

Final Examination (150 minutes)

No calculators allowed; if calculations are needed, write the explicit equation(s). Do not write “ $Y = aX$; solve for X .” You can write “ $100 = 10X$; solve for X .” The price of extra time is 1 point/minute; e.g., if your test is handed in 5 minutes after the scheduled finish time, 5 points will be subtracted from your test score.

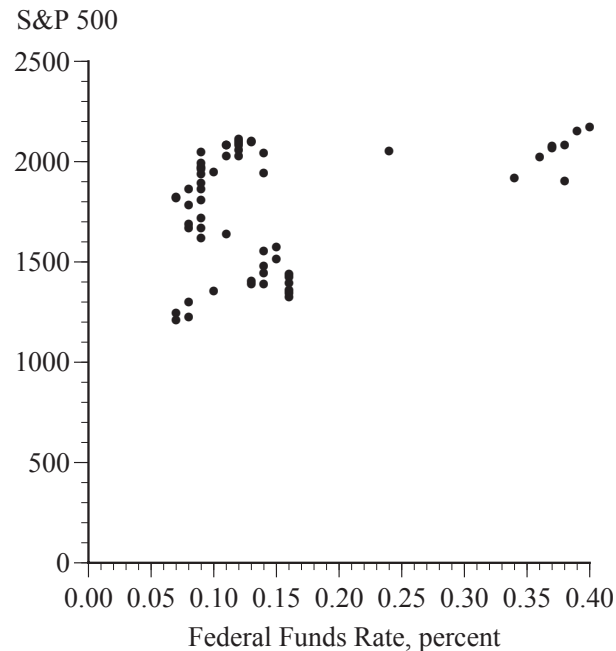
1. Respond to this boast: “I just saved a ton of money by refinancing my 4% fixed rate mortgage with a 3% adjustable.”
2. Starting with \$1,000 in 1978, Hillary Clinton made nearly a \$100,000 profit investing in cattle futures while her husband Bill was Governor of Arkansas. Although she had no experience trading futures contracts, she said that the reason for her success was that she read *The Wall Street Journal*. Why would you be skeptical of anyone making such a claim?
3. Respond to this December 2014 analysis of the stock market:
The dividend discount model is $P = D/R-g$. I estimated the required return from the 10-year Treasury rate of 2.33% plus a 5% risk premium: $R = 0.0233 + 0.05 = 0.0733$. The dividend growth rate was 11.89% last year and I assume that this growth rate will continue in the short-run because the economy is improving. Therefore, for a short-run investor, the intrinsic value of the S&P 500 is infinite and investors should buy the S&P 500 regardless of the price.
4. An Internet web site offered “An Easy Way to Make a Quick 300% on Apple.” They said that Apple might go up 50%, but investors could make a 300% return without buying Apple stock on margin. To find out the secret, readers had to become members. What do you think the secret is?
5. Explain why you either agree or disagree with this argument in Burton Malkiel’s classic book, *A Random walk Down Wall Street*:
Efficient market theory... [is] built on the premise that stock-market investors are rational because they make reasonable estimates of the present value of stocks, and their buying and selling ensures that the prices of stocks fairly represent their future prospects.

6. “Whenever the Fed decides that inflation is too high or the dollar needs strengthening, it takes actions that make everybody’s borrowing expensive and more difficult. That hurts profits, which pushes stock prices down.” Why, even if profits were unaffected, would this tightening by the Fed reduce stock prices?
7. Investors sometimes place a “buy stop order” to buy a stock now trading for, say, \$26.50 at the market price if the price rises above \$30. Why would they want to buy later at \$30 when they could buy now at \$26.50?
8. A 2016 *Sports Illustrated* article noted that the Chicago Cubs had won 24 of their first 30 Major League Baseball games, and that only 13 teams had done so well in the modern baseball era. What pattern(s) do you see in these data and how would you explain them?

	First 30 Games			Rest of Season			Total Season		
	Wins	Losses	Percent	Wins	Losses	Percent	Wins	Losses	Percent
1905 Giants	24	6	80.0	81	42	65.9	105	48	68.6
1907 Cubs	24	6	80.0	83	39	68.0	107	45	70.4
1907 Giants	25	5	83.3	57	66	46.3	82	71	53.6
1911 Tigers	25	5	83.3	64	60	51.6	89	65	57.8
1921 Pirates	24	6	80.0	66	57	53.7	90	63	58.8
1928 Yankees	24	6	80.0	77	47	62.1	101	53	65.6
1939 Yankees	24	6	80.0	82	39	67.8	106	45	70.2
1946 Red Sox	24	6	80.0	80	44	64.5	104	50	67.5
1955 Dodgers	25	5	83.3	73	50	59.3	98	55	64.1
1958 Yankees	24	6	80.0	68	56	54.8	92	62	59.7
1977 Dodgers	24	6	80.0	74	58	56.1	98	64	60.5
1981 A's	24	6	80.0	40	39	50.6	64	45	58.7
1984 Tigers	26	4	86.7	78	54	59.1	104	58	64.2

9. In September of 1997, *The Wall Street Journal* reported that corporate insiders were increasingly using “collars” to hedge their holdings in the company’s stock without actually selling the stock. In a typical collar, the insider simultaneously sells a call and buys a put at a lower strike price, with the price of the put approximately equal to the price of the call. For example, on December 4, 1997, Microsoft stock traded for 142 9/16, an April 1998 call at an exercise price of 150 traded for 3 and an April 1998 put at an exercise price of 135 traded for 2 1/8. Show the profit diagram on the April exercise date for an investor who buys one share of Microsoft, sells one call, and buys one put.

