Andrey Pankratov

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EDUCATION

USI Lugano (Università della Svizzera italiana) & Swiss Finance Institute — Lugano, Switzerland
PhD student in finance — *September 2015 - Present*

HEC Paris — Jouy-en-Josas, France
Visiting PhD student in finance — *February 2020 - March 2020*

Gerzensee study center — Gerzensee, Switzerland
Financial Frictions and Incomplete Markets by Y. Sannikov — *One week in August 2018*

Gerzensee study center — Gerzensee, Switzerland
Indeterminacy and Sunspots in Macroeconomics by R. Farmer — *One week in September 2017*

Gerzensee study center — Gerzensee, Switzerland
Doctoral macroeconomics program (four weeks of courses) — *December 2017 - July 2018*

CFA program — Moscow, Russia
Passed first two levels — *December 2013 - June 2014*

Lomonosov Moscow State University, Mathematics, Higher Algebra — Moscow, Russia
Diploma degree ≈ bachelor's degree + master's degree — *September 2003 - June 2008*
Master thesis: On classification of finite semirings
GPA: 4,5 out of 5

RESEARCH PAPERS

- **Asset-borrowing markets: information transmission and front-running**:

  I study short-sale constraints in a market with asymmetric information. This paper offers a novel approch endogenizing short-sale constraints by including an asset-borrowing market in the model. Short-sellers have to borrow an asset and therefore reveal information to a lender. The lender trades on her own account in addition to charging fees, which creates an incentive for the short-seller to hide the information and eventually hinders short sales. Ultimately, in a setting à la Kyle, I analyze an equilibrium involving an informed agent, a lender, and a market maker. The model has new implications for profit distribution, market efficiency, and volatility.

- **Leverage effect puzzle: a rational explanation**:

  I study the effects of short sale constraints in a rational framework with asymmetric information. I consider the cases of Bernoulli-distributed (à la Glosten and Milgrom) and continuously distributed (à la Kyle) liquidation values, and focus on the latter case.

  In this case my model is able to explain the following features of stock returns: (i) Black's "leverage effect" (a.k.a. asymmetric volatility), (ii) persistent volatility, and (iii) more negative skewness for longer horizon returns. Model implications for price impact are as follows: (i) the impact has typically lower magnitude compared to the unconstrained case, (ii) the impact of extremely positive news has higher magnitude than the impact of extremely negative news, (iii) the impact of moderately positive news has lower magnitude than the impact of moderately negative news.

- **Information leakages, distribution of profits from informed trading, and last mover advantage**:

  This is a model of front-running in which the front-runner may have an advantage over an informed trader due to the fact that she makes her trading decision later. If I also endogenize information-acquisition choices, my model predicts that the amount of information generated by the front-runner as well as her trading aggressiveness can be discontinuous in the state of technology. Once, information extraction costs fall below a certain threshold, the aggressiveness of the front-runners increases abruptly. I interpret this as an explanation for an explosive emergence of high-frequency trading in the mid-2000s.

Presentations and posters

- 28th FINANCE FORUM of Spanish Finance Association, PhD Mentoring Day, 2020
- SFI Research days, 2020
- Brown bag seminar at HEC Paris, 2020
- AFA 2020, San Diego [poster session]
- Workshop on the Systemic Impact of Digitalization on Finance at the University of Zürich, 2019
- Alumni Conference 2019, Gerzensee
- PhD Workshop at HEC Paris 2019
- Summer School of Market Microstructure 2019, Lugano
- French finance association annual meeting (AFFi), 2019, Québec, Université Laval
- SFI Research Days 2019, Gerzensee
- Quantitative Finance Workshop 2019, Zürich [poster session]
- Alumni Conference 2018, Gerzensee
- PhD reading group in Lugano 2018
- SFI Research Days 2018, Gerzensee
- French finance association annual meeting (AFFi) 2018, Paris
- Summer School of Market Microstructure 2017, Lugano
- SFI Research Days 2017, Gerzensee
- PhD research seminar in Lugano 2016

