

Problem set: Hand in 4

Exercise 1.

[3]

LJP Corporation has a beta of 1.0. The annualized market return yesterday was 11%, and the risk-free rate is currently 5%. You observe that LJP had an annualized return yesterday of 14%. Assuming that markets are efficient, this suggests that

- A) bad news about LJP was announced yesterday.
- B) good news about LJP was announced yesterday.
- C) no news about LJP was announced yesterday.
- D) interest rates rose yesterday.
- E) interest rates fell yesterday.

Exercise 2.

[1]

A common strategy for passive management is _____.

- A) creating an index fund
- B) creating a small firm fund
- C) creating an investment club
- D) A and C
- E) B and C

Exercise 3.

[3]

In an efficient market the correlation coefficient between stock returns for two non-overlapping time periods should be

- A) positive and large.
- B) positive and small.
- C) zero.
- D) negative and small.
- E) negative and large.

Exercise 4.

[1]

_____ is equal to the total market value of the firm's common stock divided by (the replacement cost of the firm's assets less liabilities).

- A) Book value per share
- B) Liquidation value per share
- C) Market value per share
- D) Tobin's Q
- E) None of the above.

Exercise 5.

[1]

_____ is equal to (common shareholders' equity/common shares outstanding).

- A) Book value per share
- B) Liquidation value per share
- C) Market value per share
- D) Tobin's Q

E) none of the above

Exercise 6.

[1]

The _____ is a common term for the market consensus value of the required return on a stock.

- A) dividend payout ratio
- B) intrinsic value
- C) market capitalization rate
- D) plowback rate
- E) none of the above

Exercise 7.

[1]

You wish to earn a return of 13% on each of two stocks, A and B. Stock A is expected to pay a dividend of \$3 in the upcoming year while Stock B is expected to pay a dividend of \$4 in the upcoming year. The expected growth rate of dividends for both stocks is 7%. The intrinsic value of stock A _____.

- A) will be greater than the intrinsic value of stock B
- B) will be the same as the intrinsic value of stock B
- C) will be less than the intrinsic value of stock B
- D) cannot be calculated without knowing the market rate of return
- E) none of the above is a correct answer.

Exercise 8.

[1]

Each of two stocks, A and B, are expected to pay a dividend of \$5 in the upcoming year. The expected growth rate of dividends is 10% for both stocks. You require a rate of return of 11% on stock A and a return of 20% on stock B. The intrinsic value of stock A _____.

- A) will be greater than the intrinsic value of stock B
- B) will be the same as the intrinsic value of stock B
- C) will be less than the intrinsic value of stock B
- D) cannot be calculated without knowing the market rate of return.
- E) none of the above is true.

Exercise 9.

[1]

Agricultural Equipment Company has an expected ROE of 10%. The dividend growth rate will be _____ if the firm follows a policy of paying 40% of earnings in the form of dividends.

- A) 3.0%
- B) 4.8%
- C) 7.2%
- D) 6.0%
- E) none of the above

Exercise 10.

[3]

Civil Engineering Corporation is expected to pay a dividend of \$1.00 in the upcoming year. Dividends are expected to grow at the rate of 6% per year. The risk-free rate of return is 5% and the expected return on the market portfolio is 13%. The stock of Civil Engineering Corporation has a beta of 1.2.

1. What is the return you should require on Civil Engineering's stock?

- A) 12.0%

- B) 14.6%
- C) 15.6%
- D) 20%
- E) none of the above

What is the intrinsic value of Civil Engineering's stock?

- A) \$14.29
- B) \$14.60
- C) \$12.33
- D) \$11.62
- E) none of the above

Exercise 11.

[5]

J.C. Penney Company is expected to pay a dividend in year 1 of \$1.65, a dividend in year 2 of \$1.97, and a dividend in year 3 of \$2.54. After year 3, dividends are expected to grow at the rate of 8% per year. An appropriate required return for the stock is 11%. The stock should be worth _____ today.

- A) \$33.00
- B) \$40.67
- C) \$77.53
- D) \$66.00
- E) none of the above

Exercise 12.

[1]

Dividend discount models and P/E ratios are used by _____ to try to find mispriced securities.

- A) technical analysts
- B) statistical analysts
- C) fundamental analysts
- D) dividend analysts
- E) psychoanalysts

Exercise 13.

[1]

The performance of an internationally diversified portfolio may be affected by

- A) country selection.
- B) currency selection.
- C) stock selection.
- D) all of the above.
- E) none of the above.

