

Wirtschaftswissenschaftliches Forum der FOM

Group Decision-Making in a Collectivist Culture

Risk Taking, Overconfidence and
Anchoring among Chinese Business Students

Lars Speckemeier

Wirtschaftswissenschaftliches Forum der FOM

Band 49

Lars Speckemeier

Group Decision-Making in a Collectivist Culture

Risk Taking, Overconfidence and Anchoring
among Chinese Business Students

Shaker Verlag
Aachen 2017

Bibliographic information published by the Deutsche Nationalbibliothek

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the internet at <http://dnb.d-nb.de>.

Herausgebende Institution ist die FOM Hochschule für Oekonomie & Management gemeinnützige Gesellschaft mbH

Copyright Shaker Verlag 2017

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publishers.

Printed in Germany.

ISBN 978-3-8440-5613-6

ISSN 2192-7855

Shaker Verlag GmbH • P.O. BOX 101818 • D-52018 Aachen

Phone: 0049/2407/9596-0 • Telefax: 0049/2407/9596-9

Internet: www.shaker.de • e-mail: info@shaker.de

PREFACE BY THE EDITOR

The private FOM University of Applied Sciences understands its educational mission as an addition to the German university landscape. With the creation of part-time study courses in economic sciences it allows employees to further their career opportunities whilst helping enterprises adapt to the challenges of demographic developments and increased qualification requirements.

Founded in 1991 on the initiative of industry associations, the FOM works closely with enterprises and business federations. With its present series of publications the FOM has taken another step towards the dovetailing of theory and practice. The series provides both lecturers and students with a forum to discuss empirical results, innovative concepts and well-founded analyses, whilst a wide publication of their academic work can be presented to the professional public. Some excellent PhD theses by FOM lecturers have also found their way into this series.

Our hearty thanks go out to Prof. Dr. habil. Ekkehard Stephan and Prof. Dr. Frank P. Schulte who supervised Lars Speckemeier's Bachelor thesis as first and second supervisor respectively. This paper looks at the mutual decision making in risk and investment decisions in a collectivist culture.

By adding another facet with this series we hope to enrich the active and fertile dialogue between university and practice. As publishers we are glad to be able to pay tribute to prominent academic achievements with this edition.

Essen, November 2017

Prof. Dr. Burghard Hermeier

Rector

Prof. Dr. Thomas Heupel

Prorector for Research

PREFACE BY THE SUPERVISOR

The study of judgmental heuristics, initiated by Amos Tversky and Daniel Kahneman four decades ago, has been and continues to be one of the most successful research programs in psychology. It has inspired many researchers from other disciplines, notably in economics and finance, where it started no less than a paradigm change, now known as Behavioral Economics. Tversky and Kahneman (1974) described three general-purpose heuristics, namely representativeness, availability, and anchoring, which guide human judgments under uncertainty, for instance intuitive assessments of probabilities and causality or estimations and predictions of unknown quantities. Later, the affect heuristic and the peak-end rule supplemented the list of general-purpose heuristics (Kahneman, 2011).

Evidence for the use of judgmental heuristics and possible biases associated with them comes from experiments conducted predominantly in the Western hemisphere, especially in the United States and Europe. The present work, based on Lars Speckemeier's bachelor thesis at the FOM University of Applied Sciences in Cologne, asks whether the judgmental phenomena found in Western, individualist cultures can also be observed in a collectivist culture like China. This question addresses the issue of cultural universality of the research results on judgment and decision-making. Speckemeier's second issue is group decision-making. How big is the difference between groups and individuals when the decision-makers belong to a more group-oriented, collectivist culture?

In a large experiment with Chinese business students the author studies risk attitudes and behavior in investment decisions, anchoring effects in economic forecasts, and calibration in answering general-knowledge questions. Essential findings of the present work are that anchoring effects in economic predictions and overconfidence in judgments were substantial, both in Chinese individuals and groups, but with no significant differences between groups and individuals. Willingness to invest in risky assets, however, was considerably greater in groups than in individuals. In the final chapter of his work, Speckemeier discusses theoretical implications of these findings as well as practical conclusions for the management of Chinese and Western companies when cooperating with each other.

