



ELSEVIER

Contents lists available at ScienceDirect

Journal of Financial Markets

journal homepage: www.elsevier.com/locate/finmar

Regular Article

Limited cognition and clustered asset prices: Evidence from betting markets[☆]Alasdair Brown^{*}, Fuyu Yang¹

School of Economics, University of East Anglia, Norwich NR4 7TJ, UK

ARTICLE INFO

Article history:

Received 3 August 2015
 Received in revised form
 12 October 2015
 Accepted 12 October 2015

JEL classification:

G02
 G12
 G14

Keywords:

Limited cognition
 Price clustering
 Regression discontinuity
 Difference-in-differences

ABSTRACT

Asset prices tend to cluster at round numbers. We examine betting exchange data on U.K. horse races to establish whether limited cognition is partially responsible for this clustering. The key tool in this study is the stark increase in cognitive load faced by traders during races compared to prior to races. Using an approach that is part regression discontinuity and part difference-in-differences, we find that traders exhibit a substantially higher propensity to quote round numbers, rather than the nearest non-round numbers, during races. This result is robust to a series of placebo tests.

© 2016 Elsevier B.V. All rights reserved.

1. Introduction

There is long-standing evidence that stock prices cluster at round numbers (e.g., Niederhoffer, 1965, 1966; Harris, 1991; Ahn, Cai, and Cheung, 2005; Sonnemans, 2006; Ikenberry and Weston, 2007; Bhattacharya, Holden, and Jacobsen, 2012; Kuo, Lin, and Zhao, 2015). It is unlikely that the fundamental values of stocks cluster at round numbers, and therefore – at least recently, as models of

[☆]We would like to thank Tarun Chordia, the editor, and an anonymous referee for very helpful comments and suggestions. We are also grateful to Kathryn Clark for assistance with the copy-editing. Financial support from UEA is gratefully acknowledged. The research presented in this paper was carried out on the High Performance Computing Cluster supported by the Research and Specialist Computing Support service at the University of East Anglia.

^{*}Corresponding author. Tel.: +44 1603 591131.

E-mail addresses: aldasair.brown@uea.ac.uk (A. Brown), fuyu.yang@uea.ac.uk (F. Yang).

¹ Tel.: +44 1603 591058.

bounded rationality (Simon, 1955) have become more popular in financial economics – price clustering has been attributed to limited cognition on the part of traders. The story is that attention-constrained traders latch onto cognitive reference points, such as round numbers, when they do not have the mental capacity to make finer price distinctions.

Yet, if limited cognition is indeed causing price clustering, we should observe greater (lower) levels of clustering when traders are more (less) cognitively constrained. In this paper, we use a betting exchange in the United Kingdom as a unique laboratory to test this hypothesis, and therefore more firmly establish the role of limited cognition in the clustering of asset prices.

We examine Betfair betting exchange trading on the two major horse race meetings in the U.K: Royal Ascot and the Cheltenham Festival. We compare the propensity for bettors to quote odds at a range of round numbers with their propensity to quote odds at the nearest non-round number. A round number and its nearest neighbor reflect almost identical win probabilities: the only difference is that one price is arguably a cognitive reference point, and therefore more likely to be quoted by the cognitively constrained bettor, and the other is not. Importantly, we compare these propensities prior to races, when there is little new information arriving, with the same propensities during races, when important information on the relative positions of horses arrives in rapid succession. The idea is that bettors are more likely to be cognitively constrained during races, when the cognitive load is greater. We should therefore observe more round number quotes during races.

We find that bettors are substantially more likely to quote a round number than the nearest non-round number during races, compared to prior to races. This result is perhaps most vividly captured by Fig. 1. This figure contains a simple bar chart of quoted odds (including the stake) at Royal Ascot in 2011, both pre-race (in Panel A) and during races (in Panel B). While there is some evidence that certain round numbers are quoted more frequently than other odds prior to races, all round numbers are substantially more likely to be quoted once races begin. This suggests that the cognitively constrained trader, forced to process the rapid unfolding of each race, employs round numbers as a heuristic method for pricing assets.

The logic of the empirical approach in this paper can be thought of as part regression discontinuity (RD) design, and part difference-in-differences (DID). The decision to quote a round number, or not,

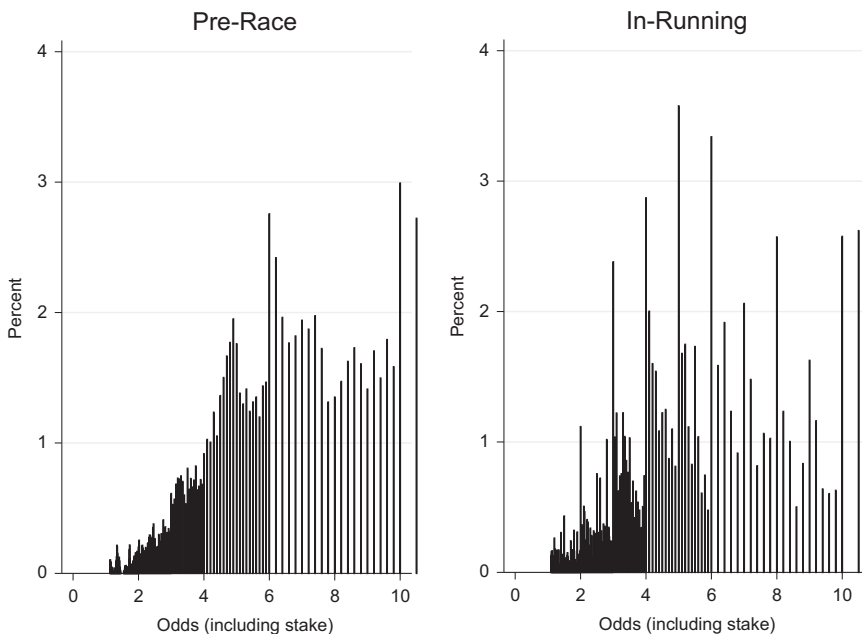


Fig. 1. Quoted odds. Bar charts of quoted win and place odds (back quotes) on horses in races at Royal Ascot in 2011. Panel A contains pre-race odds and Panel B contains in-running odds. The plot is restricted to odds (including the stake) of below 11.

Download English Version:

<https://daneshyari.com/en/article/960884>

Download Persian Version:

<https://daneshyari.com/article/960884>

[Daneshyari.com](https://daneshyari.com)