



the institute for advanced studies

**Limits to Rationality in Financial Markets**  
**Workshop 4: Experiments in Financial Markets**

25<sup>th</sup> – 26<sup>th</sup> June 2009

*Programme and abstracts*

**Thursday 25<sup>th</sup> June**

10.45 - 11.00      Opening Remarks  
11.00 - 12.00      Robin Pope  
12.00 - 1.30        Lunch  
1.30 - 2.30        Greg Fisher  
2.30 - 3.00        Tea  
3.00 - 4.00        Maria Andersson  
  
Discussion  
  
Workshop Dinner

**Friday 26<sup>th</sup> June**

11.00 - 12.00      Jan Tuinstra  
12.00 - 1.30        Lunch  
1.30 - 2.30        Nick Feltovich  
2.30 - 3.00        Tea  
3.00 - 4.00        Jeff Schank  
  
Discussion

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## *Abstracts for Experiments in Financial Markets Workshop*

### **Maria Andersson (Gothenburg), *"Herding: A financial phenomenon from a social psychology perspective"***

An important component of stock market investments is predictions of future stock prices. Such predictions can be based on privately held information, views, and beliefs. Generally, however, one's own predictions are likely to be influenced by the predictions made by others. This is referred to as herding. Since herding is a form of social influence, an understanding of the phenomenon may increase by applying theories of social influence. Previous research has demonstrated that following a majority is a strong motive which may be associated with heuristic processing and the use of a consensus heuristic. In Andersson, Hedesström, & Gärling (2009) this finding was extended by investigating the processes mediating majority and minority influences with focus on accuracy motives. The results of three experiments showed that participants followed a majority herd independently of whether its predictions were accurate or random. In contrast, a minority herd was influential only when its predictions were accurate and when participants were requested to focus on the accuracy of the others' predictions. It was furthermore found that the same focus instruction reduced majority herd influence, possibly as a result of increasing systematic processing. In Andersson (2009) it was found that augmenting validity of information and expertise had the same effect. In sum, the results suggest that in prediction tasks heuristic processing plays a larger role than it has been ascribed in previous social influence research. The findings are compatible with Kahnemans and others' framework (e.g., Gilovich, Griffin, & Kahneman, 2002), postulating that people use heuristics rather than calculations in everyday decision making.

### **Nick Feltovich (Aberdeen), *"The role of strategic uncertainty in games: an experimental study of cheap talk and unstructured bargaining in the Nash demand game"***

A common finding in empirical studies of bargaining is a non-negligible frequency of inefficient outcomes such as disagreements and costly delays. One likely cause is the presence of strategic uncertainty. We conduct a human-subjects experiment using three versions of a simultaneous move bargaining game that vary in the level of strategic uncertainty. The baseline treatment uses modified Nash demand games in which one player has an outside option available. A "chat" treatment allows players to send cheap-talk messages prior to playing the game used in the baseline, and in a "contracts" treatment, players can additionally propose and accept binding contracts. We find that lowering the level of strategic uncertainty (from baseline to chat to contracts) tends to improve several aspects of outcomes, including increasing the likelihood of efficient outcomes and decreasing opt-outs and under-demanding. There are other effects as well, including an effect on the types of agreements that are reached: in the baseline, the player with the outside option usually earns only the amount of that option (or 50% of the surplus, if larger), while under either chat or contracts, agreements often give that player still higher payoffs.

### **Greg Fisher, *"Observations from the Coalface - a Practitioner's Perspective"***

The finance industry is a complex mixture of markets, networks, theories, and human beings. What does it really look like? This discussion will include a presentation from someone with 14 years of experience in finance, including in public policy, traditional institutional (pension fund) and alternative (macroeconomic hedge fund) asset management. Perhaps most importantly, heuristics appear to be in part innate but also generated from subjective personal experience - or both. In addition (and anecdotally), while successful analysts and researchers tend to be high in "system 2" (analytical) thinking, successful strategists, investment managers & traders appear to be high in "system 1" (intuitive) thinking.

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**Robin Pope (Bonn), “Prominent Numbers, Indices and Ratios in Exchange Rate Determination: in Economists' Models, in the Field and in the Laboratory”**

This paper, a sequel to Pope et al (2008b) shows three things in how scientists and practitioners analyse and evaluate to decide (conclude). First, in constructing theories such as purchasing power and interest parity to predict exchange rates and to advocate floating exchange rates, economists unwittingly employ nominalist heuristics, where these are defined as a focus on prominent numbers, indices or ratios feature. Second nominalist heuristics have influenced actual exchange rates through the centuries, and this finding is replicated in the laboratory. Third nominalist heuristics are incompatible with expected utility theory which excludes the evaluation stage, and are also incompatible with prospect theory which assumes that, while the evaluation procedure can involve systematic mistakes, the overall decision situation is nevertheless sufficiently simple: a) for economists and psychologists to identify what is a mistake, and b) to be compatible with maximisation. But in the typical complex situation giving rise to nominalist heuristics neither a) nor b) hold, so that what is required is a fundamentally different class of models that allow for the progressive anticipated changes in knowledge ahead faced under risk and uncertainty, namely models under the umbrella of SKAT, the Stages of Knowledge Ahead Theory.

**Jeff Schank (UC Davis), “Agent-based modeling and experimental research, gent-based modeling and experimental research”**

People differ in their motivations, emotions, attitudes, personality characteristics and group affiliations. Individual differences such as these affect the decisions individuals make and how groups behave. Agent-based modeling (ABM) is ideal for modeling heterogeneous agents and systematically investigating phenomena that emerge from the interactions of heterogeneous agents. In this talk, I will present examples of ABMs (primarily animal models) and some of the issues involved in implementing individual differences in agents and in using ABMs in experimental research with simulations developed in MASON (a multi-agent simulation environment).

**Jan Tuinstra (Amsterdam), “Expectation formation in financial markets: Laboratory experiments”**

In this talk I will present results from a series of laboratory experiments on expectation formation in financial markets. Participants are asked to predict the price in a standard asset pricing model. They do not have knowledge of the underlying market equilibrium equations, but they know all past realized prices and their own predictions. Aggregate demand of the risky asset depends upon the forecasts of the participants. The realized price is then obtained from market equilibrium with feedback from individual expectations. Realized prices differ significantly from the fundamental values that are predicted by rational expectations models. In some markets the asset price converges slowly to the fundamental price, in other markets there are regular oscillations around the fundamental price. In all markets participants coordinate on a common prediction strategy. The individual prediction strategies can be estimated and correspond, for a large majority of participants, to simple behavioral forecasting rules. I will relate the outcomes of the laboratory experiments to the structure of the underlying market expectations feedback system and argue that rational expectations equilibria may be expected to give a better description of commodity markets than of financial markets. Finally, I will show that the experimental results are robust with respect to participants' payoff schemes and information.

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