

**St. Lawrence University**

*First Midterm Exam– September 2021*

**FINANCIAL ECONOMICS**

**ECON 313**

**Full Name:**

**Student ID:**

*Writing Time: 90 Minutes*

*Permitted Materials: Non-programmable Calculators*

**Instructions:** Do not begin the exam yet. The professor will announce the beginning of the exam when he makes sure that everyone has a copy of the exam. In the mean time, go ahead and put your full name and ID number on the space provided. You should feel free to make use of the reference sheet throughout the exam.

### Reference Sheet

- IPO Under-pricing = (Market Price - Offer price) / Offer Price
- Gross Proceeds = IPO Offer Price \* No. IPO Shares Sold
- Margin = (Value of Securities - Debit Balance) / Value of Securities
- Return on Invested Capital from a Margin Transaction = 
$$\frac{\text{Income} - \text{Interest} + \text{Value of Securities at Sale} - \text{Value of Securities at Purchase}}{\text{Amount of Equity at Purchase}}$$
- Real Return = Nominal Return - Inflation Rate
- Required return on investment j = Real Rate of Return + Expected Inflation Premium + Risk Premium for Investment j
- Required Return on Investment j = Risk-free Rate + Risk Premium for Investment j
- Holding Period Return = (Capital Gain + Income) / Initial Investment
- Tax Tables

Tax Rates and Income Brackets for Joint Returns (2021)			
Rate	Single	Married filing jointly	Married filing separately
10%	\$0 to \$9,950	\$0 to \$19,900	\$0 to \$9,950
12%	\$9,951 to \$40,525	\$19,901 to \$81,050	\$9,951 to \$40,525
22%	\$40,526 to \$86,375	\$81,051 to \$172,750	\$40,526 to \$86,375
24%	\$86,376 to \$164,925	\$172,751 to \$329,850	\$86,376 to \$164,925
32%	\$164,926 to \$209,425	\$329,851 to \$418,850	\$164,926 to \$209,425
35%	\$209,426 to \$523,600	\$418,851 to \$628,300	\$209,426 to \$314,150

Long-term Capital Gains (2021)			
Rate	Single	Married filing jointly	Married filing separately
0%	Up to \$40,400	Up to \$80,800	Up to \$40,400
15%	\$40,401 – \$445,850	\$80,801 – \$501,600	\$40,401 – \$250,800
20%	Over \$445,850	Over \$501,600	Over \$250,800

### Part A: Multiple-choice Questions (40 points)

1. Stocks are a(n) ..... investment representing ..... of a business.
  - A. **direct; ownership**
  - B. direct; debt
  - C. indirect; ownership
  - D. indirect; debt
2. The government is generally
  - A. not involved in the financial markets.
  - B. the owner of the financial market.
  - C. a supplier of funds to the financial market.
  - D. **a demander of funds in the financial market.**
3. Which one of the following would be the least liquid investment?
  - A. stock
  - B. put options
  - C. money market mutual fund
  - D. **real estate**
4. Tax planning
  - A. **guides investment activities to maximize after-tax returns over the long term for an acceptable level of risk.**
  - B. ignores the source of income and concentrates solely on the amount of income.
  - C. is primarily done by individuals with incomes below \$200,000.
  - D. is limited to reviewing income for the current year and determining how to minimize current taxes.
5. Which of the following will lower the rate of return on a stock whose price has doubled since you bought it?
  - A. **an increase in the capital gains tax from 15% to 20%**
  - B. an increase in the tax rate on dividend income from 15% to 20%
  - C. persistently low inflation rates
  - D. the Federal Reserve acts to lower interest rates
6. In a broker market such as the NYSE, the broker
  - A. will not be able to execute a trade if there are no matching buy and sell offers.
  - B. will act as either broker or dealer depending on which will maximize his or her profit.
  - C. will first attempt to sell from his or her own inventory.
  - D. **must attempt to match sellers and buyers at the mid-point of the bid/ask spread.**

