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FINANCIAL MATHEMATICS

SOLUTIONS

3.0 NOMINAL AND EFFECTIVE RETURN

NOMINAL AND EFFECTIVE RETURN

53 Ans.   17.71%

Solution: First using CMPD mode Find I%. Begin mode; N = 80; PMT = -1000; FV = 145645; I = 17.71%

54 Ans.   30%

Solution: Return on portfolio:

0.5*26% + 0.3*30% + 0.2*40% = 30%

55 Ans.   12.61%

Solution: Prepare a timeline and using FC 200 CMPD mode calculate I%

Expenses after retirement: PV= 27000; N= 20; i%= 7%; FV= 104481.4%(solve)

Real return after retirement = 0.9345%

Retirement corpus required: BEGIN; r =0.9345%; PMT = 104481.4; N =30*12; p/y = 12; PV = 32833970.5(solve)

Now, value of current investments at the time of retirement:

N=20; i% = 9.5%; PV = -1800000; FV = 11054901.7

Now funds required to sustain retirement corpus = 32833971-11054902= 21779068

Now average return: Begin; N= 20; PMT = -2,50,000; FV = 21779068; r% = 12.61%(solve)

56 Ans.   19.56%

Solution: 1.5% * 12 = 18% Now using CNVR mode N = 12; i% = 18%; Effective = 19.56% (Solve)

57 Ans.   12%, 12.36%, 12.55%, 12.68%

Solution: Using CNVR mode on FC 200 solve: i% = 12%

Annually: 12%; Semiannually: 12.36%; Quarterly: 12.55%; Monthly: 12.68%

58 Ans.   0.64%

Solution: Using CNVR mode solve: I% = 8%; N =12; APR = 7.72%(solve)

Rate per month = 7.72%/12 = 0.64%

59 Ans.   0.62%, 7.72%

Solution: Using CMPD mode and CNVR mode solve: PV= -13,50,000; FV = 2500000; N = 8; c/y = 12; i% = 7.72% (solve); Now yearly APR = 7.45%(solve); Therefore, rate per month = 7.45%/12 = 0.62%

60 Ans.   12.55%

Solution: Using CNVR mode solve 12.55%(solve)

61 Ans.   10.47% p.a.; 10.38% p.a.; 10.25% p.a.

Solution: Using CNVR mode solve for each (10.47% p.a.; 10.38% p.a.; 10.25% p.a.)

62 Ans.   0.945%, 11.96%

Solution: Using CMPD mode and CNVR mode solve: PV= -13,50,000; FV = 3500000; N = 8; c/y = 12; i% = 11.96% (solve); Now yearly APR = 11.35%(solve); So, rate per month = 11.35%/12 = 0.945%

63 Ans.   9%

Solution: Using CMPD mode solve; PV = -140000; FV = 181304.06; N = 3; r= 9%(solve)

64 Ans.   0.669%

Solution: Using CNVR mode solve 0.669%(solve)

65 Ans.   12.55%

Solution: Using CNVR mode solve 12.55%(solve)

66 Ans.   CNVR: Effective return: 10.38%, Real return= 3.64%