The topicality of the present work is underlined by the fact that Richard Thaler, one of the founders of Behavioral Economics, has been awarded this year's Nobel Prize in Economics.

Cologne, November 2017

Prof. Dr. habil. Ekkehard Stephan

PREFACE BY THE AUTHOR

Psychological research proves to be a relatively new area in China. As a result, some fundamental psychological constructs have rarely been investigated, if at all. China developed essential behavioral paradigms which have been manifested based on collectivist culture, education and dogmas. It is therefore of great interest to transfer existing constructs to the local population aiming to determine anomalies in human behavior. Consequently, the focus of this work lies in identifying the differences between individuals and groups in China. Personal risk attitudes, susceptibility to anchoring and overconfidence are determined as predictors for corporate investment decisions. Since insufficient evidence on a Chinese sample has been provided up until now, this experimental study intends to replicate previous findings on investment behavior in group decisions on a larger sample of Chinese citizens and future economists, on the one hand, and to extend research on group effects in collectivist cultures, on the other. It is assumed that anchoring effects and overconfidence are also present among Chinese students, as they are among students from Europe and the U.S.. Additionally, first studies on risk behavior in China suggest that individuals are more risk-averse than groups.

To answer these hypotheses, subjects were confronted with various tasks which measure individual and collective risk dispositions accompanied by anchoring and confidence assessments. To ensure the nexus between theory and practice, this thesis clarifies how and why prevalent theories on decision-making provide insufficient explanation for the unique behavioral patterns in China. A total of 416 Chinese BBA students have been examined.

Findings indicate a significant difference between individuals and groups regarding the measured risk attitude associated with a strong manifestation of willingness to invest. Alongside previous studies on risk behavior in Europe and the U.S., groups in China also exhibit a higher tendency to make risky decisions. Results on overconfidence and anchoring were further found to be fairly robust among Chinese students, though unlike risk behavior, they did not significantly differ between individuals and groups.

Cologne, November 2017

Lars Speckemeier, B.Sc., B.A.

TABLE OF CONTENT

| | |
|---|-----|
| List of Abbreviations..... | IX |
| List of Figures..... | XI |
| List of Tables..... | XII |
| 1 Introduction | 1 |
| 1.1 Thematic Derivation and Problem Presentation | 1 |
| 1.2 Research Questions and Structure of the Thesis | 3 |
| 2 Theoretical Background | 5 |
| 2.1 Individual Decision-Making..... | 5 |
| 2.1.1 Cognitive Illusions, Heuristics and Biases..... | 8 |
| 2.1.2 Risk and Uncertainty | 15 |
| 2.1.3 Overconfidence and Miscalibration | 17 |
| 2.2 Financial Decision-Making..... | 20 |
| 2.3 Collective Decision-Making | 24 |
| 2.4 Cultural Differences in Decision-Making..... | 29 |
| 3 Research Methodology | 33 |
| 3.1 Research Idea | 33 |
| 3.2 Research Hypotheses | 35 |
| 3.3 Experimental Design | 40 |
| 3.4 Experimental Manipulation of Independent Variables..... | 42 |
| 3.5 Operationalization of Dependent Variables | 43 |
| 3.5.1 Measuring Risk Attitude | 43 |
| 3.5.2 Measuring Anchor Adjustment..... | 46 |
| 3.5.3 Measuring Overconfidence | 47 |
| 3.5.4 Measuring Investment Behavior..... | 48 |
| 3.6 Survey Construction | 49 |
| 3.7 Pretest and Survey Adjustments | 50 |
| 3.8 Sample Characteristics..... | 51 |
| 3.9 Experimental Procedure | 53 |
| 4 Data Analysis and Results | 57 |

