LAURIER
Business & Economics

# BU473 : Investment Management
# Midterm Exam - Fall 2012

Student Name: _____ ID _____

Section _____

| | |
|---|---|
| **Number of Pages** | **16** |
| **Length of Examination** | **2 hours** |
| **Examination Aids Allowed** | -- Formula Sheets, provided at the back of the exam, can be separated from the rest of the exam. At the end of the exam, please fold the formula sheets in ½ and place them inside the exam.<br>-- Calculators ARE permitted. |

**Instructions:**

1. Place your ID card on the right hand side of the desk.
2. You are not allowed to leave the examination room until **one hour** after the start of the exam and **you must sign the identification sheet before leaving**.
3. Your examination paper must be handed in at the front of the exam room before you leave. No paper of any kind is to be taken from the room. When you are finished please leave the room quietly.
4. **Cheating on an examination will result in an "F" grade in the course concerned and possible suspension from the university.**
5. All notes, briefcases and books must be deposited at the front of the room.
6. Count the pages to be certain that there are no pages missing.
7. **Answer multiple choice questions in the SCANTRON form provided**
8. Answer the long questions in the space provided on the exam. Use the back of the sheet if necessary.
9. Credit will be based on CONTENT and not LENGTH of the answer. If you need to make assumptions in order to answer a question, state the assumptions made.
10. If you must leave the room for personal reasons, please raise your hand and a proctor will escort you.
11. Do not begin this examination until you are instructed to do so.
12. GOOD LUCK!

**PART I: MULTIPLE CHOICE (2 points each)**

1. A decrease in the market risk premium, all other things constant, will cause the security market line to

a. Shift up
b. Shift down
c. Have a steeper slope
d. Have a flatter slope
e. Remain unchanged

ANS: D PTS: 2

2. Unsystematic risk refers to risk that is

a. Undiversifiable
b. Diversifiable
c. Due to fundamental risk factors
d. Due to market risk
e. None of the above

ANS: B PTS: 2

3. Which of the following are reasons that Canadian investors should consider foreign markets when constructing global portfolios?

a. Ignoring foreign markets reduced their choices of investment opportunities.
b. Foreign markets have low correlations with Canadian markets.
c. Returns on non-Canadian stocks can substantially exceed returns for Canadian securities.
d. All of the above.
e. None of the above.

ANS: D PTS: 1

4. An order that specifies the highest buy or lowest sell price is a:

a. Limit order.
b. Short sale.
c. Market order.
d. Margin call.
e. Stop loss.

ANS: A PTS: 1

5. The basic distinction between a primary and a secondary market is:

a. proceeds from sales in the primary market go to the current owner of a security; proceeds in secondary market go to the original owner.
b. primary markets involve direct dealings within regional exchanges.
c. only new securities are sold in the primary market; only outstanding securities are bought

and sold in the secondary market.
d. primary markets deal exclusively in bonds; secondary markets deal primarily in common stock.
e. None of the above.

ANS: C PTS: 1

6. You bought 200 shares of AAA Industries using $5,000 borrowed from your broker. If the maintenance margin is 25%, to what price can AAA Industries fall before you receive a margin call?

a. $14.56
b. $23.17
c. $32.42
d. $33.33
e. None of the above

ANS : D

Equity position = 200P-5000

Margin =0.25= (200P-5000)/200P P=0.33

7. In the case of closed-end investment companies, shares of the company

a. Trade on the secondary market.
b. Can be bought from or sold to the investment company at the NAV.
c. Trade with a discount.
d. Choices a and c.
e. Choices b and c.

ANS: D PTS: 1

8. Which of the following is a characteristic of hedge funds?

a. They are generally less restricted in how and where they can make investments.
b. They are more liquid than mutual fund shares.
c. They have no limitations on when and how often investment capital can be contributed or removed.
d. All of the above.
e. None of the above.

ANS: A

9. An open-end investment company is commonly referred to as a(n)
a. Balanced fund.
b. Mutual fund.
c. Money market fund.
d. Accessible fund.
e. Unit trust.

ANS: B PTS: 1

10. The policy statement may include a ____ against which a portfolio's or portfolio manager's performance can be measured.

a. Milestone
b. Benchmark
c. Landmark
d. Reference point
e. Market pair

ANS: B PTS: 1

11. For an investor with a time horizon of 10 to 15 years and higher risk tolerance, an appropriate asset allocation strategy would be

a. 50% cash, 50% bonds
b. 100% cash
c. 30% cash, 50% bonds, and 20% stocks
d. 10% cash, 30% bonds, and 60% stocks
e. 100% bonds

ANS: D PTS: 1

12. Exchange traded funds

a. Are exactly the same as index mutual funds
b. Can be bought and sold like common stocks
c. Can be sold short.
d. Choices a and b.
e. Choices b and c.

