The 2nd Annual Algorithmic Trading Conference:
Dynamic Portfolios, Optimal Execution, and Risk

February 5, 2010

Skirball Center for the Performing Arts | New York University
566 La Guardia Place
New York, NY 10012

An event organized by

Mathematics in Finance
Workshop and Conference Center
Courant Institute of Mathematical Sciences
New York University

and

The Quant Portal

Jack H. Skirball Center for the Performing Arts

NEW YORK UNIVERSITY
A private university in the public service
A welcoming word from the Deputy Director

While this is just the second year of our conference, I am being told that we’re on our way to becoming one of the top destinations for people like yourselves -- professionals seeking to better their knowledge and practical understanding of research and innovation in the areas of algorithmic trading, high frequency finance, quantitative strategies, and market microstructure. Last year, people from nearly one hundred different firms participated, establishing this conference as a primary industry event. The roster included not only well-established financial institutions and organizations with a broad presence in the field, but also up-and-coming firms in and around New York City and the world.

As last time, this year’s speakers and panelists represent the top minds from the intersection of industry and academia. It is our continuing effort that an exciting mix of practitioners and academics, buy-side and sell-side, and regulators and industry, will result in a most vibrant and useful exchange of ideas and information. First and foremost, the topics represented at this conference are intended to be timely and cutting edge, which is exceedingly crucial in this fast-developing field. For instance this year, the panel discussion on the recent SEC Concept Release on Equity Market Structure, published on January 13, was added a mere two weeks before this conference. Its inclusion in today’s discourse reflects our commitment to actively engage with the most recent and important developments.

Finally, this conference represents one of our most prominent annual fundraising events for the Mathematics in Finance Masters Program at the Courant Institute. This is accomplished by your attendance, and the generous sponsorships of leading companies and organizations, including Athena Capital Research, Bank of America Merrill Lynch, Kx Systems, the Master of Financial Engineering Program at the Haas School of Business at UC Berkeley, The Mathworks, Maxeler Technologies, Northfield Information Services and Orc Software. Not only do these companies achieve precise exposure to a select and exclusive audience, they help support Courant’s world-class mathematical finance program, thereby contributing to the education of the brightest minds of tomorrow.

On behalf of the Courant Institute of Mathematics Sciences, The Quant Portal, and all our sponsors, I would like to welcome you to the 2nd Annual Algorithmic Trading Conference: Dynamic Portfolios, Optimal Execution, and Risk.

Sincerely yours,

PETTER KOLM
Deputy Director
Mathematics in Finance Masters program
Courant Institute of Mathematical Sciences
New York University
Trading fine-tuned to your needs and real-time market conditions.

In Global Execution Services, we can alert you to changing market conditions and your execution performance throughout the day. As your orders are trading, we work with you to adjust strategies so you can meet your performance objectives. Our global leadership is strengthened by a multi-client, multi-region, multi-product approach that gives you great flexibility in both how and where to execute. And, our tremendous in-house liquidity delivers a performance advantage that’s anything but subtle.
See how Global Execution Services can fine-tune your trading, call:
NY +1.212.449.6090  |  Chicago +1.866.202.5908  |  Asia +852.2161.7550
Japan +813.6225.8398  |  Europe +44.207.996.4521

Trading fine-tuned to your needs and real-time market conditions.

"Bank of America Merrill Lynch" is the marketing name for the global banking and global markets businesses of Bank of America Corporation. Lending, derivatives, and other commercial banking activities are performed globally by banking affiliates of Bank of America Corporation, including Bank of America, N.A., member FDIC. Securities, strategic advisory, and other investment banking activities are performed globally by investment banking affiliates of Bank of America Corporation (“Investment Banking Affiliates”), including, in the United States, Banc of America Securities LLC and Merrill Lynch, Pierce, Fenner & Smith Incorporated, which are both registered broker-dealers and members of FINRA and SIPC, and, in other jurisdictions, locally registered entities. Investment products offered by Investment Banking Affiliates: Are Not FDIC Insured • May Lose Value • Are Not Bank Guaranteed. ©2009 Bank of America Corporation AR94712

In Global Execution Services, we can alert you to changing market conditions and your execution performance throughout the day. As your orders are trading, we work with you to adjust strategies so you can meet your performance objectives. Our global leadership is strengthened by a multi-client, multi-region, multi-product approach that gives you great flexibility in both how and where to execute. And, our tremendous in-house liquidity delivers a performance advantage that’s anything but subtle.
# Conference program

## Opening and welcome

Petter Kolm and Lee Maclin, both of the Mathematics in Finance Masters Program at the Courant Institute of Mathematical Sciences, New York University, welcome participants and attendants in this year’s event.

