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Citation for published version (APA):

van de Leur, M. C. W. (2014). *Essays on markets over random networks and learning in Continuous Double Auctions*.

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This dissertation studies the behaviour of traders under different market designs. The setup of a market contains the information available to traders, the decisions traders have to make and the trading mechanism. We have extended models to consider the effect of the market design. In markets over networks we have introduced randomness and derived bounds on the maximal efficiency given the network structure. Moreover, under strategic behaviour of traders, we derived a non-monotonic effect of the information about the network structure that is available on expected efficiency. This effect depends also on the information about traders' valuations. We studied an alternative payoff function used in the Evolutionary Individual Learning algorithm under a Continuous Double Auction. Furthermore we extended this model by allowing traders to submit a two dimensional decision; their order and their preferred moment of trade, and studied the distribution of submission moments. We study whether it is optimal to allow traders this extra decision. A general conclusion of this dissertation is that market design has a large impact on efficiency. More information about the network structure, about trading history or allowing traders extra decision may have a negative effect on efficiency.

Michiel Chr. W. van de Leur (1986) holds a B.Sc. in Mathematics, a M.Sc. in Stochastics and Financial Mathematics and a M.Sc. in Econometrics from the University of Amsterdam. In 2011 he joined the European Doctorate in Economics - Erasmus Mundus, a joint PhD programme at the University of Amsterdam and the Università Ca' Foscari Venezia and included a research stay at Universität Bielefeld. His research interests cover financial networks, learning algorithms, bounded rationality, agent-based models and game theory.

Michiel van de Leur

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and learning in Continuous Double Auctions

This dissertation has been written within the European Doctorate in Economics-Erasmus Mundus (EDE-EM) programme in order to obtain a joint doctorate degree at the Faculty of Economics and Business at the University of Amsterdam and the Department of Economics at Università Ca' Foscari Venezia.

Layout: Michiel Chr.W. van de Leur

Cover design: Coördesign, Leiden

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ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad van doctor
aan de Universiteit van Amsterdam
op gezag van de Rector Magnificus
prof. dr. D.C. van den Boom
ten overstaan van een door het college voor promoties
ingestelde commissie,
in het openbaar te verdedigen in de Agnietenkapel
op dinsdag 11 november 2014, te 12:00 uur

door

Michiel Christiaan Wernick van de Leur

geboren te Amsterdam

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Acknowledgements

This dissertation would not have been possible without the many people I have had the pleasure of meeting in the last three years. It has been very inspiring to work with so many excellent researchers in the Netherlands, Italy and Germany.

I am grateful for the support of the European Doctorate in Economics - Erasmus Mundus (EDE-EM) programme and the Erasmus Mundus Association for allowing me this opportunity.

My greatest gratitude goes to my supervisors at the different universities; Mikhail Anufriev for the advice and inspiring talks and the effort to meet whenever it was possible; Marco LiCalzi for the intense supervision and all the inspiration during my stay in Venice; Herbert Dawid for all the constructive discussions in Bielefeld; Cars Hommes for looking after the bigger picture of my research and the overall supervision.

Valentyn Panchenko and Jasmina Arifovic have been very kind to provide me with their input on my dissertation.

Furthermore I want to thank my entire PhD committee, Cars Hommes, Marco LiCalzi, Mikhail Anufriev, Jasmina Arifovic, Herbert Dawid, Cees Diks, Paolo Pellizzari and Jan Tuinstra, for their careful reading of this manuscript and providing me with feedback.

During the last three years I have met and worked with some very inspiring researchers at the

universities that welcomed me: University of Amsterdam, Università Ca' Foscari Venezia and Universität Bielefeld. In these institutions I have had the pleasure meeting Daan, Tomasz, David, Juanxi, Thom, Marcin, Lorenzo, Nadia, Peter and Bertrand. Numerous colleagues provided me with ideas and remarks during seminars.

