**Assignment 3 – Financial Management**

1.

a)

The price of the bond is quoted as the percentage of the par value according to the question. So if its par value is $1,000

$1000 X 97.667% = $976.67

Thus, this bond would cost you $976.67 to buy today.

b)

Bond’s YTM

We assume that it is semi-annual coupon payment. Also, it has 2 years left to the maturity date.

Annual coupon payment= $1,000 X 7.000% = $70

PV = 976.67, PMT = -70/2 = -35, Nper = 2X2 = 4, FV = -1,000 CPT RATE = 4.14%

Since we have to offer YTM on annual basis, YTM is 4.14X2 = 8.29%

c)

Bond Value = $70[PVIFA 4.5%, 4] + $1000[PVIF 4.5%, 4] = $964.12

RATE = 4.5%, PMT = -35, Nper = 4, FV = -1000 CPT PV = $964.12

When comparing bond value ($964.12) with market price ($976.67), this bond is overvalued in the market. So, I would not buy this bond.

2.

a)

(1)

Price a year ago = 70[PVIFA 9%, 20] +1,000[PVIF 9%, 20] = $817.43

RATE = 9%, PMT = -70, Nper = 20, FV = -1000 CPT PV = $817.43

(2)

Price a year ago = 70[PVIFA 9%, 5] +1,000[PVIF 9%, 5] = $922.21

RATE = 9%, PMT = -70, Nper = 5, FV = -1000 CPT PV = $922.21

b)

Total Rate of Return(TRR) = Current Yield(CY) + Capital Gains Yield(CGY)

CY = Annual Coupon(=INT)/Purchase Price

CGY = (Sale Price-Purchase Price)/Purchase Price

(1)

CY = 70/817.43=8.56%

Sale Price = 70[PVIFA 11%, 19] + 1,000[PVIF 11%, 19] =$686.43

CGY = (686.43-817.43)/817.43 = -16.03%

Thus, TRR = 8.56%+(-16.03%) = -7.46%

(2)

CY = 70/922.21=7.59%

Sale Price = 70[PVIFA 11%, 4] + 1,000[PVIF 11%, 4] = $875.90

CGY = (875.90-922.21)/922.21 = -5.02%

Thus, TRR = 7.59%+(-5.02%) = 2.57%

c)

(1)

CY = 70/817.43 = 8.56%

Sale Price = 70[PVIFA 13%, 19] + 1,000[PVIF 13%, 19] = $583.72

CGY = (583.72-817.43)/817.43 =-28.59%

Thus, TRR = 8.56%+(-28.59%) =-20.03%

(2)

CY = 70/922.21 = 7.59%

Sale Price = 70[PVIFA 13%, 4] + 1,000[PVIF 13%, 4] = $821.53

CGY = (821.53-922.21)/922.21 =-10.92%

Thus, TRR = 7.59% + (-10.92%) = -3.33%

d)

In both[b] and [c] questions, (2) bond had the best return. Considering the only difference between (1) and (2) is the time to maturity, this problem illustrates ‘interest rate risk of bonds’. This bond concept explains us that the longer the maturity of bond is, the higher the interest rate risk of bonds.

3.

According to the data,

KRF = 3%, KM = 14%, β = 2.0, D0 = $2.50, g = 10%

The stock’s dividend will grow at a constant 10 percent rate. Thus, we will use constant growth stock valuation model.

According to CAPM,

KS = KRF + β (KM - KRF) = 3% + 2.0(14% - 3%)= 3% + 2.0X11% = 25%

0 = D1/(KS - g) = D0(1 + g)/(KS - g) = 2.50(1 + 0.1)/(0.25 - 0.1) = $18.33

The stock is worth $18.33. However, the stock is currently selling for $25 a share. Thus, Smith’s recommendation to buy SMITH is not a good one.

4.

According to the question,

D0 = $1.50, KRF = 3%, Market Risk Premium = KM - KRF = 9%

No entering, that is the same as now.

KS = KRF + β(KM - KRF) = 3% + 1.5(9%)= 16.5%

0 = D1/(KS - g) = D0(1 + g)/(KS - g) = 1.50(1 + 0.08)/(0.165 - 0.08) = $19.06

If the ITG enters a new line of business, g = 13%, β = 1.9

KS = KRF + β(KM - KRF) = 3% + 1.9(9%) = 20.1%

0 = D1/(KS - g) = D0(1 + g)/(KS - g) = 1.50(1 + 0.13)/(0.201 - 0.13) = $23.87

When ITG enters this new line of business, the stock price will increase from $19.06 to $23.87. Thus, ITG should enter this new line of business.

5.

a)

According to the question,

D0 = $0.72, KS = 12%

It is “Supernormal” Growth Stock Valuation since annual dividend growth rate of year1 to 3 is different from that of year4 to infinity.

D0 = $0.72

D1 = 0.72(1 + 0.16) = $0.84

D2 = 0.84(1 + 0.16) = $0.97

D3 = 0.97(1 + 0.16) = $1.12

D4 = 1.13(1 + 0.09) = $1.22

To compute Present Value,

3 = D4 /(KS - g) = 1.22/(0.12 - 0.09) = $40.83

By Npv function, RATE = 12%, Value1 = 0.84, Value2 = 0.97, Value3 = 1.12, Value4= 1.22 + 40.83 CPT PV = $31.38

The analyst’s value for Citigroup($31.38) is lower than the current market price($33) and it is overvalued. Therefore, the recommendation should be “sell”.

b)

According to the question,

g = 10%, D0 = $0.72, KS = 12.5%

It is Constant Growth Stock Valuation Model.

0 = D1/(KS - g) = 0.72(1 + 0.1)/(0.125 - 0.1) = 0.792/0.025 = $31.68

This analyst’s value for Citigroup($31.68) is lower than the current market price($33) and it is overvalued. Therefore, the recommendation should be “sell”.

c)

According to the question,

P0 = $33, D0 = $0.72, KS = 12%

It is Constant Growth Stock Valuation Model.

P0 = D1/(KS - g)

33 = 0.72(1 + g)/(0.12 - g)

33(0.12 - g) = 0.72(1 + g)

3.96 - 33g = 0.72 + 0.72g

3.24 = 33.72g

g = 9.61%

Therefore, Citigroup’s expected annual constant growth rate assuming the recent $33 stock price is in equilibrium is 9.61%