

# Market efficiency in person to person betting

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# What's coming up?

1. Background
2. Internet betting exchanges
3. Betting market inefficiency
4. Data & methods
5. Results
6. Conclusions

# 1. Background

- Big growth in **person-to-person** wagers.
- Incumbent bookmakers claim **unfair competition** from exchanges.
- Alternative view is **innovation**, leading to lower barriers to entry and transactions costs.
- We compare **market efficiency** in exchange and traditional (fixed odds) betting.

## 2. Internet Betting Exchanges



Clients are presented with three best odds and stakes that are available.

# Example from Betfair:

|                       | BACK |      |      | LAY  |      |      |
|-----------------------|------|------|------|------|------|------|
| <b>Air Wave</b>       | 3.4  | 3.45 | 3.55 | 3.6  | 3.65 | 3.7  |
|                       | £368 | £87  | £714 | £84  | £338 | £930 |
| <b>Ratio</b>          | 6.6  | 6.8  | 7    | 7.2  | 7.4  | 7.6  |
|                       | £854 | £623 | £373 | £312 | £350 | £5   |
| <b>Crystal Castle</b> | 6    | 6.2  | 6.4  | 6.8  | 7    |      |
|                       | £303 | £300 | £409 | £195 | £275 |      |
| <b>Fayr Jag</b>       | 9.2  | 9.4  | 9.6  | 10   | 10.5 | 11   |
|                       | £295 | £444 | £693 | £586 | £284 | £193 |
| <b>Acclamation</b>    | 12   | 12.5 | 13   | 13.5 | 14   | 14.5 |
|                       | £34  | £115 | £531 | £811 | £315 | £196 |
| <b>Rudis Pet</b>      | 16   | 17.5 | 18   | 19   | 19.5 | 20.5 |
|                       | £200 | £140 | £156 | £249 | £188 | £150 |

# Important features of Exchanges:

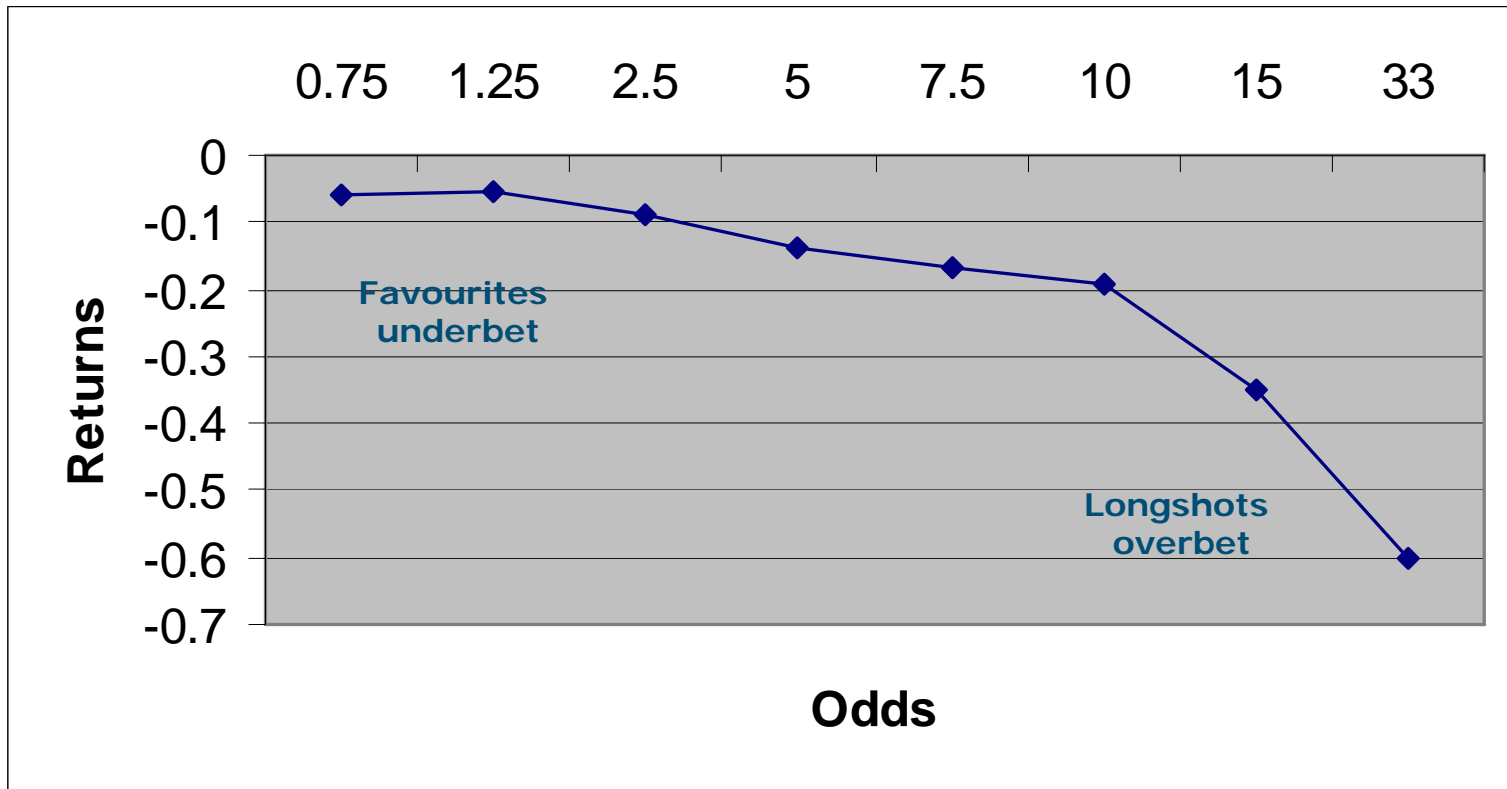
- **Prices can and do change** during course of market.
- Anyone can offer odds. **Competition reduces margins** in the odds.
- Exchange **commission is low** relative to bookmaker 'overround' margin.

