Homework #7

1) Suppose the stock had initial price of $87.00 per share, paid a dividend of $2.15 per share during the year, and had an ending share price of $98. Compute the percentage total return. What was the dividend yield? The capital gains yield?

Total Return= (End Value-Beginning Value + Dividends)/Beginning Value

Total Return= (98-87+2.15)/87=15.11%

Dividend Yield= Dividend/Beginning Value

Dividend Yield= 2.15/87=2.47%

Capital Gains Yield= (End Value-Beginning Value)/Beginning Value

Capital Gains Yield= (98-87)/87=12.64%

2) Suppose you bought a bond with an annual coupon rate of 5.5% one year ago for 1017 dollars. The bond sells today for 1041 dollars. A. Assuming a $1000 face value what was the total dollar return on this investment over the past year? B. What was the total nominal rate of return on this investment over the past year? C. If the inflation rate last year was 3%, what was your total reiterated return on this investment?

One Year Coupon Received= 1,000 X 5.5%=55

A) Dollar Return Formula= Closing Price-Purchase Price+ Coupon Received Dollar Return=1,041-1,017+55= 79 Is the Total Return
B) Nominal Rate Return Formula= (Sales Price-Purchase Price+ Coupon Received)/ Purchase Price
Nominal Rate Return= (1,041-1,017+55)/1,017= 0.07767945 or 7.77% Nominal Rate Return of return bonds.
C) Real Rate Return Formula= ((1+Nominal Rate of Return)/ (1+Inflation Rate))-1
Real Rate Return= ((1+0.07767945)/(1+3%))-1= 4.63% or 0.0463.

3) You've observed the following returns on you Yamauchi corporation's stock over the past five years: dash 10%, 24%, 21%, 11%, and 8%. A. what was the arithmetic average return on the stock over this five year.? B. What was the variance of the returns over this? The standard deviation?

A) Arithmetic Average= (-0.1+0.24+0.21+0.11+0.08)/5= 0.1080 or 10.80%

B) Variance= [(-0.10-0.1080)^2 + (0.24-0.1080)^2+ (0.21-0.1080)^2+ (0.11-0.1080)^2 + (0.08-0.1080)^2]5-1= 0.017970 is the Variance
C) Standard Deviation= 0.1341. I calculated it on my calculator.

4) Using information for the above problem suppose the average inflation rate over this. Was three point 1% and the average T bill rate over the period was four point 1% . A. what was the average real return on the stock? B. what was the average nominal risk premium on the stock?

A) Average Real Return= Arithmetic Average- Average Inflation Rate Average Real Return=10.8%-3.1%= 7.70%
B) Average Nominal Risk Premium= Arithmetic Average- T-Bill Rate
Average Nominal Risk Premium=10.8%-4.1%= 6.60%

5) Suppose the returns on long term government bonds are normally distributed. Based on the historical record, what is the approximate probability that you return on these bonds will be less than dash 3.9% in a given year? What range of return would you expect to see 95% of the time? What range would you expect to see 99% of the time?

Approximate probability in one year= (5.9%-9.8%) to (5.9%-9.8%)= -3.9 to 15.7%

Range of Return 95% probability= (5.9%-3 x 9.8) to (5.9% -2 x 9.8)= -13.7 to 25.5% for long term government bonds.

Range to expect 99%= (5.9-3 x 9.8) to (5.9%-3 x 9.8)= -23.5% to 35.3% for long term government bonds.

6) A stock has had the following prices at the end of each year for the last six year : $64.10, $74.05, $67.61, $76.25, $82.70 and $93.15. Over those same six years the dividends were $0.00, $1.10, $1.25, $1.45, $1.60, and $1.75. What is the arithmetic and geometric average return for this stock? Using the table below for returns and inflation look at the period from 1973 through 1978. A Period calculate that arithmetic average return for the large company stocks and T-bills over this time period. B. Calculate the standard deviation of returns for large company stocks and T-bills over this time period. C. Calculate the observed risk premium each year for large company stocks versus T-bills. What was the arithmetic average rich premium over this.? What was the standard deviation of the risk premium over this.? D. Is it possible for the risk premium

to be negative before an investment is undertaken? Can the risk premium be negative after the fact? Explain.

A) Arithmetic Average of company stocks and T-Bills:
Large Company Stocks= (-14.69+ -26.47+37.23+23.93+-7.16+6.57)/6= 3.24 T-Bills=(7.29+7.99+5.87+5.07+5.45+7.64)/6= 6.55

B) Standard Deviation for company Large company stocks and T-Bills= 16.36928. I did on my calculator.

C) Before the fact, for most assets the risk premium will be positive, investors demand compensation over and above the risk-free return to invest their money in the risky asset. After the fact, the observed risk premium can be negative if the asset's nominal return is unexpectedly low, the risk-free return is unexpectedly high.

Date	Price	Dividend	Return	
1973	$64.10			
1974	$74.05	$1.10	17.24%	(74.05+1.10-64.10)/64.10=0.1724
1975	$67.61	$1.25	-7.01%	(67.61+1.25-74.05)/74.05=-0.07008
1976	$76.25	$1.45	14.92%	(76.25+1.45-67.61)/67.61=0.1463
1977	$82.70	$1.60	10.56%	(82.70+1.60-76.25)/76.25=0.1056
1978	$93.25	$1.75	14.75%	(93.25+1.75-82.70)/82.70=0.1487

Arithmetic Mean= 10.09

Geometric Mean= ((1+17.24) x (1+-7.01) x (1+14.92) x (1+10.56) x (1+14.75) ^ (1/5)-1= 9.71%