ANS: E PTS: 1

13. Value stocks would have the following characteristics

a. Low price/book, high price/earnings.
b. Low price/book, low price/earnings.
c. High EPS growth, high profitability.
d. All of the above.
e. None of the above.

ANS: B PTS: 1

14. A contrarian investment strategy is based on the belief that

a. Stock returns are mean reverting.
b. The best time to buy is when other investors are bullish.
c. Rising stocks will continue to rise.
d. Passive management is preferred to active management.
e. A long/short portfolio will outperform a long only portfolio.

ANS: A

15. The table below provides returns on a portfolio along with returns for the corresponding benchmark index for the past eight quarters. The table also provides the difference between portfolio returns and the benchmark index, the average of these differences over the past eight quarters and the standard deviation of these differences.

| Period | Portfolio | Index | Difference |
|---|---|---|---|
| 1 | 0.05 | 0.027 | 0.023 |
| 2 | -0.036 | -0.046 | 0.010 |
| 3 | 0.022 | 0.019 | 0.003 |
| 4 | 0.012 | 0.022 | -0.010 |
| 5 | -0.003 | -0.001 | -0.002 |
| 6 | -0.023 | -0.03 | 0.007 |
| 7 | 0.089 | 0.081 | 0.008 |
| 8 | -0.008 | 0.006 | -0.014 |

Average 0.003
~~Variance~~ ~~0.108577~~

Correct
Variance 0.000139

The annualized tracking error for this period is

a. 2.36%
b. 4.08%
c. 2.89%
d. 3.33%
e. 1.18%

ANS: A
SD= sqrt(0.000139)=0.011789
Annualized Tracking Error = $0.011789 \times \sqrt{4} = 0.0236$

PTS: 1 OBJ: LO2

USE THE FOLLOWING INFORMATION FOR THE NEXT 3 PROBLEMS (16, 17 and 18)

The data presented below has been collected at this point in time.

| Fund | Beta | Standard Deviation (%) | Return (%) | $R_f$ (%) |
|---|---|---|---|---|
| XXX | 1.07 | 5.13 | 19 | 6 |
| YYY | 1.02 | 4.28 | 17 | 6 |
| ZZZ | 0.86 | 3.52 | 12 | 6 |
| Market | 1.00 | 3.80 | 13 | 6 |

16. Compute the Sharpe Measure for the XXX fund from the previous table.

a. 6.98
b. 2.35
c. 2.53
d. 3.86
e. 1.72

ANS: C
$(19 - 6) \div 5.13 = 2.53$

PTS: 1 OBJ: LO2

17. Compute the Jensen Measure for the YYY fund from the previous table.

a. 6.98
b. 2.35
c. 2.53
d. 3.86
e. 1.72

ANS: D
$(17 - 6) - [1.02\ (13.0 - 6.0)] = 3.86$

18. Compute the Treynor Measure for the ZZZ fund from the previous table.

a. 6.98
b. 2.35
c. 2.53
d. 3.86
e. 1.72

ANS: A
$(12 - 6) \div 0.86 = 6.98$

19. Which of the following is **not** characteristic of the "decline" phase of the industry life cycle?

a. Little product differentiation
b. Substantial manufacturing overcapacity
c. Many competitors
d. Falling prices

e. None of the above (this is, all are characteristics of the "decline" phase)

ANS: C

20. Defensive companies are firms where

a. Sales, earnings and cash flows are extremely uncertain and not necessarily related to the economy.
b. Sales, earnings and cash flows are likely to withstand changes caused by the economic environment.
c. Sales, earnings and cash flows are heavily influenced by aggregate business activity.
d. Sales, earnings and cash flows are growing exponentially.
e. None of the above.