# 3. Betting market efficiency

- Long history of exploring betting market inefficiencies, focusing on **FAVOURITE-LONGSHOT bias**:

**Bets placed at shorter odds yield higher expected return than bets at longer odds.**

# Favourite-longshot bias



Derived from bookmaker prices for 12,000 races 2002 (UK)



- Hurley & McDonough: **cost-based explanation** for the bias. Higher are transactions costs, higher is F-L bias.
- Transactions costs are **lower** in exchange markets than traditional betting.
- Implication:  
**F-L bias should be lower in exchanges than in traditional markets.**

- **Information costs** are integral to this explanation of the bias.
- High transaction costs imply better information required to achieve positive returns.
- For lower levels of information one would expect **a higher proportion of 'casual bettors' & a greater F-L bias.**

## 4. Methods & data

Use Shin's (1991) empirical model to estimate degree of bias in exchange & traditional markets - same set of horse races.

Compare degree of bias with:

- (a) different levels of transaction cost (bookmakers 'overround', exchanges' commission);
- (b) different levels of public information.

# DATA

- Internet **bookmaker** prices for 799 UK horse races in 2002.
- **Mean** and **outlier** bookmaker price selected.
- Equivalent **exchange prices** from Betfair.
- Both sets taken **simultaneously**, early in market.
- Restricted to markets with **high liquidity**.
- Races divided into **4 classes**: 1 – low grade to 4 – highest grade.