## Algorithmic Trading: An Investment Management Perspective

Modern algorithmic trading evolved from automated trading tools developed by proprietary traders. From the viewpoint of an investment manager, decisions on trade duration cannot be separated from the investment decision. This talk provides a framework to jointly determine the optimal trading structure given forward looking information. We illustrate the value of the approach with some practical examples.

## Intraday Patterns in the Cross-Section of Stock Returns

Motivated by the literature on investment flows and optimal trading, this paper examines intra-day predictability in the cross-section of stock returns. We find a striking pattern of return continuation at half-hour intervals that are exact multiples of a trading day, and this effect lasts for at least forty trading days. Changes in volume, order imbalance, volatility, and bid/ask spreads exhibit similar patterns, but do not explain the return patterns. We also show that short-term return reversal is driven by two components: temporary liquidity imbalances lasting less than an hour, and bid-ask bounce. Timing trades based on the observed periodicity can reduce execution costs significantly, on average, by the equivalent of a one-way effective spread of a typical algorithmic trade.

## Algorithmic Trading and Information

We examine algorithmic trades (AT) and their role in the price discovery process in the 30 DAX stocks on the Deutsche Boerse. AT liquidity demand represents 52% of volume and AT supplies liquidity on 50% of volume. AT act strategically by monitoring the market for liquidity and deviations of price from fundamental value. AT consume liquidity when it is cheap and supply liquidity when it is expensive. AT contribute more to the efficient price by placing more efficient quotes and AT demanding liquidity to move the prices towards the efficient price.
Trading. Talent. Team.

We understand that professional success comes naturally when you do what you love.

At Athena, top technological, quantitative, and strategic minds work together to achieve success in the competitive, rewarding world of automated trading.

Join a firm that:
- will teach you in the markets what you can’t be taught in school
- uses the most powerful tools available for trading strategy development and performance*
- measures success both by the quality of our team as well as the quality of our returns

Summer Internships and full time positions available for motivated, qualified people

www.athenacr.com

* We guarantee you that Visual Basic is not one of these tools
Panel Discussion: On the SEC Concept Release on Equity Market Structure (Release No. 34-61358; File No. S7-02-10)

Panelists include Ian Domowitz of ITG, Frank Hatheway of Nasdaq OMX, Eric Hess of Direct Edge Holdings, LLC, Jon Kroeper of FINRA, Albert Menkveld of VU University Amsterdam, Alexander Yavorsky of Moody’s and Michael Mendelson of AQR.

12.45 to 1.45

Lunch

1.45 to 2.30

Technology, Latency and Strategy

We study the economic and empirical importance of automated low-latency market activity. From an economic perspective, latency reduction beyond current levels is unlikely to significantly affect portfolio decisions that are based on value-relevant real information. To the extent, however, that trading gains and losses are determined by strategic interactions and tournament considerations, any change in latency that may affect the ordering of market participants’ interactions can confer an advantage. We study three empirical features of market data that are likely to be associated with algorithmic activity: short-horizon message arrival intensities, periodicity (time clustering) in message occurrences, and the prevalence of cancel-and-replace/execute strategies. We then relate measures of these features to standard measures of market liquidity, such as effective cost and posted spread.

2.30 to 3.15

Optimal Order Execution

In this talk, we review the models of Algmren and Chriss, Obizhaeva and Wang, and Alfonsi, Fruth and Schied. We use variational calculus to derive optimal execution strategies in these models, and show that static strategies are dynamically optimal, in some cases by explicitly solving the HJB equation. We conclude by presenting some new generalizations of the Obizhaeva and Wang model given in a recent paper by Gatheral, Schied and Slynko, again deriving explicit closed-form optimal execution strategies.

