Real Estate Finance Application Problem

Throughout the semester, you will be working on an application problem that will incorporate what you learn from several chapters into one project. This is a group project, and all assignments will be turned in as a group. Groups can consist of between 3-5 people. Group selection is up to you, although I will assign individuals to a group as a last resort if any member of the class are unable to form a group on their own.

Altogether, the project counts for 15% of your grade. I have divided the project into 4 parts, all of which count equally toward your final grade.

1. Due Midnight July 12- Send me a list of all the members of your group.
2. Due Midnight July 19- Create an Excel spreadsheet that will calculate an amortization table for a fixed rate loan. This spreadsheet should work for fully amortizing, partially amortizing, and non-amortizing loans by allowing the user to adjust FV. All inputs should be clearly labeled and easily accessible by the user. To evaluate your spreadsheet, you may start by looking at a $1,000,000 fully amortizing, fixed rate mortgage with a 10 year term, monthly payments, and an interest rate of 6%. The spreadsheet should still fully function if I change any of these terms.
3. Due Midnight August 2- Add the ability for your spreadsheet to calculate the effective rate for a loan incorporating any closing costs. This should not be an entirely new sheet, but rather a modification of your existing spreadsheet. Assume the loan in part 2 now has closing costs of $12,000. To keep things simple, the spreadsheet only has to calculate the effective rate if the loan is held until maturity.
4. Due Midnight August 16
   1. Use your spreadsheet to prepare amortization tables for the following 2 mortgages. A $2,000,000 fully amortizing, fixed rate mortgage with a 10 year term, monthly payments, an interest rate of 6%, and $12,000 closing costs. Or, a $2,000,000 interest only, fixed rate mortgage with a 10 year term, monthly payments, and interest rate of 6.5%, and $2,000 in closing costs.
   2. Using the mortgage information prepared in part a, calculate the NPV to an investor of a property with the following characteristics using each mortgage. Note, the mortgage amount should match the information given below, unless I forgot to change something when setting up the problem.
      1. Purchase Price = $4,000,000
      2. LTV = 50%
      3. NOI = $180,000 annually, expected to grow between 1-4% annually
      4. A tax rate of 35%
      5. Land Value of approximately $500,000
      6. A 10 year holding period
      7. The property will be sold at the end of 10 years.
      8. A discount rate on the equity investment of 7%.
   3. Using the information gathered from a and b, choose which mortgage is best for this property, and determine whether or not the property should be purchased with the best mortgage.

Rubric

1. Full Credit for a list turned in. Zero credit for no list

2. 0- No spreadsheet is turned in

1- Spreadsheet is turned in but does not function if inputs are changed

2- Spreadsheet is turned in, functions for a fully amortizing mortgage, but does not function for any other types.

3- Spreadsheet is turned in, functions for all mortgage types, but is poorly labeled/difficult to use

4- Spreadsheet is turned in, fully functional, and easy to use.

3. 0 – No spreadsheet is turned in

1- Spreadsheet is turned in, but no substantive changes from the previous spreadsheet.

2- Spreadsheet is turned in, closing costs are included, but closing costs are not properly used to calculate the effective rate.

3-Spreadsheet is turned in, closing costs are properly incorporated, but spreadsheet is poorly labeled/difficult to use

4-Spreadsheet is turned in, fully functional, and easy to use.

1. 0- No spreadsheet is turned in
2. Spreadsheet is turned in, but no application is made to problem 4
3. Spreadsheet is used to correctly calculate loan costs, but does not address NPV or project selection
4. Spreadsheet is used to correctly calculate loan costs and NPV of project, but is not used to guide project selection
5. Spreadsheet is used to correctly calculate loan costs and NPV of project and the correct decision is made regarding project selection.