

Electronic Trading: Market Efficiency and Why It Matters to Issuers

14th Annual Pre-Conference at
The Bond Buyer's 25th Annual California Public Finance Conference

Speaker Biographies

Opening Statements

Lawrence E. Harris, Ph.D., CFA

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Lawrence E. Harris holds the Fred V. Keenan Chair in Finance at the Marshall School of Business at the University of Southern California. His research, teaching, and consulting address regulatory and practitioner issues in trading and investment management, and his introduction to the economics of trading, *Trading and Exchanges: Market Microstructure for Practitioners*, is widely regarded as a recommended reading for entrants into the securities industry.

Dr. Harris is lead independent director of Interactive Brokers, Inc., director of the Selected Funds, research coordinator of the Institute for Quantitative Research in Finance, and executive director of the Financial Economists Roundtable. He has served as chief economist of the Securities and Exchange Commission from 2002-2004, where he contributed extensively to the development of regulations implementing Sarbanes-Oxley, the resolution of the mutual fund timing crisis, the specification of Regulation NMS (National Market System), the promotion of bond price transparency, and numerous legal cases. Professor Harris is also an associate editor of several academic journals, and director of the Chartered Financial Analyst (CFA) Society Los Angeles. He has also worked for an institutional broker and for a proprietary trading firm.

Dr. Harris received his Ph.D. in economics from the University of Chicago and is a designated CFA charterholder.

Session One

B.J. (Johan) Rosenberg

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B.J. (Johan) Rosenberg serves as chairman and founder of Blue Rose Capital Advisors, Inc., an independent financial advisory firm serving municipal and corporate issuers; DerivActiv LLC a valuation company; and MuniPriceTracker, LLC, a primary market debt issuance efficiency evaluation tool. He has more than two decades of capital market experience and has overseen over \$100 billion in debt and hedging transactions for higher education, healthcare, 501(c)(3), and corporate borrowers.

Mr. Rosenberg has been awarded patents on an invention for locating, assimilating, and quantifying data regarding variable rate demand obligations, commercial paper, and auction rate securities to assist the involved parties with increasing issuance efficiencies.

Mr. Rosenberg holds a Master of Business Administration with concentrations in finance and accounting from the University of Saint Thomas and a bachelor's degree in economics from the University of Minnesota. He also earned a Chartered Alternative Investment Analyst designation from the Chartered Alternative Investment Analyst Association.

Benjamin E. Stern

Managing Director, Public Finance

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Benjamin E. Stern is managing director of Stifel's California municipal bond underwriting desk and is based in Los Angeles. Since 1990, Mr. Stern has participated as an underwriter in \$42 billion of California municipal bond issues, including 850 senior-managed California municipal issues spanning the entire credit spectrum, from non-rated to AAA. In that capacity, he has developed strong ties to bond mutual funds, insurance companies, hedge funds, bank trust departments and investment counselors who buy California bonds. Mr. Stern has also spearheaded a number of innovative and successful tender bond programs.

Mr. Stern received a Master of Business Administration with a concentration in finance and real estate from the Anderson Graduate School of Management at the University of California, Los Angeles. He graduated *cum laude* with a Bachelor of Science in electrical engineering from the University of California, Los Angeles.

Howard Salend

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Howard Salend is a senior vice president of municipal bond trading at Fidelity Capital Markets (FCM). He joined FCM in 2005 as the manager of the municipal bond trading desk, now the largest in Massachusetts. Prior to managing FCM's municipal trading, Mr. Salend spent eight years running trading and underwriting at Corby Capital Markets in Boston. He founded State Street Bank's municipal bond department in 1984 and went on to manage the New England trading desk for Kidder Peabody, which became Paine Webber.

Mr. Salend has been an active member of the Boston municipal bond community for the past 35 years. He graduated from Boston University with a degree in finance and economics.

