BUACC5936: Financial Management 2019 S1

Name

Course

Instructor

Institution

Date

**QUESTION ONE Time Value of Money**

1. The cash flow timeline is outlined below. There will be 12 funding P1 to P12 and then there will be 20 payments A1 to A20.

t=0 t=1 t=2------------------ t=12 t=13 t=14------------------------------ t=13

 p1 p2 p12 A1 A2 A20

$$PMT\left(\frac{1-\left(1+r\right)^{-n}}{r}\right)$$

\* PMT = amount of annuity.

\* i = interest amount

$$42000\left(\frac{1-\left(1+12\%\right)^{-20}}{12\%}\right)=313716.63$$

$313,716.63 is the amount required by the end of year 12

$FV\left(\frac{\left(1+r\right)^{n-1}}{r}\right)$

$$313716.63\left(\frac{\left(1+9\%\right)^{12-1}}{9\%}\right)=15576.24$$

Annual Deposit = $15,576.24

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| FV needed | $313,716.63  |   |   |   |   |
| Period |   |  12 YRS |  |   |   |   |
| Rate |   |  10% | This is the rate during accumulation |

$$FV\left(\frac{\left(1+r\right)^{n-1}}{r}\right)$$

$$313716.63\left(\frac{\left(1+10\%\right)^{12-1}}{10\%}\right)=$$

$14,670.43

1. In case the annuity is a perpetuity, the PV is calculated as Annual Amount/Interest Rate

|  |  |
| --- | --- |
| Amount  |  42,000  |
| Rate | 12% |

The PV of the perpetuity = 42,000/12%

=350,000

The amount to be deposited per year is

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| FV needed | $350,000  |   |   |   |   |
| Period |   | 12 | years |   |   |   |
| Rate |   | 9% | This is the rate during accumulation |

$$\$350,000 \left(\frac{\left(1+9\%\right)^{12-1}}{9\%}\right)$$

= $17,377.73

**QUESTION TWO Bond and Share Valuation**

1. Bond A

Payments made

First 6 years = $0

Next 8 years = $2,000 and

Last 6 years = $2,500.

Current price = C\*(PVIFA @I/2, n\*2) + C\*(PVIFA @I/2, n\*2) + C\*(PVIFA @I/2, n\*2) + Face value\*(PVIF@I/2, n\*2)

Current price = 0\*(PVIFA @6%, 12) + 2000\*(PVIFA @6%, 16) + 2500\*(PVIFA @6%, 12) + 40,000\*(PVIF @6%, 40)

Current price = 2000 \* 10.1059 + 2500 \* 8.3838+ 40,000 \* 0.0972

Current price = $45,059.3

Bond B

Current price = FV/ (1 + i) n

 = $40,000/ (1.06)40

=$3888.89

1.

PV principal= face value / (1+YTM)^n =

1000/ (1.10)^5 = 620.9213

PVc = PB – PV principal

$768-620.9213 = 147.0787

Coupon = (PVc \* YTM) / {1/ (1+YTM)^n} =

(147.0787\*0.1)/ {1- (1/1.1)^5}

= 14.70787/ 0.379079

=$38.79896

Coupon rate = 100\*coupon/ face value

100\*38.79896/1000

=3.88%

1. 1st year = 2\*6% = 0.12

2.00+0.12 = 2.12

2nd year = 2.12\*6% = 0.1272

=2.12+0.1272 = 2.247

3rd year = 2.247\*6% = 0.135

=2.247+ 0.135 = 2.382

ii)  =  =  =  = $30.29.

iii)  =  = 

=  = $32.10

iv) Capital Gains Yield =  = r - .

Thus, the dividend yield in the first year is 10 percent, while the capital gains yield is 6 percent:

 Total return = 13%

Dividend yield = $2.12/$30.29 = 7%

 Capital gains yield 13% -7% = 6%

**QUESTION THREE Investment Decision Criteria/Capital Budgeting**



Alex should not invest based on the crackpot ideas but should rather consider capital budgeting techniques to determine whether the investment is viable or not. Based on the calculation above, the discount rate of 23% proposed by the Westpac Bank Risk Management team should be rejected and Alex should only consider a discount rate of 10% since it would generate positive outflows over the 20 year period.

**QUESTION FOUR Risk and Return**

1. **Capital allocation Line**
2. For the investment to have a 12% Portfolio standard deviation the required proportion for DREXLA and OGATO should be 55:45.

References

CFA/FRM : How to Build Efficient Frontier in Excel - Part 1 (of 2) [Video file]. (2018, February 13). Retrieved from <https://www.youtube.com/watch?v=jAkgzIqGmaY>

Juhász, L. (2011). Net present value versus internal rate of return. *Economics & Sociology*, *4*(1), 46-53.