

Binary (digital) gap option

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binary gap call option:

$$C_T = \begin{cases} S_T - K_2 & \text{if } S_T > K_1 \\ 0 & \text{otherwise} \end{cases}$$

binary gap put option:

$$P_T = \begin{cases} K_2 - S_T & \text{if } S_T < K_1 \\ 0 & \text{otherwise} \end{cases}$$

The binary gap option has a payout that depends on two strikes. One strike (K_1) determines if there is going to be a payout, while the other strike (K_2) determines the payout amount.

===Some properties===

* When $K_2=0$ the binary gap call option reduces to a binary asset-or-nothing call, while the put reduces to -1 * a binary asset-or-nothing put.

* When $K_2=K_1$ the binary gap option reduces to a vanilla option.

* The binary gap call is equivalent to a vanilla call with strike K_1 + a binary cash-or-nothing call with K_2 . The binary gap put is equivalent to a vanilla put with strike K_1 - a binary cash-or-nothing put with K_2 .

Symbol list:

C_T	Value of the binary gap call option at expiration
P_T	Value of the binary gap put option at expiration
S_T	Price of the underlying asset at expiration
K_1	Triggering strike
K_2	Payout strike