

Assignment 8

100 Points (Due: 5:00PM Wednesday April 13th)

Assessment Goals: (Bonds, Multiple rate of returns, EXCEL use of what if analysis, Report quality). Show your work. Use 2 decimals for dollar values and 4 decimals for factors if needed. Use formulas, tables, and EXCEL as you wish.

PROBLEM 1: (30 points)

Six years ago, Make-Home construction company issued \$10 million worth of debenture bonds (\$10,000 face value) with a coupon rate of 8% per year, payable quarterly. Market interest rates dropped, and the company called the bonds (i.e., paid them off in advance) at a 10% premium on the face value. Therefore, it cost the company \$11 million to retire the bonds. What quarterly rate of return did an investor make who purchased a \$10,000 bond six years ago and held it until it was called? What annual rate of return did an investor make who purchased a \$10,000 bond for \$8500, 4 years ago and held it until it was called?

PROBLEM 2: (40 points)

Accurate3D is an innovative company that manufactures many types of high tolerance industrial parts for aerospace industry. The company's cash flow (in millions) for one of its product divisions is as shown below. Determine:

- (a) the number of possible i^* values through rule and by plotting PW vs interest rate, and
- (b) all rate of return values between 0% and 100%.
- (c) Calculate the external rate of return using the return on invested capital (ROIC) approach with an investment rate of 15% per year.

Year	Expenses (\$ Mil)	Revenue (\$ Mil)
0	-22	0
1	-20	27
2	-19	24
3	-24	36
4	-38	52
5	-28	18
6	-30	15
7	-10	24

PROBLEM 3: (30 points)

A car dealer currently offers financing on a \$20,000 car at 4% APR compounding monthly for 3 years to be repaid through equal monthly installments. As a promotional case he is thinking of offering some non-conventional financing plans. Two plans that he considers are:

ArithPlan: 3.5% APR compounding monthly for 3 years to be repaid through monthly installments that begin at \$300 the first month, increasing by an arithmetic gradient each month for 12 months, then staying at the same month 12 value for another 12 months and then decreasing by the same gradient value to the end of the 36 instalment with the same \$300 value.

GeoPlan: 3% APR compounding monthly for 3 years to be repaid through monthly installments that begin at \$300 the first month, increasing by an arithmetic gradient each month for 12 months, then staying at the same month 12 value for another 12 months and then decreasing by the same gradient value to the end of the 36 instalment with the same \$300 value.

However, not being an IE, he does not know how find G value for the ArithPlan or g value for Geo plan. Your job is to plot the cash flows for the three cases and find and explain your strategy for finding those gradient values.