ANS: B PTS: 1

21. Ross Corporation paid dividends per share of $1.20 at the end of 1999. At the end of 2009 it paid dividends per share of $3.50. Calculate the compound annual growth rate in dividends.

a. 52.17%
b. 34.28%
c. 23%
d. 19.17%
e. 11.29%

ANS: E
$g = (3.50/1.20)^{1/10} 1 = 11.29\%$

22. Rank the following four investments in increasing order of historical risk.
a. Art, T-bills, corporate bonds, and common stock
b. T-bills, common stock, corporate bonds, art
c. Corporate bonds, T-bills, common stock, art
d. Common stock, corporate bonds, T-bills, art
e. T-bills, corporate bonds, common stock, art

ANS: E PTS: 1

23. Which of the following is **not** a stage in the industrial life cycle?
a. Early pioneering development
b. Rapid accelerating growth
c. Acquisition and consolidation
d. Mature growth
e. Stabilization and market maturity
ANS: C

PART II: 3 POINTS MULTIPLE CHOICE QUESTIONS

24. Calculate the HPY for the following portfolio

| Stock | Shares | Price(t) | Price(t+1) |
|---|---|---|---|
| 1 | 15 | 10 | 12 |
| 2 | 25 | 15 | 16 |

a. 10.6%
b. 6.95%
c. 13.5%
d. 10%
e. 15.7%

ANS: A

| Stock | Shares | Price(t) | MV(t) | Price(t+1) | MV(t+1) | HPR | HPY | Weight | Weighted HPY |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 15 | 10 | 150 | 12 | 180 | 1.2 | 0.2 | 0.29 | 0.058 |
| 2 | 25 | 15 | 375 | 16 | 400 | 1.07 | 0.07 | 0.71 | 0.048 |
| | | | 525 | | 580 | | | | 0.106 |

Portfolio HPY = .29(.20) + .71(.07) = .106 = 10.6%

or 580/525 -1 = 10.5%

PTS: 2

25. You decide to sell 100 shares of Davis Industries short when it is selling at its yearly high of $35. Your broker tells you that your margin requirement is 55% and that the commission on the sale is $15. At the end of one year you buy your Davis shares (cover your short sale) at $30 and are charged a commission of $15. What is your rate of return on the investment?

a. 10.48%
b. 24.04%
c. 13.43%
d. 24.23%
e. 18.87%

ANS: D
Rate of Return = Profit ÷ Initial Investment
Profit = $3500 – $3000 – $15 – $15 = $470
Initial investment = (.55 × $3500) + $15 = $1,940
∴ Rate of Return = $470/$1,940 = 24.23%

PTS: 2

26. Compute the M2 Measure for the YYY fund from the following table.

| Fund | Beta | Standard Deviation (%) | Return (%) | $R_f$ (%) |
|---|---|---|---|---|
| XXX | 1.07 | 5.13 | 19 | 6 |
| YYY | 1.02 | 4.28 | 17 | 6 |
| ZZZ | 0.86 | 3.52 | 12 | 6 |
| Market | 1.00 | 3.80 | 13 | 6 |

a. 2.01
b. 2.77
c. 1.25
d. 6.55
e. 1.72

ANS: B
4.28W=3.80
W=0.88785
0.88785*17+0.11215*6=15.77
m2=15.77-13=2.77
PTS: 1 OBJ: LO2

27. Calculate the percentage return that can be attributed to the asset **allocation** decision from the following table

| | Policy Weight | Actual Weight | Index Returns | Actual Returns |
|---|---|---|---|---|
| Stocks | 0.65 | 0.7 | 0.11 | 0.12 |
| Bonds | 0.3 | 0.25 | 0.07 | 0.08 |
| Cash | 0.05 | 0.05 | 0.03 | 0.025 |

a. 0.105%
b. 0.925%
c. 0.20%
d. 0.96%
e. 0.94%

ANS: C

| | Policy Weight | Actual Weight | Index Returns | Actual Returns |
|---|---|---|---|---|
| Stocks | 0.65 | 0.7 | 0.11 | 0.12 |
| Bonds | 0.3 | 0.25 | 0.07 | 0.08 |
| Cash | 0.05 | 0.05 | 0.03 | 0.025 |
| | | | | |

| | | | | |
|---|---|---|---|---|
| Asset Allocation | | | | |
| Policy x index | | | 0.094 | |
| Actual x index | | | 0.096 | |
| | | | 0.002 | |
| | | | | |
| Security Selection | | | | |
| Actual x Actual | | | 0.10525 | |
| Actual x index | | | 0.096 | |
| | | | 0.00925 | |

