

Key to Abbreviations

Variable Name/Type	Meaning
BASE -->	Our standard valuation. All other prices are compared to this one
Delta	Tests that change the starting stock price
Risk-Free	Test that change the risk-free rate
Dividend	Tests that change the dividend yield
Volatility	Tests that change the volatility
Maturity	Tests that change the time to maturity
r H-height	Tests that change the ratio between starting stock price and barrier price
r T-width	Tests that change the ratio of Garrison period to overall time to maturity

Change to Variable	Meaning
- 50%	decreased by this amount
+ 2%	increased by this amount
+ 4%	<i>same</i>
+ 8%	<i>same</i>
+10%	<i>same</i>
+20%	<i>same</i>
+ 25%	<i>same</i>
+ 50%	<i>same</i>
+ 100%	<i>same</i>
ten-90	Garrison period spanning from 10% to 90% of time to maturity
thirty-70	<i>similar : 30% - 70% TTM</i>
forty-60	<i>similar : 40% - 60% TTM</i>
one-99	<i>similar : 1% - 99% TTM</i>
fortynine-51	<i>similar : 49% - 51% TTM</i>
tb = ta	special case. Both critical times equal, and happen early
ta = tb	special case. Both critical times equal, and happen late
t	special case. Both critical times equal, and happen halfway through TTM
H2=H1 "2 high"	Both barriers equal, and starting above starting stock price
H1=H2 "2 low"	Both barriers equal, and starting below starting stock price
H	Both barriers equal to each other and equal to starting stock price
S x 1.2	Plus or Minus 20% used to determine barriers
S x 1.1	<i>similar: 10%</i>
S x 1.4	<i>similar: 40%</i>
S x 1.6	<i>similar: 60%</i>
S x 1.5	<i>similar: 50%</i>
S x 2	<i>similar: 100% (i.e. S_0+S_0 and S_0-S_0)</i>
Comparison	base case for dividend comparison

Sorted by Level* only

Change	Variable	VALUE	SENSITIVITY	S-lvl
NA	BASE CASE -->	14.33177848	0	0
+ 2%	Delta	14.64158776	0.021616946	
+ 4%	Delta	15.03118727	0.048801256	
+ 8%	Delta	15.43666887	0.077093739	
Comparison	Dividend	14.19123206	-0.009806628	
+ 2%	Dividend	14.29467627	-0.002588807	
+ 4%	Dividend	14.19293667	-0.009687689	
+ 8%	Dividend	14.18507177	-0.010236463	
-50%	Maturity	10.14297786	-0.292273609	
+ 25%	Maturity	15.24812865	0.063938343	
+ 50%	Maturity	15.87917258	0.10796944	
+ 100%	Maturity	15.98432121	0.115306187	
S x 1.1	r H-height	3.842999751	-0.73185465	
S x 1.2	r H-height	11.27748768	-0.213113174	
S x 1.4	r H-height	14.13365963	-0.013823745	
S x 1.5	r H-height	13.17779718	-0.080519058	
S x 1.6	r H-height	12.68071453	-0.115203005	
S x 1.6	r H-height	12.64307516	-0.117829293	
S x 2	r H-height	11.16502796	-0.220960052	
t ffy-50	r T-width	13.95583995	-0.026231115	
frtnine-51	r T-width	12.91149549	-0.099100261	
frty-60	r T-width	12.00033428	-0.162676544	
thirty-70	r T-width	12.66116263	-0.116567239	
ten-90	r T-width	16.37612922	0.142644595	
one-99	r T-width	17.88539501	0.247953632	
tb = ta	r T-width	20.45479627	0.427233633	
ta = tb	r T-width	7.564877242	-0.472160608	
+ 2%	Risk-Free	14.33232626	3.82212E-05	
+ 8%	Risk-Free	14.30949199	-0.00155504	
+ 4%	Risk-Free	14.29335385	-0.002681079	
+10%	Risk-Free	14.24787903	-0.005854085	
+ 2%	Volatility	14.51236036	0.012600102	
+ 4%	Volatility	14.8650012	0.037205621	
+ 8%	Volatility	15.3967078	0.074305455	
+20%	Volatility	16.87211401	0.177251939	
H2=H1 "2 high"	r H-height	0	-1	1
H1=H2 "2 low"	r H-height	0	-1	1
H	r H-height	0	-1	1