3.15 to 3.45

Afternoon Break
Orc Trading delivers powerful and reliable trading tools for the global financial industry... with strong analytics, automated trading functionality, unmatched liquidity access on 100+ markets, high performance cross-asset trading capabilities, ultra-low latency and risk management for electronically traded derivatives.

www.orcsoftware.com

Amsterdam, Chicago, Frankfurt, Hong Kong, London, Milan, Moscow, New York, Paris, Stockholm, Sydney, Tokyo
The Mathematics of Adaptive Execution

Algorithmic execution of large transactions in equity and other markets is a large and growing business. The goal is to optimize the overall execution results relative to some benchmark specified by the client, generally involving some combination of minimum market impact and exposure to volatility risk. An increasingly important trend in recent years is dynamically adaptive algorithms, that adjust execution in response to short-term variations in estimated market liquidity and volatility. The mathematical challenge is to combine that instantaneous response with a more strategic point of view that optimizes an overall combination of impact cost and volatility risk. We summarize some recent work using dynamic programming to calculate and implement optimally adaptive strategies.

Panel Discussion: The Future of Algorithmic Trading

Panelists include Robert Almgren of Quantitative Brokers, Brad Banks of Athena Capital Research, Lee Maclin of Courant Institute of Mathematical Sciences, Oskar Mencer of Maxeler Technologies and Markus Kämpe of ORC Software.
About our sponsors

**Athena Capital Research**

Athena Capital Research is a proprietary trading firm, specializing in fully automated quantitative trading strategies.

Our passions are technology, mathematics, and finance. Working together, we unite these strengths to achieve success in the competitive, rewarding arena of automated trading.

Our team is selected with utmost care, consisting of exceptional individuals that have a strong sense of shared values. At Athena, we measure the success of our firm not only by the quality of our returns, but also by the quality of our people.

**Bank of America Merrill Lynch Global Execution Services**

Bank of America Merrill Lynch offers a complete suite of premier equity trading services enhanced by the Firm’s vast global resources, superior liquidity, world-class technology, and leading scale positions in the capital markets. Our range of offerings includes flexible connectivity methods, option and equity smart routing, as well as portfolio and algorithmic trading. Our programs are dynamic, easily accessible and supported by a team of experienced traders and IT professionals.

InstaQuote® is Bank of America Merrill Lynch’s execution management system for trading equities, options and futures. Using state-of-the-art data compression algorithms, InstaQuote is a fast and reliable platform for both buy-side and sell-side trading professionals. Brokers have the option to use and redistribute IQ with their own trading mnemonics and logos in order to market the product as a proprietary offering.

**Broadcort®**

As one of the leading providers of clearing and execution services to broker dealers for more than 30 years, Broadcort provides firms with leading-edge solutions, enabling them to better serve their clients, enhance efficiencies and focus on their core business. Firms can take advantage of a complete range of services including global execution and clearing services in all major markets and depositories, cost effective and streamlined back office processing systems, introduced prime brokerage services, flexible financing alternatives, and access to global stock loan services.

**Kx Systems**

Kx Systems provides unique ultra-high speed technology to leading tier-one banks, hedge funds, exchanges and other major financial institutions for storing, retrieving and analyzing vast quantities of data instantaneously. Its highly original solution for high-performance database and timeseries analysis is designed for efficiency and transparency, helping eliminate latency...
- 240x Speedup for Derivative Pricing
- 30x Reduction in operating expediture
- Lattice-Boltzmann Methods
- Finite Elements, Monte Carlo

Maxeler is your trusted partner for acceleration
Pioneering thinking with custom acceleration technology and system architecture to enable next generation algorithms and lasting competitive advantage.

Visit our website for the latest “white papers”, case studies and our regular newsletter

www.maxeler.com
Call (201) 567 5743

MAXELER Technologies
MAXIMUM PERFORMANCE COMPUTING
and providing a significant competitive advantage.

Kx’s unified format for streaming, real-time and historical data, and its exceptionally efficient proprietary language, enable trading operations to manage risk and implement sophisticated trading strategies in real-time. Kx simultaneously supports thousands of real-time custom queries, analyses on data in-memory and updates databases dynamically.

