

OMICS GROUP



OMICS Group International through its Open Access Initiative is committed to make genuine and reliable contributions to the scientific community. OMICS Group hosts over **400** leading-edge peer reviewed Open Access Journals and organizes over **300** International Conferences annually all over the world. OMICS Publishing Group journals have over **3 million** readers and the fame and success of the same can be attributed to the strong editorial board which contains over **30000** eminent personalities that ensure a rapid, quality and quick review process. OMICS Group signed an agreement with more than **1000** International Societies to make healthcare information Open Access.

OMICS Journals are welcoming Submissions

OMICS Group welcomes submissions that are original and technically so as to serve both the developing world and developed countries in the best possible way.

OMICS Journals are poised in excellence by publishing high quality research. OMICS Group follows an Editorial Manager® System peer review process and boasts of a strong and active editorial board.

Editors and reviewers are experts in their field and provide anonymous, unbiased and detailed reviews of all submissions.

The journal gives the options of multiple language translations for all the articles and all archived articles are available in HTML, XML, PDF and audio formats. Also, all the published articles are archived in repositories and indexing services like DOAJ, CAS, Google Scholar, Scientific Commons, Index Copernicus, EBSCO, HINARI and GALE.

For more details please visit our website:

<http://omicsonline.org/Submitmanuscript.php>

MECHANISM DESIGN, BOUNDED RATIONALITY, AND ISLAMIC FINANCE

Research Profile of Suren Basov

Dr Suren Basov
Executive Editor of JSFT
Associate Professor
Department of Economics and Finance
La Trobe University

My areas of expertise

- Mechanism design with applications to asset pricing and corporate finance
- Bounded rationality and evolutionary game theory with application to behavioural finance
- Islamic banking and finance



Mechanism design with applications to asset pricing and corporate finance

- **Mechanism design** found numerous applications in the auction theory, theory of taxation and non-linear pricing, asset pricing, corporate finance and other areas
- I contributed to the literature in the areas of non-linear pricing, auction theory, and asset pricing and am currently working on a corporate finance application



Applications of mechanism design

- **Mechanism design** studies private information games
- In a **mechanism design** problem, the objective is given, and the goal is to find the optimal mechanism to implement it.
- The two distinguishing features of mechanism design problems are:
 1. that the designer chooses the game structure rather than inheriting one
 2. that the designer is interested in the game's outcome

My Contributions to Mechanism Design and its Applications

- **In my research I applied mechanism design techniques to:**
 - 1. Theory of nonlinear pricing**
 - 2. Auction theory**
 - 3. Asset Pricing**



Nonlinear Pricing

- In many industries the tariffs are not strictly proportional to the quantity purchased, i.e. they are nonlinear.
- Examples of nonlinear tariffs include railroad and electricity schedules and rental rates for durable goods and space.
- The major justification for the nonlinear pricing is the existence of private information on the side of consumers.
- Often the nonlinear tariffs specify the payment as a function of a variety of characteristics. For example, railroad tariffs specify charges based on weight, volume, and distance of each shipment.
- Different customers may value each of these characteristics differently.
- In such models the consumer's private information (her type) is captured by an m -dimensional vector, while the good produced by the monopolist has n quality dimensions, where both m and n are typically greater than one

Nonlinear Pricing: One-dimensional Models

- Models with $m=1$ are known as one-dimensional models
- Such models are well studied and found numerous applications in auction theory, theory of industrial organisation, theory of optimal taxation, labour economics, and finance
- In finance such models can be used to study liquidity supply to traders with known degree of risk aversion and the optimal leverage of the firm
- My main contributions to this area are:
- **Liquidity Supply by a Risk-Averse Market Maker**, 2011, (with Xiangkang Yin), *The Economic Record*, 87(279), pp. 617–628.
- **Optimal Screening by Risk-Averse Principals**, 2010, (with Xiangkang Yin), *The BE Journal in Theoretical Economics (Topics)* 10(1) pp. 1-25.
- **Snobs and Quality Gaps**, 2006, *The BE Journal in Theoretical Economics (Contributions)*, 6(1), pp. 1-18.