Exercise 14.

[3]

Exchange rate risk

- A) results from changes in the exchange rates in the currencies of the investor and the country in which the investment is made.
- B) can be hedged by using a forward or futures contract in foreign exchange.
- C) cannot be eliminated.
- D) A and C.
- E) A and B.

Exercise 15.

[3]

Which of the following countries has an equity index that lies on the efficient frontier generated by allowing international diversification?

- A) the United States
- B) the United Kingdom
- C) Japan
- D) Norway
- E) none of the above – each of these countries' indexes fall inside the efficient frontier.

Exercise 16.

[1]

A purely passive strategy is defined as

- A) one that uses only index funds.
- B) one that allocates assets in fixed proportions that do not vary with market conditions.
- C) one that is mean-variance efficient.
- D) both A and B.
- E) all of the above.

Exercise 17.

[3]

The Treynor-Black model assumes that

- A) the objective of security analysis is to form an active portfolio of a limited number of mispriced securities.
- B) the cost of less than full diversification comes from the nonsystematic risk of the mispriced stock.
- C) the optimal weight of a mispriced security in the active portfolio is a function of the degree of mispricing, the market sensitivity of the security, and its degree of nonsystematic risk.
- D) all of the above are true.
- E) none of the above are true.

Exercise 18.

[3]

Suppose two portfolios have the same average return, the same standard deviation of returns, but portfolio A has a higher beta than portfolio B. According to the Sharpe measure, the performance of portfolio A _____.

- A) is better than the performance of portfolio B
- B) is the same as the performance of portfolio B
- C) is poorer than the performance of portfolio B
- D) cannot be measured as there is no data on the alpha of the portfolio
- E) none of the above is true.

Exercise 19.

[5]

Suppose the risk-free return is 6%. The beta of a managed portfolio is 1.5, the alpha is 3%, and the average return is 18%. Based on Jensen's measure of portfolio performance, you would calculate the return on the market portfolio as

- A) 12%
- B) 14%
- C) 15%
- D) 16%
- E) none of the above

Exercise 20.

[3]

You want to evaluate three mutual funds using the Sharpe measure for performance evaluation. The risk-free return during the sample period is 6%. The average returns, standard deviations and betas for the three funds are given below, as is the data for the S&P 500 index.

	Average Return	Standard Deviation	Beta	
Fund A	24%	30%	1.5	
Fund B	12%	10%	0.5	
Fund C	22%	20%	1.0	
S&P 500	18%	16%	1.0	

The fund with the highest Sharpe measure is _____.

- A) Fund A
- B) Fund B
- C) Fund C
- D) Funds A and B are tied for highest
- E) Funds A and C are tied for highest

Exercise 21.

[5]

You want to evaluate three mutual funds using the Treynor measure for performance evaluation. The risk-free return during the sample period is 6%. The average returns, standard deviations, and betas for the three funds are given below, in addition to information regarding the S&P 500 index.

	Average Return	Standard Deviation	Beta	
Fund A	13%	10%	0.5	
Fund B	19%	20%	1.0	
Fund C	25%	30%	1.5	
S&P 500	18%	16%	1.0	

The fund with the highest Treynor measure is _____.

- A) Fund A
- B) Fund B
- C) Fund C
- D) Funds A and B are tied for highest
- E) Funds A and C are tied for highest

Exercise 22.

[5]

You want to evaluate three mutual funds using the Jensen measure for performance evaluation. The risk-free return during the sample period is 6%, and the average return on the market portfolio is 18%. The average returns, standard deviations, and betas for the three funds are given below.

	Average Return	Standard. Deviation	Beta
Fund A	17.6%	10%	1.2
Fund B	17.5%	20%	1.0
Fund C	17.4%	30%	0.8

The fund with the highest Jensen measure is _____.

- A) Fund A
- B) Fund B
- C) Fund C
- D) Funds A and B are tied for highest
- E) Funds A and C are tied for highest

Exercise 23.

Among the lectures you will find information about *Folketrygdfondet*, a Pension Fund controlled by the Ministry of Finance, primarily investing in the Norwegian equity markets. Among the information you will find a link that allows you to download monthly returns and other information about the fund, including its benchmark returns.

- For both their equity and bond portfolios, construct a picture of the wealth evolution, i.e. starting at 1 at the first observation, plot the increase in wealth implied in the monthly returns. In the picture include both the funds' portfolios and the benchmark portfolios.