7. Which of the following are associated with bull markets?
  - I. investor pessimism
  - II. government stimulus
  - III. economic recovery
  - IV. low inflation
  - A. I and II only
  - B. II and III only
  - C. I, II and III only
  - D. **II, III and IV only**
8. At the market close on June 13, 2019 Apple Inc. (AAPL) common stock was trading at an ask price of \$191.10 and a bid price of \$190.35. Apple's previous closing price was \$194.19. What is the bid/ask spread of Apple?
  - A. **\$0.75**
  - B. \$3.84
  - C. \$3.09
  - D. -\$0.75
9. Which of the following can be encountered when investing in foreign markets?
  - I. foreign taxation of dividends
  - II. different accounting standards for financial disclosure
  - III. restrictions on types of investments
  - IV. illiquid markets
  - A. II and III only
  - B. II and IV only
  - C. I, II and IV only
  - D. **I, II, III and IV**
10. Assume the foreign exchange rate for the euro was U.S. \$1.00 = .91 euro last month. This month, the exchange rate is U.S. \$1.00 = .88 euro. All things equal, the dollar value of European stocks
  - A. decreased.
  - B. **increased.**
  - C. stayed the same.
  - D. would vary depending on the country.
11. Which of the following are characteristics of short selling?
  - I. borrowing shares of stock from a brokerage firm or other investors
  - II. selling shares of stock you do not own
  - III. betting the stock price will increase
  - IV. limiting losses per share to the price at which the stock was sold
  - A. **I and II only**
  - B. III and IV only
  - C. I, II and IV only
  - D. I, II, III only

12. George has heard a rumor that a major pet food company will be forced to recall millions of cans of pet food due to contamination. If the rumors are true, the company's stock price will decline sharply. Which one of the following strategies would allow George to earn a profit if the rumor proves to be true?
- A. **Sell the stock short today.**
  - B. Take a long position in the stock today.
  - C. Buy the stock on margin today.
  - D. Take a long position in the stock one month from today.
13. Which one of the following can be considered a pitfall for investors new to on-line trading?
- A. On-line trading is fast and efficient.
  - B. **On-line investors tend to trade too frequently.**
  - C. On-line trading is available to the average investor.
  - D. On-line investors pay lower costs per trade than investors using a broker.
14. Suppose that Pfizer and Boeing are part of the Dow-Jones Industrial Average. If on a given day Boeing closes at \$320 and Pfizer at \$40
- A. the difference in price will not affect the Average.
  - B. the Average will include 8 shares of Pfizer for each share of Boeing.
  - C. the effect of each stock on the Average cannot be determined without knowing the number of shares outstanding for each company.
  - D. **changes in the price of Boeing shares will have 8 times the effect on the Average as changes in the price of Pfizer.**
15. McDonald's stock is now selling for \$190 per share. Kim wants to buy 100 shares but only if she can do so at \$180 or less. She should place a(n)
- A. stop order.
  - B. market order.
  - C. **limit order.**
  - D. odd-lot order.
16. Three years ago, Emily bought 200 shares of HQ at \$27.00 per share. HQ shares have risen to \$57.50 per share. If the stock continues to rise, she wants to hold it, but she fears that the price could fall quickly and she will lose most of her profit. Which of the following decisions would be best?
- A. Place a limit order to sell at \$60.00.
  - B. Place a stop-limit order at \$55.00.
  - C. Place a stop-loss order at \$27.00.
  - D. **Place a stop-loss order at \$55.00.**
17. The most predictable component of stock returns is
- A. capital gains.
  - B. capital losses.
  - C. inflation adjusted return.
  - D. **dividend income.**

18. Ashley purchased a stock at \$54 per share. She received quarterly dividends of \$0.80 per share. After one year, Ashley sold the stock at a price of \$53.25 a share. What is her percentage holding period return on this investment?
- A. **4.5%**
  - B. 7.3%
  - C. 5.9%
  - D. -1.4%
19. Over the long term, which one of the following has historically had the lowest risk and lowest average annual rate of return?
- A. U.S. common stock
  - B. long-term government bonds
  - C. **short-term government bills**
  - D. German common stock
20. The markets in general are paying a 1% real rate of return. Inflation is expected to be 3%. RJH stock commands an 8% risk premium. What is the expected rate of return on RJH stock?
- A. 1%
  - B. 4%
  - C. 9%
  - D. **12%**

### Part B: Numerical and Essay Questions (60 points)

Answer **all** questions in this section using the space provided. Answers are expected to be succinct but complete. Answers that are too long and irrelevant will be penalized.

