

Financial Analysis Project

Find a real-world engineering economic/financial problem that you are interested in exploring. Financial analysis in the real world usually requires the use of Excel (or other spreadsheet application) to help model, analyze and find numerical solutions. Use your engineering economic knowledge to model your selected problem, research for relevant input parameters and implement it in Excel. Analyze your solutions and provide insights or interesting discovery that you obtain from carrying out the project.

Example Topics

Below are example topics. Feel free to propose anything else or modify from the following selections.

- 1) ***Fund investment.*** Analyze the returns on various funds, bonds or other investment opportunities available in the market. Compare the alternatives.
- 2) ***Life insurance.*** There are various life/health insurance alternatives in the market with different payment amounts, timing, and dividends. What are the actual rates of return on these “investments”? What situation would have to arise, e.g., timing of your death, illness, etc. for this investment to pay off or be better than other investments? Which one do you recommend, if any?
- 3) ***Business plan.*** If you have a business idea in mind, use this opportunity to carry out a financial analysis. Estimate future cash flows from projected parameters, such as sales, market size, costs, etc. What is the rate of return, NPV, and/or payback period? How do you conclude (whether this is a good investment)?
- 4) ***Replacement/retention problem.*** Analyze replacement/retention decision on many capital investments around you, such as cars, laptops, etc.
- 5) ***Car loan or home mortgage.*** Study car loans or home mortgages available from a bank (or many banks). What are available payment schemes? How do they calculate interest?
- 6) ***Life financial plan.*** Project your financial future and possibly a retirement age, given different life decisions, such as a career choice, an investment selection, savings, etc. Specifically, think about incoming cash flows, such as salary, investment income, etc. These amounts may depend on the career you take or the type of investments you make. Outgoing cash flows may include routine expenses, such as food, clothes, entertainment, etc., and major expenses, such as a house, a car, etc. Note that generally, you can retire when you have sufficiently accumulated your retirement fund that can cover all future spending without working.

- 7) ***Housing decision.*** Compare between renting and buying, which lead to different cash flow structures. Is a single house better than a condo? What location, e.g., urban or suburban areas? You may choose to pick specific cases (you have access to data) to compare.
- 8) ***Other life financial decisions.***

Due Dates

This is a group project. Each group should consist of 6-7 members.

Group Forming. Form a group and get to know each other.

- 9 July 18: Email TA a list of group members by 4pm.

Project Proposal Presentation. Each group should prepare 3-5 slides containing: a list of group members, the proposed topic, alternatives to be explored, data needed and data collection plan, etc.

- 10 July 18: Email TA your Powerpoint presentation by 5pm.
- 11 July 18: Proposal presentation.

Project Presentation. Each group presents their financial analysis project, covering the problem scope, analyses and results, other findings and insights, etc. All group members need to speak up.

- 18 July 18: Email TA your presentation (Powerpoint), analysis (Excel) and report (Word) files by 9pm.
- 19-20 July 18: Project presentation. A hardcopy of the report should be submitted at the presentation. The report should not exceed 10 pages, excluding appendices.

Grading (Total = 30%)

- Proposal (3%)
- Presentation (17%)
- Report (8%)
- Feedback and questions to other groups (2%)