

Report Type

Mid Term Award Report

Full Name

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Faculty/Department

Judge Business School

Project Title

Disposition effect and prospect theory

Project Start Date

Oct 03, 2016

Project End Date

Aug 31, 2017

Amount Awarded

n/a

Project Abstract

This project investigates the impact of probability weighting, as an element of the behavioral biases captured by Prospect Theory (PT), on individuals' trading activities. PT has long been linked with the disposition effect which refers to the tendency that investors hold losing stocks for too long but sell winning stocks too early. Despite significant progress towards rigorously modeling the trading behavior of PT investors, the literature has been largely silent on the effect of probability weighting. We revisit this missing link by incorporating probability weighting into a continuous-time model of an asset sale and study the disposition effect implied. This is a joint work with Vicky Henderson (Warwick) and David Hobson (Warwick).

Activities and Achievement

On the theoretical side, we apply and strengthen the recent mathematical machineries regarding optimal stopping with probability weighting. Few extra (but mild) sufficient conditions on the agents' preference functions are provided which can lead to a simple characterization of the optimal trading strategy - this involves a fixed stop-loss level but a random profit-taking level.

Utilizing tools from stochastic analysis, we explain with theoretical justifications on how to extract the two popular measures of the disposition effect in our modelling framework: a ratio of selling rate at gains versus selling rate at losses, and a selling rate function against asset returns. We find that inclusion of probability weighting can produce much more reasonable disposition effect under a range of asset performance, and this serves as an improvement over existing asset sale models.

Dissemination

The plan is to submit the current working paper to a finance outlet. In addition, the work has also been submitted to various conferences (eg EFA, AFA). Results from this project will prove to be useful in terms of understanding the trading behaviors of retail investors.

Outputs

The working paper is available on SSRN. Please refer to the link below for the abstract, bibliographical reference and any other relevant information.

Henderson, Vicky and Hobson, David and Tse, Alex S. L., Probability Weighting,

Stop-Loss and the Disposition Effect (March 1, 2017). Available at SSRN:

<https://ssrn.com/abstract=2823449>

Major Difficulties and Any Other Issues

The main difficulty here is to optimize the presentation of the results and the associated financial ideas especially in view of the sophisticated tools employed. Solving the current model as well as understanding of the relevant financial measures involve several less common ideas (eg quantile maximization, local times of a stochastic process) which are not typically seen in the theoretical finance literature. In our write-up, care has been taken to balance the technical exposition and the discussion of the intuitions delivered by the model.

Web Links

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2823449

Additional Information

Declaration

This award has not yet produced any relevant outputs, but details of any future publications will be submitted to the CERF database as soon as they become available.

Signature - Main Award Holder

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