Nick Goetze

Managing Director, Head of Fixed Income Services Group

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Nick Goetze serves as a managing director and heads the Fixed Income Services Group at Raymond James. His primary responsibility is coordinating the efforts of fixed income strategy, high net worth, underwriting, and trading professionals with financial advisors. He also works with advisors on some of the firms' largest fixed income clients using industry proprietary fixed income resources. He joined Raymond James in 2012 through the acquisition of Morgan Keegan & Co.

Mr. Goetze has over 15 years of experience in the financial services profession. Prior to joining Morgan Keegan in July of 2003, he was employed by Legg Mason and Alex Brown and Sons, both located in Baltimore, Maryland. He received a Bachelor of Science in business from Cornell University and currently serves as co-chair of the Securities Industry and Financial Markets Association's Retail Fixed Income Committee.

Session Two**Ananth Madhavan, Ph.D.**

Managing Director, Global Head of Research

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Ananth Madhavan is a managing director and the global head of research for iShares by BlackRock. He is responsible for advancing thought leadership and innovation for iShares through research and analytics. Dr. Madhavan's service with the firm dates back to 2003, including his years with Barclays Global Investors (BGI), which merged with BlackRock in 2009. At BGI, he was the global head of trading research and transitions and chief executive officer of BGI's affiliate broker. He also worked closely with the alpha and trading teams to design and implement trading strategies to capture short horizon market opportunities.

Prior to joining BGI, Dr. Madhavan was a managing director of research at ITG and a member of the firm's management and executive committees. Previously, he was the Charles B. Thorton Professor of Finance at the Marshall School of Business at the University of Southern California and an assistant professor of finance at the Wharton School of the University of Pennsylvania. Dr. Madhavan earned a Bachelor of Arts from the University of Delhi, a Master of Arts from Boston University, and a Doctor of Philosophy in economics from Cornell University.

Pinky Kottoor

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Pinky Kottoor is a director in Citi's Municipal Securities Capital Markets Division. Since joining Citi in 2005, Ms. Kottoor has developed and executed numerous trading strategies within the municipal asset class. She most recently developed an algorithmic trading strategy, pricing and trading municipal cash bonds on an electronic platform. Ms. Kottoor also led efforts in the municipal financial products and derivatives areas structuring and trading fixed-income swaps, credit default swaps, and Municipal Market Data rate locks. She also led critical risk management initiatives such as credit value adjustment risk mitigation and analyzing and dynamically hedging esoteric risks stemming from derivative products. Outside of her trading experience, Ms. Kottoor has developed portfolio analytics tools as well as Citi's Municipal Benchmark Platform. Ms. Kottoor began her career at Citi in New York before making her transition to her current base in Los Angeles.

Prior to joining Citi, Ms. Kottoor was a trader/analyst at Helix Investment Partners, a capital structure arbitrage hedge fund based in Los Angeles. In that capacity, she led efforts in trading volatility products aimed at capitalizing on pricing inconsistencies within an individual corporation's capital structure. Ms. Kottoor began her career in capital markets as an equity derivatives proprietary trader at the Cutler Group, LP in San Francisco.

Ms. Kottoor holds a Bachelor of Arts in mathematics with a concentration in computer science from the University of California, Berkeley.

Justin Marlowe, Ph.D.

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Justin Marlowe is the Endowed Professor of Public Finance at the Evans School of Public Policy and Governance at the University of Washington. He is also a senior fellow at the Governing Institute, the author of a regular column on public finance for Governing magazine, and author of the Guide to Public Financial Literacy series for state and local government officials. Dr. Marlowe has served as an expert witness on public finance issues and as a consultant for more than a dozen state and local governments. His research has been funded by the Robert Wood Johnson Foundation, Governmental Accounting Standards Board, and International City/County Management Association, among others.

Dr. Marlowe is a Certified Government Financial Manager, and he holds a doctorate in political science and government from the University of Wisconsin-Milwaukee.

