

OF MARKETS &

FIVE QUESTIONS ON THE NEW FIELD OF NEUROECONOMICS

Professor Peter Bossaerts freely admits that he is considered something of an oddball in the world of finance and economics. The researcher, who joined the University this year, is leading a revolution in how economic theory is developed and tested. His methods are regarded as radical – but they could just help us solve some of the world’s biggest financial issues.

Val McFarlane meets him.

You’re regarded as one of the founders of neuroeconomics. Can you tell us what that is?

Neuroeconomics is an exploration of the neurobiology behind individual decision-making. Traditionally with economics, people will construct models, different schools of thought, and with that they will make policy recommendations. They use their model to explain what is happening in the world but there is no scientific evaluation, no experiment to see whether the theory is right. That’s where we come in. We work with people from other disciplines, such as neuroscience, computer science, psychology and engineering, to run experiments in controlled environments that help us understand more about decision-making, at every level from the individual to the market.

Why is this approach useful?

Financial economics relies too much on observation of choices – people in

the field call this “revealed preference”. This has gotten the field into trouble, because there is so much heterogeneity in behaviour out there, across people and across circumstances. We want to understand the algorithms that the brain uses to generate choices. This necessarily involves mathematics, and this is a good thing. First, because financial economics is actually good at describing choices in terms of mathematics. And second, mathematics means you can measure things, and that’s the first step to real science.

What particular areas are you working on?

At the individual level, we study how humans deal with outliers. Outliers are very important in financial markets. They happen all the time, and humans do not cope well. In order to understand why, we have been exploring the neurobiology.

We’re looking at dark markets, among others, where secretive, unregulated trading happens. These markets have been effectively outlawed in Europe and the US, partly because many economists think they contributed to the global financial crisis, and they think these



markets are inefficient and unfair. But there are also people in finance who are against outlawing these markets because they claim that they play an important role, and they have a theory to back that up. If their argument is correct, then what is happening in Europe and the US is wrong and we are eliminating an extremely good form of market. We want to run experiments to shed light on which argument is right.

We are also studying high-frequency or robotic trading, where computer algorithms are used to rapidly trade securities. Opinions are divided as to whether it is good or not. Some people will tell you it is bad, that they are destabilising

MINDS



Radical approach:

Peter Bossaerts doesn't follow traditional methods.

PICTURE: CHRIS HOPKINS

be sitting together with the people I am working with on a daily basis because this is the way research eventually gets done. What I don't want is to be in a department only with people from my field. I would get very bored!

What do you hope your research will achieve?

Our research has a fundamental aspect to it but there is also a practical application, in terms of the regulation of the markets. I became interested in this area because I realised that if we keep on acting according to economic theory we are going to destroy this planet. There are situations when the markets do a very good job, but only with the right rules of engagement.

On an individual level, we see people struggle with our decision-making games in the lab and we see how badly they do, but then we are increasingly making them personally responsible for their savings, their superannuation... people have real issues dealing with the risk in these situations. We want to help people, give them tools to improve their behaviour. If we can decode the brain, we can also find ways of helping in other areas where people have to deal with similar decisions.

It's not easy. It is very difficult to actually define what makes a good experiment in finance. We are having to develop it ourselves. But physics used to be hard in the Middle Ages. There were theories out there, but it wasn't until we started running the right experiments that we worked it out. Once you do that everything falls into place.

Peter Bossaerts is Professor of Experimental Finance and Decision Neuroscience at the Faculty of Business and Economics, and an Honorary Professorial Fellow at the Florey Institute of Neuroscience and Mental Health. Watch an interview here: go.unimelb.edu.au/3ivn

markets. And how do we regulate it? The regulators call a group of wise men, ask them what they think, and argue about it. They can come up with an argument as to why it is wrong or right, but where is the scientific evidence?

Why has this work not been done before?

Most people understand what I am doing here but it doesn't fit traditional structures. Teamwork is necessary to run the experiments we are involved in. Economics and finance is way behind,

for example, engineering in working with a team of people from different fields to tackle a problem. Neuroscience too has become team work. We need to bring together people from different fields because the problems we are facing cannot be solved by one traditional field alone. It's a gigantic revolution in the way things are done in this field.

Bringing people together from different fields is the best way to make interesting things happen. I wanted to find an opportunity to set up a team that could work in a genuinely interdisciplinary way, and Melbourne has given me that opportunity.

I don't need my own office. I want to