

**Finance 5360 Quiz A: 8/6/15**

Name \_\_\_\_\_

Summer Heat Inc. is considering building a new plant at a cost of \$100 million. The facility would generate its first net cash flow of \$27 million one year from today. In subsequent years, net cash flows would grow by 5% per year through the plant's closing 20 years from today. If sales fall short of expectations, the facility can be sold three years from today for \$55 million. If sales from the new plant exceed expectations, it can be expanded at a cost of \$50 million four years from today. The expansion would be expected to generate its first cash flow of \$10 million five years from today. Subsequent cash flows would grow by 1% per year through the plant's closing 20 years from today. The standard deviation of returns on the new facility will equal 25% over its life, 34% over the next three years, and 29% over the next four years. The standard deviation of returns on the expansion will equal 45% over the next three years, 48% over the next four years, and 50% once in place. The cost of capital on the new plant is 12% and on the expansion is 15%. Finally, the risk-free interest rate varies by maturity as follows: 1-year = 0.5%; 2-year = 0.9%; 3-year = 1.2%; 4-year = 1.5%; 5-year = 1.9%; 10-year = 2.8%; 20-year = 3.5%.

How does the possibility of selling the new plant if sales fall short of expectations affect the value of the new plant to Summer Heat?