**Master of Financial Engineering Program**  
**Haas School of Business**  
**University of California, Berkeley**

The Master of Financial Engineering (MFE) degree is a one-year graduate degree offered by the Haas School of Business. Students in the MFE program learn to employ financial economics, mathematics, and computer modeling skills to make pricing, hedging, trading, risk management, project evaluation, and portfolio management decisions.

The MFE fills an important industry need for professional training not met by either an MBA finance program or a PhD in finance. Haas MFE students take courses focused on corporate finance, financial markets, and security valuation. Also covered are the numerical and simulation mathematics and computer technology commonly used in the industry.

With the added practical experience of a three month internship and a comprehensive applied finance project, MFE graduates are ready to work as financial engineers in your firm.

**The MathWorks**

Financial professionals worldwide use the interactive programming environment and prebuilt computational libraries of MATLAB® to develop quantitative applications in a fraction of the time it would take them in C++ or Visual Basic.

By standardizing on MathWorks products, teams of quants and their IT colleagues in the financial services industry can work and collaborate in a single environment to:

- Chart historical and live market data
- Model interest rates
- Solve optimization problems
- Develop quantitative models to optimize performance and minimize risk
- Integrate with data sources and legacy software
- Develop and deploy applications to production environments, desktops, servers, and the Web.

**Maxeler Technologies**

Maxeler provides acceleration solutions (typically 100-500X) for Tier 1 firms in the Finance, Energy, Imaging and Research
The Master of Financial Engineering (MFE) degree is a one-year graduate degree offered by the Haas School of Business. Students in the MFE program learn to employ financial economics, mathematics, and computer modeling skills to make pricing, hedging, trading, risk management, project evaluation, and portfolio management decisions.

Whether you are from an investment bank, commercial bank, insurance, money management, treasury department, diversified financial services company, or a private equity/venture capital firm, we are confident you will be impressed by the MFE students from the Haas School of Business.

If you would like to recruit our students or alumni please contact

Linda Kreitzman, PhD
Executive Director
Master of Financial Engineering Program
Haas School of Business
University of California at Berkeley
Tel: 510-643-4329
Email: lindak@haas.berkeley.edu

Recruit from the #1 Financial Engineering Program in the Country for Internships and Full-Time Employment
About our sponsors, cont’d

fields by focusing on the underlying algorithms and models that might be used in their applications. Maxeler provides both consulting and hardware/software implementations plus specialized toolsets that allow users to gain a unique competitive advantage not only in terms of computational speedup but with a significant cost reduction in terms of footprint and power. A Maxeler solution is not only accelerated but can typically replace dozens of racks and hundreds of blades or servers in a deskside or single rack enclosure.

**Maxeler Technologies, Inc.**

Maxeler Technologies Plc provides both consulting and hardware/software implementations plus specialized toolsets that allow users to gain a unique competitive advantage not only in terms of computational speedup but with a significant cost reduction in terms of footprint and power. A Maxeler solution is not only accelerated but can typically replace dozens of racks and hundreds of blades or servers in a deskside or single rack enclosure.

**Northfield Information Services, Inc.**

Northfield Information Services, Inc. is a market leader in developing open, analytical models to identify, measure and control risk for the investment management industry. These risk models cover most marketable securities traded world-wide. Based upon sound investment theory, Northfield’s products and services have stood the test of time from users within the global institutional investment community. The risk models are broken down by geography — global, regional or country, and applied by users of our Open Optimization analytical service. Both our analytical tools and risk models are completely transparent which allows our more than 300 clients access to all factor data and underlying assumptions.

Since entering the area of algorithmic trading in 2003, Northfield has provided a unique process for the algorithmic execution of equity trades. Our trade “scheduler” deals with the problem as a multi-period mean/variance optimization in discrete time. This formulation of the problem allows for robust inclusion of risk control and cross-market impact across securities, and delineation between permanent and transitory impact effects. Extensive empirical tests have confirmed the efficacy of our method. We compliment this analytical service with our own proprietary market impact models that cover all traded equities worldwide.