PTS: 1 OBJ: LO2

28. Calculate the percentage return that can be attributed to the security selection decision from that table of the previous question:

a. 0.105%
b. 0.925%
c. 0.20%
d. 0.96%
e. 0.94%

ANS: B

| | Policy Weight | Actual Weight | Index Returns | Actual Returns |
|---|---|---|---|---|
| Stocks | 0.65 | 0.7 | 0.11 | 0.12 |
| Bonds | 0.3 | 0.25 | 0.07 | 0.08 |
| Cash | 0.05 | 0.05 | 0.03 | 0.025 |
| | | | | |
| Asset Allocation | | | | |
| Policy x index | | | 0.094 | |
| Actual x index | | | 0.096 | |
| | | | 0.002 | |
| | | | | |
| Security Selection | | | | |
| Actual x Actual | | | 0.10525 | |
| Actual x index | | | 0.096 | |
| | | | 0.00925 | |

PTS: 1 OBJ: LO3

29. Based on the information provided, calculate the intrinsic value in 2004 of a share of INV Corp. using the FCFF (free cash flow to the firm) model. For 2009 the FCFF was $30,000, total debt was $20,000, and there were 12000 shares outstanding. The required rate of return is 9% and the estimated growth rate in FCFF is 6.5%.

a. $104.83
b. $153.25
c. $112.50
d. $94.92

e. $80.45

ANS: A

$$\text{price} = \left[ \frac{30000(1.065)}{.09 - .065} - 20000 \right] / 12000 = \$104.83$$

PTS: 1 OBJ: LO3

30. Fast Grow Corporation is expecting dividends to grow at a 20% rate for the next two years. The corporation just paid a $2 dividend and the next dividend will be paid one year from now. After two years of rapid growth dividends are expected to grow at a constant rate of 9% forever. If the required return is 14%, what is the value of Fast Grow Corporation common stock today?

a. $40.26
b. $42.38
c. $46.70
d. $52.63
e. $62.78

ANS: D

$$P_0 = \frac{\$2(1.2)}{1.14} + \frac{\$2.4(1.2)}{1.14^2} + \frac{\frac{\$2.88(1.09)}{.14 - .09}}{1.14^2} = \$2.105 + \$2.216 + \frac{\$62.784}{1.14^2} = \$52.631$$

31. Suppose you want to create a price-weighted index of 3 stocks, AA, BB and CC. You have observations for 2 trading days. The prices for day one are AA=$9, BB=$12 and CC=$6. The prices for day two are: AA=$9.5, BB=$4.1 and CC=$5.3. The number of shares outstanding in day one are AA= 1000, BB= 500 and CC=1700. In day two stock BB has a 3 for 1 split. Calculate the return of the price-weighted index between the two days.

a. 3.20%
b. 5.00%
c. 3.21%
d. -0.30%
e. -2.14%

ANS D

Index 1= 9+12+6 / 3 =9

D=9 + 4 + 6/ 9 =2.11

Index 2 = 9+4.1+5.3 /2.11= 8.96

Ret = -0.4% thus closest answer in -0.30%

32. What will be the return of a market-value-weighted index of the stocks in the previous question?

a. 3.20%
b. 5.00%
c. 3.21%
d. -0.30%
e. -2.14%

ANS E

| | AAA | | | BBB | | | CCC | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Price | Shares | Value AAA | Price | Shares | Value BBB | Price | Shares | Value CCC | Total | Ret |
| Day 1 | 9 | 1000 | 9000 | 12 | 500 | 6000 | 6 | 1700 | 10200 | 25200 | |
| Day 2 | 9.5 | 1000 | 9500 | 4.1 | 1500 | 6150 | 5.3 | 1700 | 9010 | 24660 | -2.14% |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

33. An investment starts with a value of $10,000. Half year later, the investor receives $100 dividend payment. The investor invests another $500 into the account. Account value after the dividend but before the additional investment is $10,700. At the end of one year, the investor receives another dividend payment of $100 and the account value is $11,000 after dividend payment. What is the time-weighted return?

a. 2.2543%
b. -3.2454%
c. 4.2390%
d. -2.4356%
e. 3.4596%

ANS E

| | | | |
|---|---|---|---|
| **T0** | **10,000** | | |
| **T1** | **10,800** | **r0,1 =** | **0.0800** |
| **T1** | **11,200** | | |
| **T2** | **11,100** | **r1,2 =** | **-0.0089** |