Session Three**Dave Sanchez**

Counsel

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Dave Sanchez is counsel in Sidley Austin's San Francisco and Los Angeles Offices and member of the public finance group. He has more than 20 years of experience in all aspects of the municipal finance market, including acting as bond and disclosure counsel. Prior to joining Sidley, Mr. Sanchez was General Counsel at De La Rosa & Co. Prior to joining De La Rosa, Mr. Sanchez was an Attorney-Fellow in the Office of Municipal Securities, Division of Trading and Markets, at the U.S. Securities and Exchange Commission from 2010-2013. During this time, he was a principal drafter of both the final Municipal Advisor rule, and the 2012 Commission Report on the State of the Municipal Securities Market. He joined the Commission staff after practicing municipal finance law in California at the law firms of Orrick, Herrington & Sutcliffe LLC and Sidley Austin LLC as well as for the City of San Francisco and Financial Security Assurance. He is also a former Adjunct Professor at the Georgetown Law Center where he taught "The Securities Law of Public Finance."

Mr. Sanchez earned his Juris Doctor from Harvard Law School, where he was executive editor of the Harvard Civil Rights-Civil Liberties Law Review. He received his Bachelor of Arts in social psychology, *magna cum laude*, from the University of New Mexico.

Michael Decker

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Michael Decker serves as managing director and co-head of municipal securities at the Securities Industry and Financial Markets Association (SIFMA), a position he has held since October of 2009. In that role, Mr. Decker oversees many of the association's initiatives regarding municipal bonds and related products. Previously, Mr. Decker was the founder and chief executive officer of the Regional Bond Dealers Association (RBDA), now known as the Bond Dealers of America. He was responsible for representing the interests of RBDA's members before federal legislative and regulatory bodies and managing a wide variety of RBDA functions and services.

Prior to RBDA, Mr. Decker was senior managing director for Research and Public Policy for SIFMA and its predecessor organization, the Bond Market Association. He oversaw SIFMA's research activities, including analyzing industry and market trends, collecting market and industry data, and publishing research reports covering all aspects of the global securities markets. He also managed public policy development and analysis. Before that, he was a financial consultant to the U.S. Agency for International Development.

Mr. Decker graduated from the University of North Carolina at Chapel Hill with a Bachelor of Arts in political science and chemistry and earned a Master of Public Management with a concentration in public finance from the University of Maryland School of Public Policy.

Thomas Doe

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Thomas Doe is chief executive officer and founder of Municipal Market Analytics (MMA), an independent research and strategy firm serving leading participants in the fixed income industry. Founded in 1995, MMA provides consulting services, benchmark data and subscription research reports to a diverse client base of dealers, investors and issuers engaged in the tax-exempt market. MMA also counsels and advises trade associations, US and foreign central banks, regulators and Congressional leaders in order to improve industry operations.

Mr. Doe has addressed all the leading groups in the municipal industry. In March 2009, Mr. Doe testified before the Senate Banking Committee on the future of municipal regulation and the state of the industry and in December 2010, he appeared before the Securities Exchange Commission (SEC) on the market's stability and liquidity. On January 20, 2011, he represented the industry in a CNBC interview to accurately define market credit risks in response to Meredith Whitney's dire municipal default projection. Between 2002 and 2005, Mr. Doe served a 3-year term as a public member on the Municipal Securities Rulemaking Board.

Mr. Doe received his undergraduate degree from Colgate University and a master's degree from Harvard University.

David Cohen

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David Cohen is senior counsel, municipal markets for RBC Capital Markets, where he is the lead counsel to RBC's Municipal Finance platform with respect to all legal, regulatory, and compliance issues. Prior to joining RBC, Mr. Cohen was managing director and associate general counsel for the Securities Industry Financial Markets Association's (SIFMA) Municipal Division. At SIFMA, he developed and lead public policy advocacy on regulations and market practice affecting municipal securities dealers' investment banking, underwriting, sales and trading, and financial products businesses, including any new regulations proposed, as well as issued, by the SEC, MSRB, FINRA, Commodity Futures Trading Commission, and the Internal Revenue Service, including new regulations promulgated by the Dodd-Frank Wall Street Reform Act. He also developed best practices and model documents, including policies and procedures, to assist members' compliance with applicable legal and regulatory requirements.