10. Answer this e-mail: “How can economists say that stock prices are inversely related to interest rates when the attached figure, using monthly data for the past 5 years, clearly show a positive relationship between the S&P 500 and the federal funds rate (the interest banks charge each other on overnight loans)?”



11. U.S. companies hold \$2 trillion in cash overseas in order to escape U.S. taxes. If President Trump declares a temporary zero tax rate (a “tax holiday”) for cash brought back to the U.S., it is expected that companies will use most of the money they bring back to repurchase stock. Why would they do this instead of
- paying dividends
 - paying off their debts
 - investing in new plant and equipment
12. Respond to this dialogue from the *Sopranos* television show. Carmela has been nagging Tony to buy a stock. Finally, Tony says, “Let's buy that stock.” Carmela makes a face: “It split. It's too late, we missed it.”
13. Respond to this argument: “Clearly, the extended run up in the stock market, which long-term requires a healthy economy for strong profits, is in the early to mid-stage of a bubble. This is evidenced by a reading of 126.8% in the ‘total market cap to GDP’ ratio (100% is fairly valued).” (The total market cap is the total market value of U. S. stocks.)

14. Dividends are paid to those who own the company's shares on the "record date." For instance, the board of directors might declare a \$2 dividend to be paid on March 1 to those who own stock on the record date of February 15. To allow for the processing of transactions, the NYSE and most other exchanges stocks use an *ex-dividend* (excluding dividend) date two business days before the record date; those who buy the stock *ex-dividend* do not receive the dividend.

CRSP has the most comprehensive data on daily returns for individual stocks. Why do you suppose they record an investor as having received the dividend on the day the stock goes *ex-dividend*, instead of the day that the investor is actually paid the dividend?

15. Explain the error in this explanation of stock repurchases from a corporate finance textbook (Eugene Brigham, *Financial Management*, 4th ed.).

[ADC] earned \$4.4 million in 1984, and 50% of that amount, or \$2.2 million, had been allocated for distribution to common shareholders. There were 1.1 million shares outstanding, and the market price was \$20 a share. ADC felt that it could use the \$2.2 million to repurchase 100,000 of its shares through a tender offer or could pay a cash dividend of \$2 a share.

The effect of the repurchase on the EPS and the market price per share of the remaining stock can be determined in the following way:

$$1. \text{ current EPS} = \frac{\text{total earnings}}{\text{number of shares}} = \frac{\$4.4 \text{ million}}{1.1 \text{ million}} = \$4/\text{share}$$

$$2. \text{ P/E ratio} = \frac{\$20}{4} = 5$$

$$3. \text{ EPS after repurchase} = \frac{\$4.4 \text{ million}}{1 \text{ million}} = \$4.40/\text{share}$$

$$4. \text{ market price after repurchase} = \frac{P}{E}(\text{EPS}) = \$22/\text{share}$$

It should be noticed from this example that investors would receive benefits of \$2 per share in either case, either in the form of a \$2 cash dividend or a \$2 increase in the stock price.

16. Explain why you either agree or disagree with *Investopedia*'s explanation of Tobin's q :
- A low Q (between 0 and 1) means that the cost to replace a firm's assets is greater than the value of its stock. This implies that the stock is undervalued. Conversely, a high Q (greater than 1) implies that a firm's stock is more expensive than the replacement cost of its assets, which implies that the stock is overvalued. This measure of stock valuation is the driving factor behind investment decisions in Tobin's model.*
17. A typical payday two-week loan is \$15 interest for every \$100 borrowed; for example, borrow \$200 and pay back \$230 at the end of two weeks. What is the effective annual interest rate, compounded bi-weekly?
18. Other things being equal, does an increase in interest rates raise or lower the value of an S&P 500 futures contract? Explain your reasoning.
19. Respond to this argument:
- It is widely expected that income tax rates will go up when Democrats regain control of the federal government. Even if it is certain that within the next 10 to 20 years, those currently paying a 25% tax on interest income and a 15% tax on dividend income will have to pay a 35% tax on interest income, while retaining a 15% tax on dividends, this will have no immediate effect on stock prices because: (a) the 15% tax on dividends will not change; and (b) nothing will change for at least 10 years.*
20. A bank estimates that the return from a portfolio of Mexican bonds has an expected value of 18% and a standard deviation of 20% and that the return from a portfolio of U.S. bonds has an expected return of 8% and a standard deviation of 10%. A senior officer argues that, because the bank is risk averse, it should invest in both. Is this argument more persuasive if the returns on the U.S. and Mexican bonds are positively correlated or negative correlated? Why?