have a lower overall price level, expressed in dollars.
C. Countries with higher interest rates have a higher overall price level, expressed in dollars.
D. Countries with higher interest rates have a lower overall price level, expressed in dollars.
E. Countries with higher inflation have a higher overall price level, expressed in dollars.

10. Suppose that Mark and Sue have entered into a standard swap contract of fixed for 3 month LIBOR with payments exchanged 4 times a year. The notional underlying is $100,000,000. It is a payment date. Mark is paying fixed at 3 percent per annum. Sue is paying floating and on the day in question, 3 month LIBOR is 2 percent. What payment will be made?
A. Mark pays Sue $1,000,000.
B. Mark pays Sue $250,000.
C. Sue pays Mark $250,000.
D. Sue pays Mark $1,000,000.
E. Sue pays Mark $4,000,000.

11. In a fractional reserve banking system, suppose that the cash-to-deposit ratio is 0.2 (consumers hold 20 percent of their wealth in cash and deposit the rest) and the reserve ratio is also 0.2 (banks hold 20 percent of the deposits that they receive as reserves and lend out that the rest). Which of the following is the money multiplier?
A. 0.33
B. 1
C. 3
D. 5
E. 5.5

12. Which of the following best describes the role of a clearinghouse in a futures market?
A. The clearinghouse is the location at which delivery of agricultural futures contracts is made.
B. The clearinghouse sells unwanted futures contracts at a deep discount.
C. The clearinghouse provides financing to buyers to enable them to buy futures contracts.
D. The clearinghouse advertises futures contracts.
E. The clearinghouse acts as counterparty to all buyers and sellers.

13. Which of the following best describes the 1951 Treasury-Fed accord?
A. An agreement that the Federal Reserve would peg long term interest rates at 2 percent.
B. The ending of the gold standard.
C. An agreement that currency would be issued by the Treasury instead of the Federal Reserve.
D. An agreement that the Federal Reserve would set the federal funds rate.
E. An agreement that currency would be issued by the Federal Reserve instead of the Treasury.

14. You buy a Treasury bill (face value: $10,000) at an interest rate quoted on the standard discount basis of 4 percent, with a maturity of 180 days. What is the dollar amount that you pay for this bill?
A. $9,600.
B. $9,800
C. $9,900.
D. $10,100.
E. $10,200.

15. Which of the following are actions that the Federal Reserve might take to support the economy if short term rates have already been set to zero.
A. Purchases of long-term Treasury securities and mortgage backed securities.
B. Increasing government spending.
C. Promising to raise interest rates soon.
D. Tax cuts.
E. All of the above.

16. Which of the following best describes how insurers are regulated in the US?
A. Insurers are regulated by the Basel Committee on Bank Supervision.
B. Insurers are regulated by the Federal Reserve Board.
C. Insurers are regulated by the Federal Insurance Commission.
D. Insurers are regulated at the state level with guidelines from the National Association of Insurance Commissioners.
E. Insurers are regulated by the Securities and Exchange Commission.

17. The value of a long position in a futures contract at expiration is:
A. The spot price plus the original futures price.
B. The spot price minus the original futures price.
C. The original futures price minus the spot price.
D. The spot price.
E. None of the above.

18. Which of the following best describes commercial paper?
A. It is another term for a junk bond.
B. An intermediate term corporate bond.
C. A certificate that can be exchanged for common stock in a corporation at a future date.
D. An offshore dollar deposit.
E. A short term loan to a corporation.

19. Which of the following is true of the relationship between 3-month and 10-year US Treasury yields.
A. 10-year yields are usually higher than 3-month yields, except for occasional periods a bit before recessions.
B. 10-year yields are usually lower than 3-month yields, except for occasional periods a bit before recessions.
C. 10-year yields are usually higher than 3-month yields, except during the 1970s.
D. 10-year yields are usually lower than 3-month yields, except during the 1970s.
E. 3-month yields are always higher than 10-year yields.

20. Which of the following is NOT a component of the current account?
A. Merchandise trade.
B. Service trade.
C. Income from investments.
D. Loans to and from foreigners.
E. Gifts to and from foreigners.