**r0,2 = (1+0.0800)(1-0.0089) – 1 = 7.0357%**

**or periodic TW return = [(1+0.0800)(1-0.0089)]^0.5 – 1 = 3.4596%**

PART III: LONG QUESTIONS

1. (8 points) At the beginning of 2011, your brokerage account had $3,000 cash and no securities. You decided to buy 200 shares of Lucky Inc. at a price of $20 and short 100 shares of ABC Inc. at a price of $30.

a) If the initial margin requirement is 50%, did your account have enough cash for the two transactions? If yes, what was the cash balance after the two transactions? If not, how much additional cash did you have to deposit into your account to complete the two transactions and what is the cash balance after the transactions? (4 points)

**Let say he has "I" dollars of initial cash**

**CASH= I -4000 (long) + 3000(short) =I-1000**
**LONG=4000**
**SHORT=3000**

**Buying power= I-1000 + 0.50*4000 - 1.50*3000 = 0**
**Solve for I = 3500**

**Since he has just 3000 he needs 500 extra**

**A different way:**
**To complete the two transactions, you will need 200x20x50% = $2000 for the long transaction and 100x30x50% = $1500 for the short transaction. Need to deposit: 2000+1500-3000= 500 additional cash**

**Cash Balance:**

**Option 1 if he does not take a cash loan:**

**Cash balance = Initial cash + deposit – purchase + short**
**=3000 + 500 - 4000 + 3000 = 2500**

**If he takes a cash loan**

**Cash balance = Initial cash + deposit – purchase + short +loan**
**=3000 + 500 - 4000 + 3000 + 2000 = 4500**

**He will have a loan of 2000 in this case**

b) If the maintenance margin is 30% and the price for Lucky Inc. increased to $22, at what price for ABC Inc. you would receive a margin call? (4 points)

Option 1 he did not take a loan:

**CASH= 3500 -4000 (long) + 3000(short) =2500**
**LONG=4400**
**SHORT=100 P**

**Equity Value =Cash + Long - Short**
**Equity Value = 2500+ 4400-100P=6900-100P**

**Margin=0.30= (6900-100P) / 100P P=6900/130= 53.08**

Option 2 he did take a loan:

**CASH= 3500 -4000 (long) + 3000(short) + 2000(loan) =4500**
**LONG=4400**
**SHORT=100 P**
**LOAN= 2000**

**Equity Value =Cash + Long - Short - Loans**
**Equity Value = 4500+ 4400-100P - 2000=6900-100P**

**Margin=0.30= (6900-100P) / 100P P=6900/130= 53.08**

2. (16 points) You are in charge of finding the intrinsic value of the company LATINOS Inc. The company has experienced a high growth rate of revenues for the last 3 years, so it is expected to maintain the same average (arithmetic) growth for the next 2 years (2013, and 2014). After that, the company expects that its growth rate will drop to 3% and remain constant indefinitely. The company cost of capital is estimated to be 12% and it is expected to remain constant indefinitely. The ratios of: cost of goods sold, selling and administrative, current assets and current liabilities, to revenues is also expected to remain constant and equal to the arithmetic average of the last 3 years. The current market value of debt is 12 million dollars. The number of shares outstanding in the market is 1 million. Please refer to the table below for financial information of the company for the last 3 years

What is the stock price of LATINO Inc., as today (assume that today is December 31, 2012)?

| Consolidated Income Statement | | | |
|---|---|---|---|
| **In thousand dollars** | | | |
| Year | **2010** | **2011** | **2012** |
| Revenues | 28,000 | 33,000 | 37,850 |
| Cost of good sold | 19,800 | 22,668 | 26,392 |
| Gross Profit | 8,200 | 10,332 | 11,458 |
| Selling and Adminstrative | 4,200 | 4,500 | 5,678 |
| Operating Income | 4,000 | 5,832 | 5,781 |
| Interest Expense | 42 | 30 | 28 |
| Income before taxes | 3,958 | 5,802 | 5,753 |
| Income Taxes | 1,550 | 2,205 | 2,186 |
| Net Income | 2,408 | 3,597 | 3,567 |
| | | | |
| | | | |
| Aditional Information | | | |
| | **2010** | **2011** | **2012** |
| Current Assets in $ in thousand | 6,160 | 7,260 | 8,327 |
| Current Liablities $ in thousand | 2,800 | 3,300 | 3,785 |

Please fill the following partial answers:

Growth Rate (1 point):
Present Value of Free Cash Flows for 2013(5 points)
Present Value of Free Cash Flows for 2014 (5 points):
Present Value of Terminal Value (3 points):
Enterprise Value (1 point):
Stock Price (1 point): 31.87