Prior to joining SIFMA, Mr. Cohen was managing counsel for ethics and compliance at Cablevision Systems Corp. Before joining Cablevision, he held several positions at UBS including executive director and regulatory compliance business manager for the UBS Municipal Securities Group and associate general counsel for UBS Wealth Management.

Mr. Cohen graduated from Union College and Hofstra University School of Law, where he was editor-in-chief of the Hofstra Labor Law Journal, and has completed the Securities Industry Institute at University of Pennsylvania, Wharton School. He was a presidential elector in 2000, serving as a member of New York State's Electoral College.

Session Four

Raymond Johnson

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Raymond Johnson is a fixed income application specialist with Bloomberg, LP, a position he has held since 1998. He conducts seminars and client training on a wide variety of advanced fixed income topics and products. Mr. Johnson has working knowledge of the government, agency, corporate, municipal, mortgage, derivatives, and money market securities. From 1993 until 1998, Mr. Johnson worked as vice president at Bank of America Securities, where he was senior institutional salesperson covering top tier institutional money managers for a top ten primary dealer. From 1987 until 1993, Mr. Johnson was a vice president at Security Pacific Bank and was responsible for institutional sales for municipalities and middle market accounts in Southern California. From 1982 until 1987, he was vice president at Citicorp Inc., where, as a senior credit analyst, he reviewed credit worthiness of Fortune 500 technology firms headquartered on the West Coast.

Mr. Johnson has a Bachelor of Arts in economics from the University of California, Santa Barbara and a master's degree in business administration with a concentration in finance from the University of San Francisco.

Tom Meder

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Tom Meder is senior vice president at TMC Bonds. He joined the firm in October 2012. Mr. Meder's primary focus includes developing business west of the Mississippi with existing TMC participants and establishing new trading relationships with prospects seeking to realize the many benefits in trading on TMC's electronic fixed income marketplace. Mr. Meder works closely with buy side portfolio managers and traders sharing his knowledge and experience in electronic trading and portfolio management.

Mr. Meder has over 30 years of fixed income experience including roles as U.S. portfolio manager for Hewlett Packard, Institutional Fixed Income Sales at Bankers Trust Company, Wells Fargo Institutional Brokerage & Sales, a credit analyst at Stone & Youngberg, and a proprietary trader at Tahoe Fixed Income. Mr. Meder holds a Bachelor of Science in finance from San Jose State University.

Robert Novembre

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Robert Novembre is chief executive officer and president of Clarity BidRate Alternative Trading System (Clarity), which operates as a division of Arbor Research & Trading LLC. Mr. Novembre has served in these roles since the firm's inception and is responsible for managing and leading all aspects of Clarity, including working directly with issuers and investors.

Mr. Novembre started his career in 1991 at Smith Barney Harris Upham's Fixed Income Department, which eventually became Citigroup. He spent the first eighteen and a half years of his career in the capital markets trading division at Citigroup. Starting as trade support for sales and trading, he quickly moved to the trading desk. Initially, Mr. Novembre covered a variety of security classes, including certificates of deposit, commercial paper, auction rate securities (ARS), variable rate demand bonds, and municipal notes. In 1996, he became the second in command for the ARS syndicate and trading desk, and in March 2002, he became the head. In 2007, he was named the head of all short-term tax-exempt syndicate and trading as well as the head of the tax-exempt and taxable ARS portfolio. In 2008, he also assumed a co-manager role for the institutional sales desk while continuing management of the syndicate and trading desks.

In October 2009, Mr. Novembre accepted a position at Arbor Research and Trading. He maintained the role of managing director responsible for creating and managing municipal bond sales, trading and remarketing from 2010 to 2014. In 2014, he completed the transition of all municipal trading responsibilities to Arbor Research & Trading's main trading team and founded Clarity.

Mr. Novembre received a Bachelor of Arts in international relations/economics from Boston University and a Master of Business Administration in finance/international business from Fordham University.