Exercise 24.

Alpha [6]

Among the analyses in Dahlquist and Ødegaard's 2018 report is the regressions reported in Table 10 of their report, one of which is an alpha regression concerning the equity part of the portfolio:

$$R_t - R_t^b = a + b_{MKT}MKT_t + b_{SMB}SMB_t + b_{HML}HML_t + b_{RMW}RMW_t + b_{CMA}CMA_t + \varepsilon_t,$$

(for definitions look at the report.)

Your task is to do a similar alpha estimation for

- The period 2014–2022.

How does the alpha estimate look?

Note that the numbers in the report are in the fund's currency basket. For simplicity, for this problem you can use data in USD. It may be informative to do the analysis for the period used in the report, to illustrate the differences between using USD and the currency basket, before doing the above specification.

Exercise 25.

[1]

The price that the buyer of the option pays to acquire the option is called the

- A) strike price.
- B) exercise price.
- C) execution price.
- D) acquisition price.
- E) premium.

Exercise 26.

[1]

An American put option can be exercised

- A) any time on or before the expiration date.
- B) only on the expiration date.
- C) any time in the indefinite future.
- D) only after dividends are paid.
- E) none of the above.

Exercise 27.

[1]

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.

Exercise 28.

[1]

The maximum loss a buyer of a stock call option can suffer is equal to

- A) the striking price minus the stock price.
- B) the stock price minus the value of the call.
- C) the call premium.
- D) the stock price.
- E) none of the above.

Exercise 29.

[3]

The potential loss for a writer of a naked call option on a stock is

- A) limited.
- B) unlimited.
- C) larger the lower the stock price.
- D) equal to the call premium.
- E) none of the above.

Exercise 30.

[1]

You write one AT&T February 50 put for a premium of \$5. Ignoring transactions costs, what is the breakeven price of this position?

- A) \$50
- B) \$55
- C) \$45
- D) \$40
- E) none of the above

Exercise 31.

[3]

All of the following factors affect the price of a stock option **except**

- A) the risk-free rate.
- B) the riskiness of the stock.

- C) the time to expiration.
- D) the expected rate of return on the stock.
- E) none of the above.

Exercise 32.

[3]

The put-call parity theorem

- A) represents the proper relationship between put and call prices.
- B) allows for arbitrage opportunities if violated.
- C) may be violated by small amounts, but not enough to earn arbitrage profits, once transaction costs are considered.
- D) all of the above.
- E) none of the above.

Exercise 33.

[1]

Derivative securities are also called contingent claims because

- A) their owners may choose whether or not to exercise them.
- B) a large contingent of investors holds them.
- C) the writers may choose whether or not to exercise them.
- D) their payoffs depend on the prices of other assets.
- E) contingency management is used in adding them to portfolios.

Exercise 34.

[3]

The price of a stock put option is _____ correlated with the stock price and _____ correlated with the striking price.

- A) positively, positively
- B) negatively, positively
- C) negatively, negatively
- D) positively, negatively
- E) not, not

Solutions

Problem set: Hand in 4

Solution to Exercise 1.

[3]

B

$AR = 14\% - (5\% + 1.0(6\%)) = +3.0\%$. A positive abnormal return suggests that there was firm-specific good news.

Solution to Exercise 2.

[1]

A

The index fund is, by definition, passively managed. The other investment alternatives may or may not be managed passively.

Solution to Exercise 3.

[3]

C

In an efficient market there should be no serial correlation between returns from non-overlapping periods.

Solution to Exercise 4.

[1]

D

Book value per share is assets minus liabilities divided by number of shares. Liquidation value per share is the amount a shareholder would receive in the event of bankruptcy. Market value per share is the market price of the stock.

Solution to Exercise 5.

[1]

A

Solution to Exercise 6.

[1]

C

The market capitalization rate, which consists of the risk-free rate, the systematic risk of the stock and the market risk premium, is the rate at which a stock's cash flows are discounted in order to determine intrinsic value.

Solution to Exercise 7.

[1]

C

$PV_0 = D_1/(k-g)$; given k and g are equal, the stock with the larger dividend will have the higher value.

Solution to Exercise 8.

[1]

A

$PV_0 = D_1/(k-g)$; given that dividends are equal, the stock with the larger required return will have the lower value.

Solution to Exercise 9.

[1]

D

$10\% \times 0.60 = 6.0\%$.

Solution to Exercise 10.