Bounded Rationality

- There is a growing empirical evidence that calls into question the utility maximization paradigm
- The models of boundedly rational behaviour can be divided into two classes: static and dynamic.
- In static models choice is assumed to be probabilistic. It is typical in this type of models to impose some intuitive restrictions on the choice probabilities and study the probability distributions that satisfy these restrictions.
- In dynamic models individuals are assumed to adjust their choices over time in directions that appear beneficial.
- The distinctive feature of this type of models is an attempt to capture the fine-grain adjustments made by the individuals on the basis of their current experiences.
- On a very general level, such adjustments produce a stochastic process on the choice set. The probability distribution of choices of a static model can be naturally viewed as the steady state distribution of the stochastic process arising from a dynamic model.



Bounded Rationality in Finance I

- One advantage of the dynamic models of bounded rationality is their ability to account explicitly for the interaction between the economic agents.
- This ability can be of the outmost importance for the modelling of the financial markets.
- Research shows that around **20%** of investors are attracted to the company simply by word of mouth communication
- Highly relevant factors such as being a spinoff or having a similar company counted only for **2%**.
- This means that social learning can be potentially important for the stock price behaviour.
- On the basis of this type of evidence I argued for a need of a complexity adjusted efficient market hypothesis in an editorial for this journal
- **Towards Complexity Adjusted Efficient Market Hypothesis, 2013, Journal of Stock and Forex Trading, 2(2) p. e119.**

Bounded Rationality in Finance II

- Static models of bounded rationality can also be useful in finance
- For example, they can be used to model behavioral biases and their effects on corporate policy
- A related area is known as behavioral finance
- For an introduction, see
- **Inefficient Markets: An Introduction to Behavioral Finance**

By Andrei Shleifer, Oxford University Press, 2000



Bounded Rationality: My Contributions I

- My contributions to the literature on bounded rationality include papers that deal with both static and dynamic models
- The contributions are:
- **Bertrand oligopoly with boundedly rational consumers, 2014,** (with Svetlana Danilkina), *The BE Journal for Theoretical Economics (Topics)*, 14(1), 1-17.
- **Bounded Rationality: Static versus Dynamic Approach, 2005,** *Economic Theory*, 25(4), 871-885.
- **Equilibrium selection in coordination games: Why do dominated strategies matter? 2004,** *Economic Bulletin*, 3(41), 1-3.
- **Incentives for Boundedly Rational Agents, 2003,** *The BE Journal in Theoretical Economics (Topics)*, 3(1), pp. 1-14.

Bounded Rationality: My Contributions and Applications to Finance

Though neither of my papers deals with applications to finance, the techniques developed in this papers, especially in 2003 reference, can be very useful when modelling financial markets



Mechanism Design under Bounded Rationality: The Main Lesson

- Apart from contributing separately to the areas of bounded rationality and mechanism design, I made several contributions to the area of mechanism design under bounded rationality
- The main lesson is that even slight deviation from full rationality may change the nature of optimal contract significantly
- For example, a monopolist may choose to produce goods of different qualities in different flavors with more flavors for the high quality goods even when consumers care only about qualities
- On the technical side, the cherished principal of the mechanism design literature, the **Revelation Principle**, will be cease to apply

Mechanism Design under Bounded Rationality: My Contributions

- Optimal contracting model in a social environment and trust-related psychological costs, 2013, (with Ishaq Bhatti), *The BE Journal in Theoretical Economics (Contributions)*, 13(1), 1-14.
- Emotional temperature, probabilistic choice, and the optimal power of incentives, 2013, *The Economic Record*, 89(s), 84-94.
- Monopolistic Screening with Boundedly Rational Consumers, 2009, *The Economic Record*, 85, S29-S33.
- Auctions with Opportunistic Experts, 2007, (with Svetlana Danilkina), *The BE Journal in Theoretical Economics (Topics)* 7 (1), 1-11.