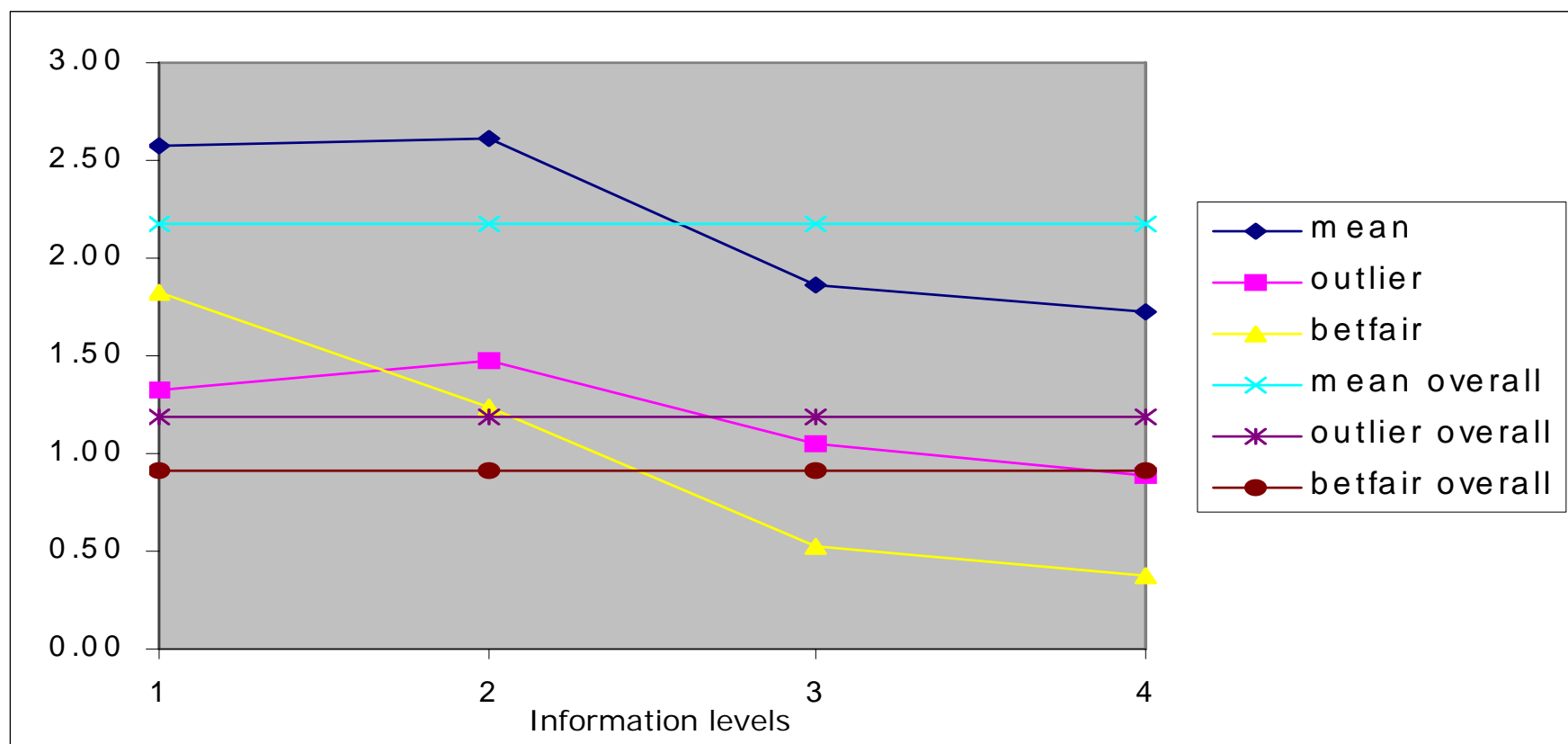
- Estimate 'Shin's  $z$ ' – the degree of bias

**Shin modelled bookmaker behaviour as a function of the number of runners & their probabilities of winning:  $z$  is a coefficient from this model measuring the percentage of turnover associated with 'insider information' – proxy for bias.**

- Estimate for **three prices**: mean, outlier and Betfair and for each information class.

# 5. Results

Figure 1: Degree of bias for mean, outlier, and Betfair prices



- Results (previous slide) support an information based explanation of the F-L bias:
- The market with highest transaction costs
- The exchange exhibits little evidence of bias – therefore efficiency gains.
- Increased levels of information associated with lower bias in mean, outlier and betting exchange.

## 6. Conclusions

- Betting exchange markets display **high degree of efficiency** relative to traditional bookmakers.
- **Results consistent with cost-based explanations of the favourite-longshot bias.**