**Orc Software**

Orc Software (SSE: ORC) is a leading global provider of powerful solutions for the worldwide financial industry in the critical areas of advanced trading and low latency connectivity. Orc’s competitive edge lies in its depth of knowledge of the trading world gained by deploying advanced solutions for sophisticated traders for over 20 years. Orc’s solutions are used by traders for numerous trading strategies including market making, arbitrage, volatility trading, and other high-frequency and low-latency trading strategies. Orc’s customers include leading banks, proprietary trading and market-making firms, exchanges, brokerage houses, institutional investors and hedge funds.
simple solution: kdb+
kdb+ is a unified database for capturing and analyzing streaming and historical data.
About our speakers

Almgren, Robert

Robert Almgren is co-founder Quantitative Brokers and Fellow in the Mathematics in Finance Program at New York University. Until 2008, Dr Almgren was a Managing Director and Head of Quantitative Strategies in the Electronic Trading Services group of Banc of America Securities. From 2000-2005, he was a tenured Associate Professor of Mathematics and Computer Science at the University of Toronto, and Director of its Master of Mathematical Finance program. Before that, he was an Assistant Professor of Mathematics at the University of Chicago and Associate Director of the Program on Financial Mathematics. Dr. Almgren holds a B.S. in Physics and Mathematics from the Massachusetts Institute of Technology, an M.S. in Applied Mathematics from Harvard University and a Ph.D. in Applied and Computational Mathematics from Princeton University. He has an extensive research record in applied mathematics, including several papers on optimal securities trading, transaction cost measurement, and portfolio formation.

Banks, Brad

Brad co-founded Athena Capital Research in June 2003. He is responsible for overall management and growth of the company, in addition to overseeing research, development, and risk management of investment strategies. Brad previously was a Managing Director at Tower Research Capital, a highly successful early pioneer in automated electronic trading. He has 10 years of industry experience covering operations, personnel, and portfolio management, as well as development of quantitative trading strategies. Prior to Tower, Brad attended the Massachusetts Institute of Technology (MIT), where he attained S.B. and M.Eng. degrees in Computer Science (1999). His graduate thesis research focused on the extraction of patterns from large data sets through statistical and machine learning techniques.

Domowitz, Ian

Ian Domowitz is a Managing Director at Investment Technology Group, Inc., responsible for analytical and network products, and a member of the company’s Management and Executive Committees. Prior to joining the company in 2001, he served as the Mary Jean and Frank P. Smeal Professor of Finance at Pennsylvania State University and previously was the Household International Research Professor of Economics at Northwestern University. A former member of the NASD’s Bond Market Transparency Committee, he also served as chair of the Economic Advisory Board of the NASD. Mr. Domowitz has held positions with Northwestern’s Kellogg Graduate School of Management, Columbia University, the Commodity Futures Trading Commission, the International Monetary Fund and the World Bank. He is currently a Fellow of the Program in the Law and Economics of Capital Markets at Columbia University.

Gatheral, Jim

Jim Gatheral is Managing Director at Bank of America Merrill Lynch, and also an adjunct professor at the Courant Institute of the Mathematical Sciences, New York, where for many years he has co-taught popular classes in the Masters Program of Mathematics in Finance. Prior to 2005 he headed the Equity Quantitative Analytics groups at Merrill Lynch. Over his long career in the financial markets, he has has been involved in all of the major derivative product areas as bookrunner, risk manager and quantitative analyst. He has a BSc in mathematics and natural philosophy from Glasgow University and a PhD in theoretical physics from Cambridge University. His current research focus is on volatility modeling and modeling equity market microstructure for algorithmic trading. He has published papers in leading academic journals and is a regular speaker at international conferences. His best-selling book, *The Volatility Surface: A Practitioner’s Guide* (Wiley 2006), is now one of the standard references on the subject of volatility modeling.
Hasbrouck, Joel

Joel Hasbrouck is the Kenneth G. Langone Professor of Business Administration and Professor of Finance at the Stern School of Business, New York University. He studies the structure, design and regulation of the trading mechanisms used for securities (market microstructure).

He has taught finance classes at hedge funds, and served as a consultant to stock exchanges and regulators. He is an Advisory Editor of the Journal of Financial Markets, an Associate Editor of the Journal of Financial Econometrics, the Journal of Financial Intermediation, and Finance Research Letters, and a past editor of the Review of Financial Studies. He has authored numerous academic articles and a book, Empirical Market Microstructure (Oxford University Press). He holds a Ph.D. from the University of Pennsylvania and a B.S. in Chemistry from Haverford College.