Islamic Finance

- Recently Islamic Financial Institutions (IFI) experienced unprecedented growth.
- Sharia-compliant financial assets grew approximately 2.6 times during last 10 years.
- This growth is fuelled by petrodollar liquidity and worldwide growing Muslim population.
- The growing demand for Islamic Finance services has not been matched by adequate supply.
- Moreover, often IFI perform my poorer than their conventional counterparts
- Theoretical understanding of the issues involved in modelling of performance IFI is in its infancy.

Islamic Finance as a Mechanism Design Problem

In an editorial written for this journal

- **Islamic Finance as a Mechanism Design Problem**, 2013, *Journal of Stock and Forex Trading*, 3(1), e124

I suggested that IF should be properly viewed as a mechanism design problem

I concluded that:

- Applying MD approach can help to better understand and improve Islamic financial products. Since well-designed contracts
- Allow a better matching of human resources to the economic needs and
- Provide proper performance incentives for economic agents
- Allow eliciting and putting to good use the private information of economic agents



Mechanism Design Approach to Islamic Finance: An Example I

- 1 An entrepreneur with no funds seeks financing for a project
- 2 The profits from the project depend on the entrepreneur's effort and ability
- 3 Neither effort nor ability can be observed by the lender (bank)
- 4 The bank offers a financial contract and may specify desired effort

Mechanism Design Approach to Islamic Finance: An Example II

5. If no effort level is recommended all entrepreneurs choose optimal effort in response to the financial contract
6. If there is a recommended financial effort an entrepreneur will experience psychological disutility from deviating from the recommended level of effort
7. The degree of disutility is private information of the entrepreneur and is not observable by the bank
8. Bank offers a menu of contracts consisting from a fixed wage, a profit-loss sharing rule, and recommended effort (if it chooses to include it)



Mechanism Design Approach to Islamic Finance: An Example III

- Model in its generality falls into the class of multidimensional screening model discussed above
- To get some intuition we will assume that entrepreneurs fall into two classes with respect to the disutility of cheating:
 1. fully faithful (always exert the recommended effort)
 2. fully opportunistic (completely ignore the recommended effort)



Mechanism Design Approach to Islamic Finance: An Example IV

- If there are sufficiently many faithful productive entrepreneurs the bank will offer contracts of two types: fixed wage contracts, with a moderate recommended level of effort increasing in the average productivity of the faithful types; **incentive contracts with very high level of recommended effort**
- If there are few faithful entrepreneurs or they are not sufficiently productive the bank will offer only **incentive contracts with very high level of recommended effort**, i.e. it will find it optimal to completely exclude the faithful entrepreneurs

Islamic Finance Institutions: Disadvantage Magnification Mechanism

- However, even with best mechanism design tools additional asset and contract limitations faced by IFIs may prove to be a significant handicap, especially when they are magnified by a matching mechanism
- An example of effect of contract limitations is studied by me with co-authors in:
 - **On Sharia 'a-compliance and return to investment, 2014, (with Lukman Arbi and Ishaq Bhatti), *Journal of Stock and Forex Trading*, 3: 116.**
- This mechanism can result in IFIs to be matched to the less talented entrepreneurs
- The mechanism is studied by me with co-authors in:
 - **On Sharia 'a compliance, positive assortative matching, and return to investment banking, 2014, (with Ishaq Bhatti), *Journal of International Financial Markets, Institutions & Money*, 30, 191-195.**



ISSN: 2168-9458

Journal of Stock & Forex Trading

Related Journals

Open Access



- Industrial Engineering and Management
- Journal of Global Economics
- Journal of Accounting and Marketing





ISSN: 2168-9458

Journal of Stock & Forex Trading

Open Access



- 2nd International Conference on Business Economics and Management
- International Conference on Advertising and Marketing Expo



OMICS Group Open Access Membership

OMICS publishing Group Open Access Membership enables academic and research institutions, funders and corporations to actively encourage open access in scholarly communication and the dissemination of research published by their authors.

For more details and benefits, click on the link below:

<http://omicsonline.org/membership.php>

