

Delta as probability shorthand

DELTA

The first and most useful of the Greeks, introduced here as a reading tool: delta measures how much an option's premium moves for a one-unit move in the underlying, and it doubles as rough shorthand for the option's probability of expiring in the money. A 0.30 delta call moves about 30 pence per pound of underlying and is loosely a 30% chance of finishing in the money - a single number that reads an option's sensitivity and its odds at once.

The full Greeks are module 8's subject, but one of them - delta - is a reading tool the market cannot be navigated without, so it belongs in the reading module. Delta is the bridge between the option and its underlying, and a useful shorthand for the option's odds.

The two things delta tells you

Sensitivity: delta is how much the premium moves per unit move in the underlying - a 0.50 delta option moves about 50 pence per pound of underlying, a 0.10 delta option about 10 pence; it measures how share-like the option currently is. **Rough probability:** delta doubles as loose shorthand for the chance the option expires in the money - a 0.30 delta option is roughly a 30% chance of finishing with intrinsic value; an approximation, not a precise probability, but a genuinely useful one. **Moneyness, quantified:** deep in-the-money options have deltas near 1 (nearly share-like), at-the-money options near 0.50, far out-of-the-money options near 0 - delta is module 1's moneyness turned into a number.

Reading with delta

Delta lets a reader compare options across the chain in one currency: a far out-of-the-money option with a 0.10 delta is a low-sensitivity, low-probability bet (a lottery ticket, quantified); an at-the-money 0.50 delta option is the balanced one; a deep in-the-money 0.90 delta option is a share-like, high-probability, expensive position. It turns the chain's abstract choices into a comparable scale of sensitivity and odds - and it is why delta is the first Greek every options reader learns: it makes the grid's positions commensurable.

The honest caveats

Delta as probability is an approximation, not a truth - it comes from the pricing model and reflects the model's assumptions, not a guaranteed likelihood - and it changes as the underlying moves, as volatility shifts and as time passes (the fuller Greek behaviour of module 8). Used as rough shorthand it is invaluable; used as a precise probability it overstates its own certainty. The reading discipline: delta reads sensitivity and rough odds, a genuinely useful navigation tool, held to the honesty that it is a model's estimate and a moving one. Module 8 gives delta and its siblings their full treatment; module 2 uses delta as the reading tool the chain requires.

Check your understanding

1. What two things does delta tell you?

- a. The premium and the strike
- b. Sensitivity (how much the premium moves per unit of underlying) and rough probability (loose shorthand for the chance of expiring in the money) - a 0.30 delta is roughly a 30% chance
- c. The spread and the volume

Answer: b. Delta reads how share-like the option is and its rough odds at once - module 1's moneyness turned into a number. The first Greek every options reader learns.

2. What is the honest caveat on delta-as-probability?

- a. It is exact
- b. It is a model's estimate, not a guaranteed likelihood, and it moves as the underlying, volatility and time change - useful as rough shorthand, overstated if taken as precise
- c. It only works for calls

Answer: b. Delta comes from the pricing model and reflects its assumptions. Invaluable as rough shorthand, misleading as a precise probability - and a moving number, per module 8's fuller treatment.