Introduction to Finance - II
Quiz 5   *February 19, 2019*

Howard Kim, your boss at Alvernon Developments, has asked you to analyze a new project idea. He wants to develop a WeWork-type office building in Tucson. A suitable downtown building is available for a 10-year long-term capitalized lease, requiring an up-front capital investment of $35 million. There are no competitors in Tucson, so the demand conditions are difficult to predict. Howard suggests using three scenarios–each equally likely. A best case scenario would be a 10-year annuity of $9 million per year. The worst case scenario would result in an annuity of $1 million per year. The middle scenario projects a $5 million annual cash flow over the 10 years. After operating the property for one year you will know demand conditions.

The property is owned by Bourn Properties, and they offer a lease termination option. For $5 million, Bourn will allow you to terminate the lease after one year. If you purchase this termination option, you have the right to terminate your lease after one year, at which point Bourn will pay you $26 million (and the initial cash outlay would be $40 million).

Alvernon Developments is privately owned, and the owners have a required rate of return of 9%, which is your cost of capital.

1. **(30 points)** What is the net present value of this project – assuming that you do not purchase the termination option?

2. **(40 points)** What is the project's value to Alvernon Developments, taking the termination option into consideration?

3. **(30 points)** What is the effect of increased uncertainty? Suppose that you maintain the same expectations about the future cash flows, but instead of $9 million, the upstate generates an annuity of $13 million per year, and the downstate generates an annuity of -$3 million per year (in this state the cash outflows exceed the inflows each year). The middle state is still a $5 million annual annuity (so that the expected value of future cash flows is the same as in the base case).