Overround Removal

Four ways to turn quoted prices into probabilities, and the reason the choice matters.

Multiplicative, additive, power and Shin, with the same interface, so you can see how much of your edge is really a choice of method.

SPORT
Any

FAMILY
Markets and staking

LICENCE
£0
one-off, perpetual

RUNNING IN THE PLATFORM
https://edgeworthарena.com/arena/api/markets/implied?odds=1.65,3.90,5.50

Inputs

NAME	TYPE	UNITS	WHERE IT COMES FROM
odds	list of decimal prices	decimal	your book or feed
method (optional)	string	-	multiplicative, additive, power or shin

Outputs

NAME	TYPE	UNITS	NOTES
probabilities	list	probability	
overround	float	fraction	
insider_share	float	fraction	Shin only

Method

1. Multiplicative: divide each 1/o by their sum.
2. Additive: subtract the same amount from each 1/o, which can go negative on long shots and is why the platform does not use it.
3. Power: solve for k in $\Sigma\ (1/o_i)^k = 1$, which puts more of the margin on the outsiders.
4. Shin: solve for the insider share z that makes the book fair, which is close to power in practice and has a story attached.

What it was measured at

Computed now on a three-way book of 1.65 / 3.9 / 5.5.

MEASURE	RESULT	READING
Overround	4.4%	
Favourite, across the four methods	58.0% / 59.1% / 59.2% / 58.8%	
Outsider, across the four methods	17.4% / 16.7% / 16.8% / 16.9%	
Spread on the outsider	0.71 points	which is the size of edge people argue about
Shin's implied insider share	2.23%	

Assumptions

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

- The margin is applied by the book in one of these shapes. No book publishes which, so this is a modelling choice you should test, not assume.

Limits

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

- On a three-way book the methods differ by well under a point on the favourite and by up to a point on the outsider, which is exactly where model disagreements live.

The code this is a specification of

The package beside this document carries these modules verbatim. The specification and the implementation are the same thing written twice, and if they ever disagree the code is the one that is wrong.

`edgeworth/markets/odds.py`

LICENCE
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