



# The Ideal Matching Platform for FX Market

Prof. Anna Obizhaeva  
New Economic School (NES)

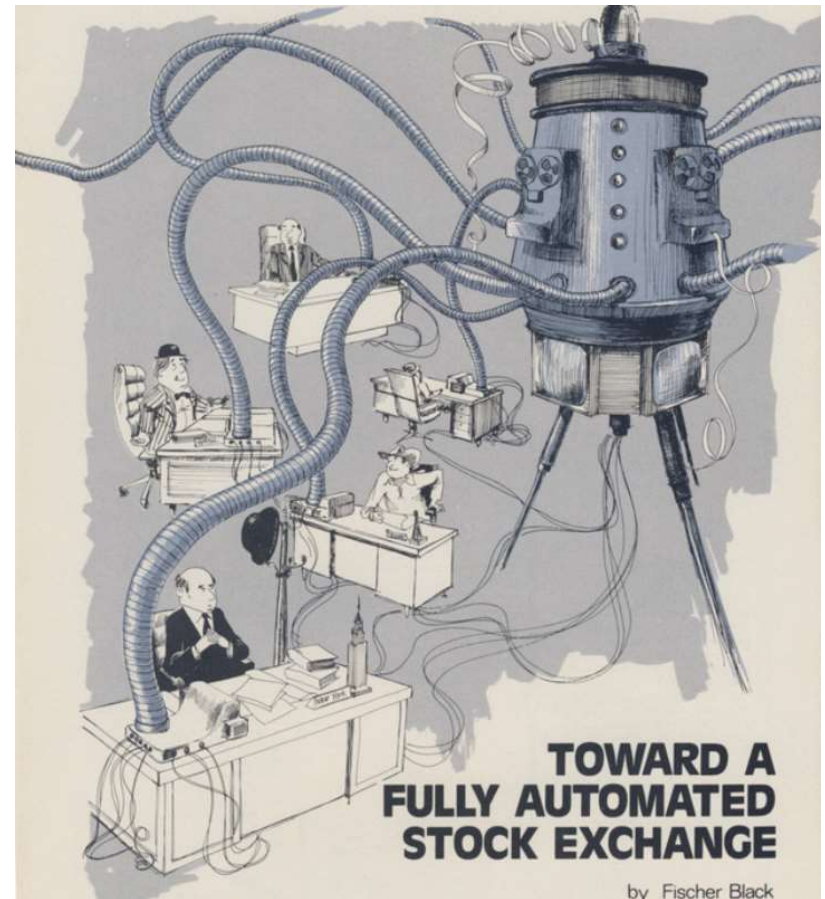
Moscow, November 20, 2018

# Fischer Black about Ideal Exchanges

Fischer Black was interested in how people trade and how diffuse information in market prices. In 1971 he wrote about fully automated exchanges in the future:

Black believed that computers will make bid-ask spreads smaller, but leave market depth as well as pricing accuracy the same. Flash crashes also will not disappear.

What are best ways to organize trading in the 21<sup>st</sup> century?



# Exchanges: Several Principles

- Trading platforms help to facilitate capital formation, share risks, and aggregate information. Markets have to be fair, orderly, and efficient.
- Different player may have conflicting interests. For example, what is good for dealers is not always good for customers. What is good for small customers may be irrelevant for large customers.
- Market participants need to be able to make money, but not at a disproportionate cost for the society.

# Design of Ideal Exchange: Three Levels

I. God's view: Overall design.

- centralized vs. decentralized
- continuous vs discrete

II. Mid-level view: Design of various important systems.

- restrictions on trading; information disclosure policy
- risk management and liquidity systems; stability; security

III. Ant's view: Nitty-gritty details.

- fine-tuning of parameters.

# God's View: Centralized vs Decentralized

It appears that the market is most efficient if all orders come to a single point, so that all potential buyers can be exposed to all sell orders, and all potential sellers can be exposed to all buy orders, as done by the MOEX:

- Network externalities, direct matching of customers
- Economy of scale
- Higher quality, more security and transparency
- Easy to monitor and regulate

## Possible Issues:

- Lack of competition (monopoly profits)
- Few incentives to innovate
- Concentration of risks

Order internalization per se usually benefits dealers, not customers.

# God's View: Continuous vs Discrete

Many exchanges are organized as continuous CLOB markets, but there are two alternatives:

I. Make trading more discrete:

Frequent batch actions; Budish, Crampton, Shim (2013); example of batch auctions at the Taiwan exchange – traders appear to want to trade smoothly.

II. Make trading even more continuous:

Continuous scaled limit orders; Black (1971), Kyle, Obizhaeva, Wang (2017), and Kyle and Lee (2017).

e.g. “Buy up to 1000 shares at prices between  $P_{low}$  and  $P_{high}$  and at a maximum rate of one share per second.”

# Mid-Level View: Restrictions on Trading / Info

Should there be any restrictions on trading or information disclosure?

- I. Restriction on trading by hedge funds, HFTs, short sellers, “manipulators”, speculators may be harmful, but monitor for possible cartels, collusions, and squeezes;
  - scandals in FX rates fixings
  - leakage of information about customers order flow
  - preferential deals for some customers
  
- II. Restriction on pre-trade and post-trade information disclosure or the two-tier markets put customers at disadvantage. We want others to disclose info, but we don't want to disclose our info ourselves to monetize it.

# Mid-Level View: Stability

Exchanges and clearing companies are key financial infrastructure elements, which need to have state-of-the-art risk management and liquidity management systems as well as various security tools and order flow monitoring systems, especially in the FX markets:

- Speed bumps, circuit breakers
- Kill switches for algorithms
- Price limits, margin requirements, etc.

There are no circuit breakers for the FX Platform in the MOEX.



# Ant's View: Fine-Tuning of Parameters

Numerous quantitative parameters of trading process need to be fine-tuned based on some trade-offs, examined in theoretical model and empirical studies:

- Tick sizes and lot sizes
- Various fees: transaction fees, maker-taker fees
- Margin requirements, price limits, etc.

Empirical research: big data, endogeneity issues, experiments (e.g. tick size study in the U.S.), calibration of structural models. Despite some general economic principles, empirical research has to be market-specific.

Theoretical research: game theoretical frameworks with asymmetric information, imperfectly competitive markets, different beliefs etc.

# Need for Collaboration

We need to think together about how to promote more empirical and theoretical research on market microstructure of the Russian markets within private sector, among regulatory authorities and academic community.

Main bottlenecks: limited access to data, lack of infrastructure and culture for quantitative analysis in finance, small and fragmented expert community.

Building modern Russian financial system is challenging, interesting, important for our society and presents many business opportunities.