Kelly Staking and Portfolio Kelly

Growth-optimal stakes, fractional and capped, and the joint version for exclusive outcomes.

Single-bet Kelly, the fractional and capped version any sane desk actually uses, and the concave programme for staking several outcomes of the same event at once.

SPORT	FAMILY	LICENCE
Any	Markets and staking	£399 one-off, perpetual

RUNNING IN THE PLATFORM
https://edgewortharena.com/arena/api/markets/staking?p=0.45&odds=2.4

Inputs

NAME	TYPE	UNITS	WHERE IT COMES FROM
probabilities	list	probability	your model
odds	list	decimal	your book
fraction, cap (optional)	floats	-	your risk policy; a quarter and 5% are the platform's
bankroll	float	currency	

Outputs

NAME	TYPE	UNITS	NOTES
stake fractions	list	fraction of bankroll	
expected log growth	float	nats per bet	
certainty equivalent	float	currency	

Method

1 For a single bet, $f^* = (p\,o - 1) / (o - 1)$; take a fraction of it and cap it.

THIS IS THE SAMPLE
The method runs to 3 steps; one is shown. The assumptions, the limits, the module layout and the reference implementation come with the licence. Everything on the page below this -- what the model was measured at -- is the same in both versions, because that is the part you should not have to take on trust.

What it was measured at

Both rules replayed on the same Premier League predictions, betting at the opening price whenever the model saw two points of edge.

MEASURE	RESULT	READING
Bets	669	
Quarter Kelly, capped at 5%	ROI -2.2%, growth -19.5%	max drawdown 48%
Flat stakes	ROI +0.6%, growth +4.3%	max drawdown 32%
Closing-line value	+0.21%	positive and tiny, which is the honest summary
Why Kelly does worse here	the biggest edges are on the outsiders	where this model is least reliable

Assumptions

What has to be true for the numbers to mean what they say.

- Your probability is right. It is not, which is the entire argument for the fraction.

Limits

Where it is known to be wrong. Published because a model without stated limits is one nobody has pushed on.

- Kelly is optimal for log wealth over many independent repetitions. If you will place fifty bets, not fifty thousand, the variance is the thing that will decide your year.