Whenever necessary my family and my friends helped me relax my mind. My friends within the national frisbee team deserve a huge thanks for the amazing contrast they provide in my life.

Finally I owe a lot to my close family and friends who have always supported me. Marjolein, Barry, Thomas, Sinead and Maarten, during the most difficult year in my life you were always there; I could not have coped without you.

Michiel van de Leur

September 2014

”Why are numbers beautiful?

It’s like asking why is Beethoven’s Ninth Symphony beautiful.

If you don’t see why, someone can’t tell you.

I *know* numbers are beautiful.

If they aren’t beautiful, nothing is.”

(Paul Erdős)

Contents

1	Introduction and Thesis Outline	1
1.1	Network theory	2
1.2	Learning algorithms	3
1.3	Dissertation outline	6
2	Efficiency in Large Markets over Random Erdős-Rényi Networks	11
2.1	Introduction	11
2.2	Model	12
2.2.1	Graph theory	13
2.3	Phase transitions bipartite graphs	14
2.4	Bounds on expected efficiency	16
2.4.1	Example	17
2.4.2	Infinitely many traders	18
2.5	Concluding remarks	22
	Appendix A: Theorems in section 3	24
	Appendix B: Theorems in section 4	33
3	Information and Efficiency in Thin Markets over Random Networks	39
3.1	Introduction	39
3.2	The model	41
3.2.1	Trading mechanism	43
3.2.2	Markup and markdown strategies	45

CONTENTS

- 3.2.3 The information sets 45
- 3.3 Complete information about valuations and costs 47
- 3.4 Incomplete information about valuations and costs 49
- 3.5 Concluding remarks 55
- Appendix A: Profit functions complete information 57
- Appendix B: Efficiency under incomplete information 59

- 4 On the role of Information under Individual Evolutionary Learning in a Continuous Double Auction 67**
- 4.1 Introduction 67
- 4.2 Market setup 71
 - 4.2.1 The environments 71
 - 4.2.2 Call Market 72
 - 4.2.3 Continuous Double Auction 73
- 4.3 Individual Evolutionary Learning algorithm 74
- 4.4 Methodology 81
- 4.5 Learning phase 82
 - 4.5.1 Gode Sunder-environment 83
 - 4.5.2 S5- and AL-environments 83
 - 4.5.3 Comparison between Open- and ClosedBook 86
 - 4.5.4 Comparison with the Call Market 88
- 4.6 Long-term behaviour 88
 - 4.6.1 GS-environment 89
 - 4.6.2 S5- and AL-environments 89
 - 4.6.3 Comparison between Closed- and OpenBook 93
 - 4.6.4 Comparison with the ClosedBook foregone payoff function in Anufriev et al. (2013). 93
- 4.7 Multi-unit Continuous Double Auction market 95
- 4.8 Size of the market 99
- 4.9 Concluding Remarks 99

Appendix A: Learning phase	103
Appendix B: Equilibrium phase	106
Appendix C: Multi-unit market	109
Appendix D: Size of the market	116
5 Timing under Individual Evolutionary Learning in a Continuous Double Auction	123
5.1 Introduction	123
5.2 Market setup	126
5.2.1 The environments	127
5.2.2 Continuous Double Auction	128
5.2.3 Nash equilibria	129
5.3 Individual Evolutionary Learning algorithm	130
5.3.1 Methodology	133
5.4 Benchmark environment	134
5.4.1 Knowledge of the submission moments	138
5.4.2 Allowing the choice of submission moment	138
5.5 Size of the market	140
5.6 Competition	143
5.6.1 Decreasing competition between buyers, increasing competition between sellers	143
5.6.2 Increasing competition to extramarginal traders	145
5.6.3 Extramarginal traders entering	145
5.6.4 Decreasing range of equilibrium prices	148
5.7 Gode-Sunder environments	148
5.8 Concluding Remarks	152
Bibliography	155
Summary	161
Samenvatting (Summary in Dutch)	165