**Question 1** Answer the following two questions based on what we discussed in class.

1. [ 4 points ] The number of IPOs increased dramatically after the COVID pandemic. Briefly explain why. [You should explain how your answer is related to the IPO process]
2. [ 4 points ] During the past month, the S&P 500 Index dropped by around 0.7%. Name two reasons explaining its performance.

- 1. Road shows were held Online. Therefore, they could reach more potential investors.**
- 2. Fear of inflation/ increasing yield on government bonds/ Ever-grande company, etc.**

**Question 2** Mike and Julie Bedard are a working couple. They will file a joint income tax return. This year they have the following taxable income:

I. \$186,000 from salary and wages (ordinary income).

II. \$4,000 in interest income.

III. \$1,000 in dividend income.

IV. \$3,000 in profit from sale of a stock they purchased two years ago.

V. \$4,000 in profit from a stock they purchased this year and sold this year.

1. [ 3 points ] How much will Mike and Julie pay in federal income taxes on interest income?
2. [ 3 points ] How much will Mike and Julie pay in federal income taxes on dividend income?
3. [ 3 points ] How much will Mike and Julie pay in federal income taxes on profit from sale of a stock they purchased two years ago?

**1.  $4000 * 0.24 = \$960$**

**2.  $1000 * 0.15 = \$450$**

**3.  $3000 * 0.15 = \$450$**



**Question 3** Suppose that Tesla stock is currently selling at \$282 per share. For each of the following situations, calculate the gain or loss that Olivia Crowe realizes if she makes a 100-share transaction and the brokerage commission on each transaction is \$2.

1. [ 4 points ] She sells short and repurchases the borrowed shares at \$307 per share.
2. [ 4 points ] She takes a long position and sells the stock at \$307 per share.

1. **Profit(loss) =  $[(282-307)*100] - 2*2 = -2504$**

2. **Profit(loss) =  $[(307-282)*100] - 2*2 = 2496$**

**Question 4** Assume that an investor buys 100 shares of stock at \$48 per share, putting up a 56% margin. The stock price falls a few days later and the new margin is now 24.6%.

1. [ 6 points ] Calculate the new price.
2. [ 4 points ] What does the brokerage firm do to the account of the investor? What does the investor need to do?

**1.**

$$\text{Margin} = (V - D) / V$$

$$D = 0.44 * 4800 = 2112$$

$$0.246 = (V - 2112) / V, V = 2801$$

$$\text{Price} = V / \# \text{ of shares}, P = 2801 / 100 = \$28.01$$

**2. The investor will receive a margin call.**

**Question 5** An investor buys 200 shares of stock at \$50 per share using a margin of 71%. The stock pays annual dividends of 1 per share. A margin loan can be obtained at an annual interest cost of 4%.

1. [ 8 points ] The investor sells the stocks three months later. Determine the price at which the investor sells the stocks if the rate of return on his investment is 51%.

$$\text{Value of securities} = 200 * 50 = 10000$$

$$\text{Equity position} = 10000 * 0.71 = 7100$$

$$\text{Debit} = 10000 * 0.29 = 2900$$

**After three months:**

$$\text{Value of securities} = V$$

$$\text{Dividends} = 200 * 1 * 1/4 = 50$$

$$\text{Interest} = 2900 * 0.04 * 1/4 = 29$$

$$0.51 = (50 - 29 + V - 10000)/7100, 3621 = V - 9979$$

$$V = 13600$$

$$\text{Price} = V / \# \text{ of shares} = 13600 / 200 = 68$$

**Question 6** You invest \$10,157 in stock and receive \$110, \$132, and \$181 in dividends over the following 3 years. At the end of the third year, you sell the stock for \$13,800.

1. [ 7 points ] Calculate compound annual dividend growth rate over this period. You can use your financial calculator to find the growth rate, but you first need to explain it mathematically.
2. [ 7 points ] What was the IRR on this investment? You can use your financial calculator to find IRR, but you first need to explain it mathematically.
3. [ 3 points ] If a minimum return of 15% is required, would you recommend this investment? Explain.

1.

$$110 = 181/(1+r)^2, r = 28$$

2.

$$10175 = 110/(1+r) + 132/(1+r)^2 + ((181+13800)/(1+r)^3) \quad r=12$$

3.

**No. IRR is less than 15%.**

——— *End of Examination* ———