| | |
|--|-----|
| 4.1 Risk, Anchoring, and Overconfidence..... | 57 |
| 4.1.1 Evaluation of Risk Attitude and Behavior | 57 |
| 4.1.2 Evaluation of Anchor Effects | 59 |
| 4.1.3 Evaluation of Overconfidence..... | 64 |
| 4.2 Investment Behavior | 65 |
| 4.2.1 Evaluation of Investment Decisions..... | 65 |
| 4.2.2 Additional Analyses | 67 |
| 4.2.3 Regression Analyses..... | 68 |
| 4.3 Other Findings | 72 |
| 5 Discussion | 74 |
| 5.1 Hypothesis Testing and Theoretical Examination | 74 |
| 5.2 Theoretical Implications | 83 |
| 5.3 Practical Implications | 85 |
| 5.4 Limitations and Outlook | 86 |
| 5.5 Conclusion | 90 |
| Appendix..... | 93 |
| References | 115 |

LIST OF ABBREVIATIONS

| | |
|-------|--|
| AI | Anchoring index |
| ANOVA | Analysis of variance |
| BART | Balloon analogue risk task |
| BBA | Bachelor of Business Administration |
| BTA | Better than average effect |
| CEO | Chief executive officer |
| d | Effect size |
| DAX | Deutscher Aktienindex (en. German stock index) |
| df | Degrees of freedom |
| DV | Dependent variable |
| EUR | Euro (currency) |
| H | Hypothesis |
| IV | Independent variable |
| km | Kilometer |
| LM | Lagrange multiplier |
| M | Mean |
| N | Number of participants |
| No. | Number |
| OC | Overconfidence |
| R&D | Research and development |
| ROI | Return on investment |
| SD | Standard deviation |

SEU Subjective expected utility

sig. Significance

U.S. United States

USD US-Dollar

WTI Willingness to invest

LIST OF FIGURES

| | |
|---|----|
| Fig. 1: Risk Attitude Scale for an Interpretation of Results from Task 1 | 45 |
| Fig. 2: Scheme of the Experimental Procedure | 55 |
| Fig. 3: Average Willingness to Invest into Stocks Divided in Individuals, Groups and Total..... | 59 |
| Fig. 4: Investment Outcome Means Resulting from Task 3..... | 67 |

LIST OF TABLES

| | |
|---|----|
| Tab. 1: List of Cognitive Illusions, Heuristics and Biases on Investment Decisions (own design)..... | 11 |
| Tab. 2: Hypothesis on risk attitude (context-independent) | 35 |
| Tab. 3: Hypothesis on risk behavior (context-dependent)..... | 36 |
| Tab. 4: Hypotheses on Anchoring Effects..... | 37 |
| Tab. 5: Hypotheses on Group Effects in Anchoring | 38 |
| Tab. 6: Hypotheses on Overconfidence and Group Behavior | 39 |
| Tab. 7: Experimental Design..... | 41 |
| Tab. 8: Experimental Design of the Lottery Game (Task 1)..... | 45 |
| Tab. 9: Exchanged Items of Miscalibration Task (Task 4) | 51 |
| Tab. 10: Demographic Data and Control Variables | 52 |
| Tab. 11: Proportion of Choices and Risk Classification Divided into Individual and Group Decisions | 58 |
| Tab. 12: Descriptive Results of Anchored Predictions on Stock Prognoses | 60 |
| Tab. 13: Descriptive Results and Anchoring Indices of Numeric Anchors on Stock..... | 62 |
| Tab. 14: Level of Overconfidence Based on 90-percent Confidence Interval Estimates | 64 |
| Tab. 15: Results of Independent t-Tests on Investment Means per Stock: Individuals vs. Groups | 66 |
| Tab. 16: Descriptive Statistics Divided by Gender | 72 |
| Tab. 17: Comparing Results with Hypotheses | 75 |