[3]

1. B

$$5\% + 1.2(13\% - 5\%) = 14.6\%.$$

2. D

$$k = 5\% + 1.2(13\% - 5\%) = 14.6\%; P = 1 / (.146 - .06) = \$11.62.$$

Solution to Exercise 11.

[5]

C

Calculations are shown in the table below.

Yr	Dividend	PV of Dividend @ 11%	
1	\$1.65	$\$1.65/(1.11)$ = \$1.4865	
2	\$1.97	$\$1.97/(1.11)^{22} = \1.5989	
3	\$2.54	$\$2.54/(1.11)^{33}$ = \$1.8572	
	Sum	\$4.94	

$$P_3 = \$2.54 (1.08) / (.11-.08) = \$91.44; PV of P_3 = \$91.44/(1.08)^3 = \$72.5880; P_O = \$4.94 + \$72.59 = \$77.53.$$

Solution to Exercise 12.

[1]

C

Fundamental analysts look at the basic features of the firm to estimate firm value.

Solution to Exercise 13.

[1]

D

All of the above factors may affect the performance of an international portfolio.

Solution to Exercise 14.

[3]

E

Although international investing involves risk resulting from the changing exchange rates between currencies, this risk can be hedged by using a forward or futures contract in foreign exchange.

Solution to Exercise 15.

[3]

E

To get to the efficient frontier you would need to combine the countries' indexes.

Solution to Exercise 16.

[1]

D

A purely passive strategy is one that calls for no market analysis.

Solution to Exercise 17.

[3]

D

All of the statements correctly describe assumptions of the Treynor-Black model.

Solution to Exercise 18.

[3]

B

The Sharpe index is a measure of average portfolio returns (in excess of the risk free return) per unit of total risk (as measured by standard deviation).

Solution to Exercise 19.

[5]

A

$3\% = 18\% - [6\% + 1.5(x - 6\%)]$; $x = 12\%$.

Solution to Exercise 20.

[3]

C

A: $(24\% - 6\%)/30\% = 0.60$; B: $(12\% - 6\%)/10\% = 0.60$; C: $(22\% - 6\%)/20\% = 0.80$; S&P 500: $(18\% - 6\%)/16\% = 0.75$.

Solution to Exercise 21.

[5]

A

A: $(13\% - 6\%)/0.5 = 14$; B: $(19\% - 6\%)/1.0 = 13$; C: $(25\% - 6\%)/1.5 = 12.7$; S&P 500: $(18\% - 6\%)/1.0 = 12$.

Solution to Exercise 22.

[5]

C

A: $17.6\% - [6\% + 1.2(18\% - 6\%)] = -2.8\%$; B: $17.5\% - [6\% + 1.0(18\% - 6\%)] = -0.5\%$; C: $17.4\% - [6\% + 0.8(18\% - 6\%)] = +1.8\%$.

Solution to Exercise 23.

Solution to Exercise 24.

Alpha [6]

The following is the estimation results

If you are used to estimation of the Fama French model on asset returns (or returns in excess of the risk free rate), the coefficient on the market may surprise you. Those cases that coefficient is close to one. Here it is close to zero. That is because the dependent variable is a difference between two portfolios.

Solution to Exercise 25.

[1]

E

Solution to Exercise 26.

[1]

A. American options can be exercised on or before expiration date.

Solution to Exercise 27.

[1]

B. An out of the money put option gives the owner the right to sell the shares for less than market price.

Solution to Exercise 28.

[1]

C If an option expires worthless all the buyer has lost is the price of the contract (premium).

Solution to Exercise 29.

[3]

B If the buyer of the option elects to exercise the option and buy the stock at the exercise price, the seller of the option must go into the open market and buy the stock (in order to sell the stock to the buyer of the contract) at the current market price. Theoretically, the market price of a stock is unlimited; thus the writer's potential loss is unlimited.

Solution to Exercise 30.

[1]

C $+\$50 - \$5 = \$45$.

Solution to Exercise 31.

[3]

D A, B, and C are directly related to the price of the option; D does not affect the price of the option.

Solution to Exercise 32.

[3]

D The put-call parity relationship depicts the relationship between put and call prices, which, if violated, allows for arbitrage profits; however, these profits may disappear once transaction costs are considered.

Solution to Exercise 33.

[1]

D. The values of derivatives depend on the values of the underlying stock, commodity, index, etc.

Solution to Exercise 34.

[3]

B. The lower the stock price, the more valuable the call option. The higher the striking price, the more valuable the put option.