Professional experience

- **USI Lugano**
  Teaching assistant   *September 2016 - Present*
  - **Courses**: Financial engineering and Fixed income for second-year master students
  - **Responsibilities**:
    * Deliver theoretical lectures
    * Deliver exercise sessions
    * Prepare materials
  - **Topics**:
    * Duration-convexity analysis
    * Interest rate models (e.g. Vasicek model, Ho and Lee)
    * Give exercise sessions
    * Principal components of the yield curve
    * Pricing of fixed income derivatives and bonds in no-arbitrage binomial trees
    * Merton model and rating transition approach for pricing of defaultable bonds
    * Mathematical finance (Brownian motion, Ito's lemma, change of measure, etc.)
    * Black-Scholes model
    * Stochastic volatility model approach for the pricing of stock options
    * History and theory of crashes

- **OJSC Sberbank**
  Risk assessment statistical model validator   *February 2014 - July 2015*
  - **Main focus**: credit risk models for loan portfolio: probability of default (PD) and loss given default (LGD)
  - **Responsibilities**:
    * Qualitative (including assessment of reasonableness of underlying assumptions) and quantitative assessment of statistical models
    * Composition of validation reports
    * Improvement of models that do not qualify either internal or regulatory requirements

- **OJSC VTB BANK**
  Risk-management analyst (Asset/Liability Management)   *November 2013 - February 2014*
  - **Responsibilities**:

* Cash flow forecasting and liquidity assessment
* Monitoring of compliance with requirements on the size of unpledged treasury portfolio
* Development of a model for liquidity risk valuation for demand accounts portfolio

- **OJSC Allianz Investments - asset management**
  Risk-management analyst   *October 2012 - November 2013*
  - **Responsibilities**:
    * Liquidity risk, credit risk and market risk limits control as well as control of other key characteristics
    * Stress-testing portfolios under management
    * Coding VBA macros and SQL queries in the internal accounting system
    * Controlling operational risks
    * Return versus risk analysis of bond mutual funds including comparison Allianz' funds to competitors' funds
    * Market risk analysis (calculation of VaR as for equity portfolios)
    * Interest rate risk analysis aiming at providing capital appreciation strategy (VaR calculation based on market rate volatility forecast with respect to time horizon and bond cash flow profile, i.e. coupon and redemption schedule)
    * Liquidity risk analysis (monthly monitoring of Russian stock and bond market using Bloomberg, Reuters and CBonds.info, taking part in development of liquidity forecasting model)
    * Market risk analysis (monthly monitoring Russian stock market)
    * Taking part in credit analysis (IFRS/US GAAP, Z-spreads of bonds issued by the entity, CDS quotes)

- **CJSC Insurance Comapany TRANSNEFT**
  Underwriter: insurance of physical assets and business interruption   *September 2010 - October 2010*
  - **Responsibilities**:
    * Risk assessment, setting insurance conditions and rate, setting reinsurance conditions
    * Drawing up non-standard insurance contracts
    * Participation in development and improvement of insurance products

- **CJSC "ROSNO" (Insurance company, subsidiary of Allianz)**
  Underwriter: insurance of physical assets and business interruption   *June 2008 - August 2010*
  - **Responsibilities**:
    * Risk assessment, setting insurance conditions and rate, setting reinsurance conditions
    * Teaching other underwriters to deal with machinery reinsurance treaty
    * Monitoring an approving other underwriters' decisions
    * Drawing up non-standard insurance contracts
    * Participation in development and improvement of insurance products
    * Translation and analysis of regulations, manuals, and instructions of Allianz (parent company), and transmission of this standards to the subsidiary company adjusting them for the local jurisdiction
    * Translation of insurance contracts

Grants and awards

- 2020 SFI research days best discussant award

- 2019 AFA Travel grant

- 2015 SFI PhD grant for the first year of the doctoral program in finance

- 2003 Prizes from Intel and Moscow ministry of education for the development of software for modeling sound propagation indoors. This educational project was a part of my program in high school (Information Technologies Lyceum #1533). The project was implemented in C++.

Technical skills

R (advanced), C/C++, SQL, Visual Basic, Stata, LaTeX(advanced), Python, Bloomberg terminal, Reuters Eikon

Languages

- **English**: fluent (C1)
- **French**: upper-intermediate (B2)
- **Italian**: upper-intermediate (B1-B2)
- **Russian**: native (C2)