

# Chapter 7, Problem 11

## DermaDrug: Option to Wait with Leakage

### Input Data

Present value of future cash flows	\$100	million
Volatility	25%	annual
Risk-free rate of return	5%	annual
Time to expiration	5	years
Time step	1	year(s)
Leakage yield	10%	annual
Strike price (Investment cost)	\$100	million

### Results

NPV	\$0
ROV	\$12
Value added	\$12

### Calculated Parameters

Up factor ( $u$ )	1.284
Down factor ( $d$ )	0.779
Risk-neutral probability ( $p$ )	0.341

### Asset Valuation Lattice

Time period	0	1	2	3	4	5
Valuation of underlying asset	\$100	\$128	\$165	\$212	\$272	\$349
		\$78	\$100	\$128	\$165	\$212
			\$61	\$78	\$100	\$128
				\$47	\$61	\$78
					\$37	\$47
						\$29

### Option Valuation Lattice

Time period	0	1	2	3	4	5
Valuation of wait option	\$12	\$28	\$65	\$112	\$172	\$249
		\$4	\$11	\$28	\$65	\$112
			\$1	\$3	\$9	\$28
				\$0	\$0	\$0
					\$0	\$0
						\$0