Hatheway, Frank

Frank M. Hatheway is Chief Economist of the NASDAQ OMX Group Inc., and is responsible for a variety of projects and initiatives to support the markets and improve market structure. Since joining NASDAQ OMX, he has carried out a number of studies on NASDAQ and other markets, developed NASDAQ’s opening and closing auctions, and advised on major corporate initiatives such as the launch of the NASDAQ Options Market and NASDAQ OMX Europe. His current projects include evaluating the impacts of dark pools and high frequency trading on equity markets.

Prior to joining NASDAQ OMX, Dr. Hatheway was a finance professor at Penn State University and a researcher in market microstructure. He has authored academic articles in the Journal of Finance, Journal of Financial Intermediation and other leading finance journals. Dr. Hatheway has served as an Economic Fellow and Senior Research Scholar with the U.S. Securities and Exchange Commission and received his Ph.D. in Economics from Princeton University.

Hess, Eric

Eric Hess serves as General Counsel of Direct Edge, the third largest stock market in the United States. Since joining the firm in June 2008, he has overseen all legal and regulatory affairs of the company. Mr. Hess came to Direct Edge from Lehman Brothers, where he was Senior Vice President covering the Equities Division. Prior to his tenure at Lehman, he was General Counsel for Sungard Trading Systems, a division of Sungard Data Systems and Chief Legal Officer for The BRUT ECN. Mr. Hess has also served as Legal Head of Transactional Services for Bloomberg, L.P. and as an associate for the law firm of Wachtel & Masyr.

Kämpe, Marcus

Markus Kämpe is a senior trading solutions product manager with Orc Software. As a key member of Orc’s product management team since 2001, Markus has been instrumental in bringing to market latest electronic trading enhancements for advanced market making, arbitrage and volatility trading. As a specialist in trading analytics, Markus has been involved in developing analytics for enabling traders to fully exploit their trading strategies. Orc Software provides powerful solutions for the global financial industry in the critical areas of advanced trading and low latency connectivity.

Kolm, Petter

Petter Kolm is the Deputy Director of the Mathematics in Finance Masters Program and Clinical Associate Professor at the Courant Institute of Mathematical Sciences, New York University. His interests include high frequency finance and algorithmic trading, quantitative trading strategies, financial econometrics, risk management, and optimal portfolio strategies. Previously, Petter worked in the Quantitative Strategies Group at Goldman Sachs Asset Management where his responsibilities included researching and developing new quantitative investment strategies for the group’s hedge fund. Petter coauthored the books Financial Modeling of the Equity Market: From CAPM to Cointegration (Wiley,
About our speakers, cont’d

Kroeper, Jon

Jon Kroeper is Senior Vice President, Quality of Markets in FINRA’s Market Regulation Department. His group is responsible for enforcement of, among others, the order protection, best execution, best execution, order handling, and Regulation NMS rules. The Quality of Markets Section also is involved in regulating FINRA’s Alternative Display Facility, FINRA’s Trade Reporting Facilities, and FINRA’s TRACE System, as well as providing regulatory services to other SROs, including the Nasdaq Stock Market. Prior to joining FINRA in 2007, Mr. Kroeper served as Counselor to Chairman Christopher Cox of the U.S. Securities and Exchange Commission from 2005 to 2007 and as Counsel to Commissioner Paul S. Atkins in 2005. From 2000 to 2005, Mr. Kroeper was First Vice President and Associate General Counsel at Instinet Group Incorporated. Mr. Kroeper began his career at the SEC in 1994, serving as a Senior Counsel in the Division of Market Regulation and later as Counsel to Commissioner Laura S. Unger.

Maclin, Lee

Lee has over twenty years of experience on Wall Street and has worked and consulted for some of its largest and best known firms. Since 1991, Lee has worked primarily in the trading and investment management fields, specializing in the application of statistical methods, modeling, and high frequency simulation. From 1993 to 1997, Lee ran a quantitative trading department for Mint Investment Management, which, at the time, was one of the largest commodity trading advisors in the world. In 2002, Lee was one of the founding partners of Pragma Financial Systems and, for the next six years, served as its Director of Research. At Pragma, Lee’s work focused on the development of optimal execution and dynamic portfolio management tools. He is a frequent speaker on the topic of algorithmic trading and computational finance.