Change	Variable	VALUE	SENSITIVITY	S-lvl
S x ±1.1	r H-height	3.8430	-73.19%	
ta = tb	r T-width	7.5649	-47.22%	
tb = ta	r T-width	20.4548	42.72%	
-50%	Maturity	10.1430	-29.23%	
one-99	r T-width	17.8854	24.80%	
S x 2	r H-height	11.1650	-22.10%	
S x ±1.2	r H-height	11.2775	-21.31%	
+20%	Volatility	16.8721	17.73%	
frty-60	r T-width	12.0003	-16.27%	
ten-90	r T-width	16.3761	14.26%	
S x ±1.6	r H-height	12.6431	-11.78%	
thirty-70	r T-width	12.6612	-11.66%	
+ 100%	Maturity	15.9843	11.53%	
S x ±1.6	r H-height	12.6807	-11.52%	
+ 50%	Maturity	15.8792	10.80%	
frtnine-51	r T-width	12.9115	-9.91%	
S x ±1.5	r H-height	13.1778	-8.05%	
+ 8%	Delta	15.4367	7.71%	
+ 8%	Volatility	15.3967	7.43%	
+ 25%	Maturity	15.2481	6.39%	
+ 4%	Delta	15.0312	4.88%	
+ 4%	Volatility	14.8650	3.72%	
t ffy-50	r T-width	13.9558	-2.62%	
+ 2%	Delta	14.6416	2.16%	
S x ±1.4	r H-height	14.1337	-1.38%	
+ 2%	Volatility	14.5124	1.26%	
+ 8%	Dividend	14.1851	-1.02%	
Comparison	Dividend	14.1912	-0.98%	
+ 4%	Dividend	14.1929	-0.97%	
+10%	Risk-Free	14.2479	-0.59%	
+ 4%	Risk-Free	14.2934	-0.27%	
+ 2%	Dividend	14.2947	-0.26%	
+ 8%	Risk-Free	14.3095	-0.16%	
+ 2%	Risk-Free	14.3323	0.00%	
NA	BASE CASE -->	14.3318	0	0
H2=H1 "2 high"	r H-height	0	-1	1
H1=H2 "2 low"	r H-height	0	-1	1
H	r H-height	0	-1	1

Level : The absolute value of the change in price.

The cases were Value = 0, or Sensitivity= -1 are expected.

These are edge/special cases, chosen with regard to the structure of the product.

We know intuitively beforehand, that the product should have zero value.

Price	N	M	a	b	H1	H2	s0	K	r	q	vol	T	
14.40275445	200	2000	40	160	130	70	100	100	0.05		0	0.3	1 <-file output test
14.14757054	2000	2000	400	1600	130	70	100	100	0.05		0	0.3	1 <-file output test
14.62197509	2000	4000	400	1600	130	70	100	100	0.05		0	0.3	1 <-file output test
14.64158776	2000	40000	400	1600	132.6	71.4	102	100	0.05		0	0.3	1
15.03118727	2000	40000	400	1600	135.2	72.8	104	100	0.05		0	0.3	1
15.43666887	2000	40000	400	1600	140.4	75.6	108	100	0.05		0	0.3	1
14.33232626	2000	40000	400	1600	130	70	100	100	0.051		0	0.3	1
14.29335385	2000	40000	400	1600	130	70	100	100	0.052		0	0.3	1
14.30949199	2000	40000	400	1600	130	70	100	100	0.054		0	0.3	1
14.19123206	2000	40000	400	1600	130	70	100	100	0.05	0.02	0	0.3	1
14.29467627	2000	40000	400	1600	130	70	100	100	0.05	0.0204	0	0.3	1
14.19293667	2000	40000	400	1600	130	70	100	100	0.05	0.0208	0	0.3	1
14.18507177	2000	40000	400	1600	130	70	100	100	0.05	0.0216	0	0.3	1
14.51236036	2000	40000	400	1600	130.6	69.4	100	100	0.05	0	0.306	1	
14.8650012	2000	40000	400	1600	131.2	68.8	100	100	0.05	0	0.312	1	
15.3967078	2000	40000	400	1600	132.4	67.6	100	100	0.05	0	0.324	1	
15.24812865	2000	40000	400	1600	130	70	100	100	0.05	0	0.3	1.25	
15.87917258	2000	40000	400	1600	130	70	100	100	0.05	0	0.3	1.5	
15.98432121	2000	40000	400	1600	130	70	100	100	0.05	0	0.3	2	
11.27748768	2000	40000	400	1600	120	80	100	100	0.05	0	0.3	1	
3.842999751	2000	40000	400	1600	110	90	100	100	0.05	0	0.3	1	
14.13365963	2000	40000	400	1600	140	60	100	100	0.05	0	0.3	1	
12.68071453	2000	40000	400	1600	160	40	100	100	0.05	0	0.3	1	
16.37612922	2000	40000	200	1800	130	70	100	100	0.05	0	0.3	1	
12.66116263	2000	40000	600	1400	130	70	100	100	0.05	0	0.3	1	
12.00033428	2000	40000	800	1200	130	70	100	100	0.05	0	0.3	1	
17.88539501	2000	40000	20	1980	130	70	100	100	0.05	0	0.3	1	
12.91149549	2000	40000	980	1020	130	70	100	100	0.05	0	0.3	1	
14.24787903	2000	40000	400	1600	130	70	100	100	0.06	0	0.3	1	
16.87211401	2000	40000	400	1600	136	64	100	100	0.05	0	0.36	1	
10.14297786	2000	40000	400	1600	130	70	100	100	0.05	0	0.3	0.5	
13.17779718	2000	40000	400	1600	150	50	100	100	0.05	0	0.3	1	
11.16502796	2000	40000	400	1600	200	0	100	100	0.05	0	0.3	1	
12.64307516	2000	40000	400	1600	160	40	100	100	0.05	0	0.3	1	
20.45479627	2000	40000	400	400	130	70	100	100	0.05	0	0.3	1	
7.564877242	2000	40000	1600	1600	130	70	100	100	0.05	0	0.3	1	
13.95583995	2000	40000	1000	1000	130	70	100	100	0.05	0	0.3	1	
	0	2000	40000	400	1600	130	130	100	100	0.05	0	0.3	1
	0	2000	40000	400	1600	70	70	100	100	0.05	0	0.3	1
	0	2000	40000	400	1600	100	100	100	100	0.05	0	0.3	1