FIN 3300 -004 Final Exam.
Source: Brigham and Houstan Fundaments of Financial Management text

Part 1: Use the information in the table below to answer the following questions.

State of the economy	Probability	T-Bill	High Tech	Collections	U.S. Rubber	Market Portfolio	2- Stock Portfolio
Recession	.1	5.5%	-27%	27.0%	6.0%	-17.0%	0.0%
Below Average	.2	5.5	-7.0	13.0	-14.0	-3.0	
Average	.4	5.5	15.0	0.0	3.0	10.0	7.5
Above Average	.2	5.5	30.0	-11.0	41.0	25.0	
Boom	.1	5.5	45.0	-21.0	26.0	38.0	12.0
$\bar{k}$ expected rate				1.0	9.8	10.5	
σ standard dev.				13.2	18.8	15.2	3.4
CV coef. of variation		0		13.2	1.9	1.4	0.5
Risk(Beta, β)			1.30	-0.87	0.88		

1. Why is the T-bill's return independent of the state of the economy? Do T-bills promise a completely risk-free return? Explain. Known when purchased, not purchasing power.
2. Why are High Tech's returns expected to move with the economy, whereas Collections' are expected to move counter to the economy? Not need
3. Calculate the expected rate of return on each alternative and fill in the blanks on the row for r in the previous table.
    a. Calculate the standard deviation value for each alternative and fill in the blank on the row for in the table. 12.4%, 5.5%, risk = 20, 0
    b. What type of risk is measured by the standard deviation?
4. Suppose you suddenly remembered that the coefficient of variation (CV) is generally regarded as being a better measure of stand-alone risk than the standard deviation when the alternatives being considered have widely differing expected returns. Calculate the missing CVs and fill in the blanks on the row for CV in the table. Does the CV produce the same risk rankings as the standard deviation? Explain. 1.61 risk adjusted / per unit return

5. Suppose you created a two-stock portfolio by investing $50,000 in High Tech and $50,000 in Collections.

    a. Calculate the expected return r_p, the standard deviation (σ_p), and the coefficient of variation (CV_p) for this portfolio and fill in the appropriate blanks in the table. **6.7 return 3.44 risk 0.51 CV**

    b. How does the riskiness of this two-stock portfolio compare with the riskiness of the individual stocks if they were held in isolation? Less Risk

6. Suppose an investor starts with a portfolio consisting of one randomly selected stock.

a. What would happen to the riskiness and to the expected return of the portfolio as more randomly selected stocks were added to the portfolio? Sigma goes down same return

7.

a. Should the effects of a portfolio impact the way investors think about the riskiness of individual stocks? **Yes**
b. If you decided to hold a one-stock portfolio (and consequently were exposed to more risk than diversified investors), could you expect to be compensated for all of your risk; that is, could you earn a risk premium on the part of your risk that you could have eliminated by diversifying? **No, earn risk premium or lose all money**

8. Beta coefficients are supplied in the table. What is beta coefficient, how is it constructed, and how are betas used in risk analysis?
    a. Do the expected returns appear to be related to each alternative's market risk?
    b. Write out the security market line (SML) equation and use it to calculate each alternatives (including t-bills) required rate of return.
    c. How do the expected rates of return compare with the required rates of return? Which securities are good buys or bad deals according to the comparison? Why? Rates above = good deals, rates below = bad deals
    d. Does the fact that Collections has an expected return that is less than the T-bill rate make any sense? Explain. Yes, - beta
    e. What would be the market risk and the required return of a 50 50 portfolio of High Tech and Collections? Of High Tech and U.S. Rubber? **6.58 return 10.96 risk**

9. Suppose investors raised their inflation expectations by 3 percentage points over current estimates as reflected in the 8% risk-free rate. What effect would higher inflation have on the SML and on the returns required on high- and low-risk securities? **Change intercept up**

10. Suppose instead that investors' risk aversion increased enough to cause the market risk premium to increase by 3 percentage points. (Inflation remains constant.) What effect would this have on the SML and on returns of high- and low-risk securities? **Change Slope up**

Part 2.

Coleman Technologies is considering a major expansion program that has been proposed by the company's information technology group. Before proceeding with the expansion, the company must estimate its cost of capital. Suppose you are an assistant to Jerry Lehman, the financial vice president. Your first task is to estimate Coleman's cost of capital. Lehman has provided you with the following data, which he believes may be relevant to your task.

- The firm's tax rate is 40%.
- The current price of Coleman's 12% coupon, semiannual payment, noncallable bonds with 15 years remaining to maturity is $1,153 72. Coleman does not use short-term interest-bearing debt on a permanent basis. New bonds would be privately placed with no flotation cost.
- The current price of the firm's 10%, $100 00 par value, quarterly dividend, perpetual preferred stock is $111 10.
- Coleman's common stock is currently selling for $50 00 per share. Its last dividend D_0 was $4.19, and dividends are expected to grow at a constant annual rate of 5% in the foreseeable future. Coleman's beta is 1 2, the yield on T-bonds is 7%, and the market risk premium is estimated to be 6%. For the bond-yield-plus-risk-premium approach, the firm uses a risk premium of 4%.
- Coleman's target capital structure is 30% debt, 10% preferred stock, and 60% common equity. To structure the task somewhat, Lehman has asked you to answer the following questions.

1. What is the market interest rate on Coleman's debt and its component cost of debt? 6%
2. What is the firm's cost of preferred stock? 9%
3. What is Coleman's estimated cost of common equity using the CAPM approach? 14. 20
4. What is the estimated cost of common equity using the DCF approach? 13. 80%
5. What is the bond-yield-plus-risk-premium estimate for Coleman's cost of common equity? 14. 00%
6. What is your final estimate for r_s? (Hint: take the average)14. 00%
7. What is Coleman's overall, or weighted average, cost of capital (WACC)? Ignore flotation costs. 11. 10%

Part 3.

1. Project K has a cost of 52,125 and its expected net cash flows are 12,000 per year for 8 years.
    a. What is the projects payback period **4.34**
    b. What is the discounted payback period, assuming 12% cost of capital? **6.4995**
    c. What is the projects NPV, 12% cost of capital. **7,486.68**
    d. What is the projects IRR? **15.99%**

Part 4. Do the AOL questions on scan tron.