Madhavan, Ananth

Ananth Madhavan leads the global trading research and transition teams at BlackRock Inc. Ananth also works closely with the global trading team and alpha research groups to design and implement trading strategies capturing liquidity-driven market opportunities. Ananth was formerly Managing Director of Research of ITG Inc., a leading provider of technology-based equity-trading services and transaction research to institutional investors and brokers. He was also a member of the management and executive committees of ITG Inc. Previously, he was the Charles B. Thorton Professor of Finance at the Marshall School of Business at the University of Southern California, and Assistant Professor of Finance at the Wharton School of the University of Pennsylvania. He received his PhD in economics from Cornell University and BA from the University of Delhi, India.

Mencer, Oskar

Prior to founding Maxeler Technologies, Oskar Mencer was Member of Technical Staff at Bell Labs, leading the effort on “Computing with FPGAs” within the Computing Sciences Center. He joined Bell Labs after receiving a PhD from Stanford University. Besides his work with Maxeler, Oskar is also affiliated with the Computing Department at Imperial College London and holds a Consulting Professor position at the Geophysics department at Stanford University. Oskar’s experience includes start-ups and more established companies in Silicon Valley such as DIGITAL, Rockwell and Hitachi (Tokyo).
About our speakers, cont’d

Menkveld, Albert

Albert Menkveld is Associate Professor of Finance at VU University Amsterdam. In 2002, he received a Tinbergen PhD from Erasmus University Rotterdam. He spent 18 months of his PhD as visiting scholar at Wharton and Stanford on a Fulbright Scholarship. He visited NYU-Stern in 2004-2005 and in 2008-2010.


In 2007 he received the Pierson medal (“Dutch Bates Clark”) from the Royal Dutch Economic Association; in 2004 a three-year VENI grant from the Netherlands Organization for Scientific Research (NWO); in 2003 a Lamfalussy scholarship from the European Central Bank; and in 2001 the Josseph de la Vega Prize from the Federation of European Exchanges.

Albert has been a member of the academic council of the Autorité des Marchés Financiers (“French SEC”) since 2004.

Sadka, Ronnie

Dr. Ronnie Sadka is an associate professor of finance at Boston College’s Carroll School of Management. Professor Sadka’s research focuses on liquidity in financial markets and stock-price modeling. He has developed unique measures of market liquidity and has demonstrated their importance for understanding the profitability of different trading strategies as well as hedge-fund performance. His research also uncovers distinct periodic patterns of stock returns both over the calendar year and during a single trading day.

Sadka’s work has appeared in various outlets including the Journal of Finance, the Journal of Financial Economics, and Financial Analysts Journal, and has been covered by the New York Times and CNBC.

Prior academic experience includes teaching at the University of Chicago (Booth), New York University (Stern), Northwestern University (Kellogg), and the University of Washington (Foster). Industry experience includes Goldman Sachs Asset Management and Lehman Brothers (quantitative strategies).

Sadka currently serves on the economic advisory board of NASDAQ OMX. Professor Sadka earned a B.Sc. (Magna Cum Laude) in industrial engineering and a M.Sc. (Summa Cum Laude) in operations research, both from Tel-Aviv University. He received a Ph.D. in finance from Northwestern University (Kellogg).

Yavorsky, Alexander

Alex Yavorsky joined the Finance & Securities team at Moody's Investors Service in autumn of 2005 as an associate analyst and, after several promotions, became Vice President-Senior Analyst in April of 2009. Alex covers the securities industry, and is a lead analyst on a portfolio of more than 10 institutional and retail brokers, and other securities firms. In addition to his lead analyst responsibilities, Alex is also part of the team that covers large investment and universal banks. Alex has authored important and frequently-cited research, and presented to outside audiences and regulators, on the systemic and firm-specific risks of OTC derivatives, with specific emphasis on credit default swaps.

Prior to joining the Finance & Securities team, Alex spent five years in Moody’s Systems Development as a Senior Software Engineer. Alex Yavorsky has a BS in Information Systems from Pace University, and an MBA in Finance, Economics, and Law & Business from the NYU Stern School of Business. Alex is a CFA Level II candidate.