

Chapter 7, Problem 9

Flash Memory International: Option to Choose

Input Data

Present value of future cash flows	\$400	million
Volatility	30%	annual
Risk-free interest rate	5%	annual
Time to expiration	5	years
Time step	1	year(s)
Expansion factor	1.4	
Cost of expansion	\$150	million
Contraction factor	0.5	
Savings from contraction	\$150	million
Salvage value	\$200	million

Results

NPV	\$400
ROV	\$476
Value added	\$76

Calculated Parameters

Up factor (u)	1.350
Down factor (d)	0.741
Risk-neutral probability (p)	0.510

Asset Valuation Lattice

Time period	0	1	2	3	4	5
Valuation of underlying asset	\$400	\$540	\$729	\$984	\$1,328	\$1,793
		\$296	\$400	\$540	\$729	\$984
			\$220	\$296	\$400	\$540
				\$163	\$220	\$296
					\$120	\$163
						\$89

Option Valuation Lattice

Time period	0	1	2	3	4	5
Valuation of chooser option	\$476	\$648	\$895	\$1,242	\$1,717	\$2,360
		\$348	\$459	\$627	\$878	\$1,227
			\$268	\$331	\$433	\$606
				\$231	\$260	\$298
					\$210	\$231
						\$200