Section C: Other questions

1. (10 points). Suppose that the CPI in the US is 100 in 2010 and 120 in 2018. Suppose that the CPI is 150 in Japan in 2010 and 150 in 2018. The exchange rate in 2010 is $1=120 yen. If Purchasing Power Parity always holds between the US and Japan, what must the dollar-yen exchange rate be in 2018?

2. (15 points) Suppose that the US Treasury is auctioning $30 billion in a new issue. They receive bids from the following 6 bidders, specifying quantity and yield.

Bidder	Quantity ($Billion)	Yield
A	9	2.00%
B	9	2.01%
C	9	2.02%
D	9	2.04%
E	9	2.05%
F	9	2.06%

(a) What is the stop out rate for this auction?
(b) What is the bid-cover ratio for this auction?
(c) Does bidder A receive any of the Treasury security? If so, what yield does she receive?
(d) Does bidder F receive any of the Treasury security? If so, what yield does she receive?

3. (10 points). Suppose that a firm's profits go down by $200,000 for every 5 cent rise in the pound/dollar exchange rate (which is quoted as dollars per pound). Pound futures contracts trade on the exchange, with each contract calling for delivery of 62,500 pounds. The firm wants to entirely hedge its exchange rate risk using these futures.
(a) Does it go long or short pound futures?
(b) How many contracts does it go long or short?

4. (10 points). The current level of the S&P500 is 2,700. The risk free interest rate is 2 percent. The dividend yield is 2 percent (meaning that dividends of 54 will be paid on the index at the end of the year). According to spot futures parity, what should the futures price of the S&P500 be for delivery in one year's time?

5. (10 points). Consider a CDO made up of three zero coupon bonds each with a face value of $100. Each bond has a face value of $100 and there is no recovery following default. The most senior tranche of this CDO has a face value of $100. Each bond defaults with probability 10 percent. If defaults on the three bonds are independent of each other, what is the default probability of the most senior tranche of this CDO?

6. (20 points). Hopkins enterprise shares sell for $50 each. You believe that it is over-valued, and short 1000 shares. Initial margin is 50 percent and maintenance margin is 25 percent.
(a) How much margin (in dollars) do you have to put up in order to borrow the shares?
(b) If the price rises, at what price level will you receive an additional margin call?

7 (15 points). A 2 year bond has a 3 percent coupon and the yield to maturity is 2 percent (annual rates with semiannual compounding). The face value of the bond is $100. What is the price of the bond?

Solutions

Section A.
1. True.
2. False.
3. True.
4. False.
5. True.
6. False.
7. False.
8. False.
9. True.
10. False.

Section B.
1. D.
2. E.
3. A.
4. D.
5. A.
6. C.
7. D.
8. C.
9. A.
10. B.
11. C.
12. E.
13. D.
14. B.
15. A.
16. D.
17. B.
18. E.
19. A.
20. D.

Section C.
1. $1=Y100.
5 points if you got it backwards and said Y144.

2. (a) 2.04%
(b) 1.8. (I accepted 1/1.8 which is really the cover-to-bid ratio).
(c). Yes. She receives the stop-out rate of 2.04%.
(d). No.
4 points for getting 1 part, 8 points for getting 2 parts, 11 points for getting 3 parts, 15 points for getting all four parts. 2 points off for saying that the rate in (c) was 2%.

3. (a) Long position.
(b) 64 contracts.
5 points for each.

4. $2,700 * 1.02 - 54 = 2700$.
No partial credit.

5. 0.1 percent.

6. (a) Initial margin is $25,000 (0.5*$50,000).
(b) The margin call comes when the price reaches P which solves

$$\frac{(75,000-1000P)}{1000P}=0.25$$

Solving this gives P=$60.
10 points for each part. No partial credit was given on this question.

7. The price is $\frac{1.5}{1.01}+\frac{1.5}{1.01^2}+\frac{1.5}{1.01^3}+\frac{101.5}{1.01^4}=101.95$