Clarke Roberts

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Clarke Roberts is managing partner and founder of EAX Trading and has had an extensive career in institutional electronic trading across multiple asset classes. At EAX, Mr. Roberts developed a

patent-pending process to improve secondary trading in municipal bonds. The process is offered through a proprietary technology and serves as the foundation for EAX's targeted bid-wanted exchange.

Prior to forming EAX, Mr. Roberts co-founded Pico Quantitative Trading, which included outside investments from Goldman Sachs and Knight Capital Markets. Pico is an agency broker-dealer focused on high-speed, quantitative trading across asset classes. Prior to Pico, Mr. Roberts was director of quantitative sales within Merrill Lynch's Portfolio and Automated Trading group and was responsible for sales to the quantitative trading client base, packaging execution, clearing, and financing across equities, futures, and options.

Mr. Roberts began his career in electronic trading at ITG, Nasdaq, and Charles Schwab Capital Markets in various quantitative research positions, which included shaping significant market microstructure issues such as the Nasdaq Single Price Opening and Closing Processes.

Allen Williams

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Allen Williams is executive vice president and managing director of the Global Debt Capital Markets at Ipreo. He manages Ipreo's Global Debt Capital Markets new issue bookbuilding software, responsible for all municipal and fixed income offerings. Mr. Williams joined Ipreo's i-Deal product line following its acquisition of Dalcomp from Thomson Financial. At Thomson, Mr. Williams served as president of the Thomson Financial Municipals Group for five years. Mr. Williams is a graduate of St. John's University.

Session Five

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Kiran Jain

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Kiran Jain is the chief strategy officer at Neighborly, a community investing platform designed to make it easier for people to invest in places where they live, work and play. She served as a senior deputy city attorney for the City of Oakland focusing on civic innovation through her municipal, real estate, economic development and technology practice, and served on the board of the League of California Cities' Municipal Law Institute.

A former associate at Bingham McCutchen (now Morgan Lewis & Bockius), Ms. Jain practiced finance, real estate, land use, environmental, and corporate law representing Fortune 500 companies, commercial lenders, real estate developers and public agencies. Ms. Jain is an advisor to Kiva.org, serving as the crowdsourced platform's founding attorney. She also helped launch LawPivot, a crowdsourced platform for those seeking legal advice (acquired by RocketLawyer).

Ms. Jain received a bachelor's degree in economics and a master's degree in international affairs from Columbia University and a Juris Doctor from Georgetown University.

Colin MacNaught

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Colin MacNaught is the former assistant state treasurer of the Commonwealth of Massachusetts. In that capacity, he was responsible for all of the State's borrowing needs from 2008 to 2015, issuing nearly \$25 billion in bonds and notes during that time. During his tenure, the State's debt program was honored for its innovation, including being awarded *The Bond Buyer's* National Deal of the Year Award in both 2010 and 2014.

In 2013, under Mr. MacNaught's direction, Massachusetts became the first issuer in the municipal bond market to sell Green Bonds. In 2014, the State introduced a new, dedicated bond sale program for retail investors called MassDirect Notes. As part of the MassDirect Notes program, bonds were offered to retail investors via an open-architecture electronic trading platform.

One of Mr. MacNaught's largest initiatives was the development of the State's enhanced disclosure program, which began in 2011. As a dedicated investor website, www.massbondholder.com provides more than 30,000 pages of downloadable documents, as

well as interactive and analytical data features for investors. Massachusetts was awarded the 2013 National Federation of Municipal Analysts Industry Contribution Award for the website.

Prior to 2008, Mr. MacNaught worked as an associate director for Standard & Poor's. He is a member of the Government Finance Officers Association (GFOA), and served as vice chair of the GFOA's Debt Committee.

Mr. MacNaught earned a Master in Public Policy from Harvard University.

Tim Schaefer

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Tim Schaefer is a deputy treasurer for Public Finance in the California State Treasurer's Office. Prior to joining the State Treasurer's Office, he was then-State Controller John Chiang's senior finance advisor. Before entering State service, Mr. Schaefer was the principal owner of Magis Advisors, a public finance consulting firm in Orange County, California. He has more than 40 years of experience in the municipal securities industry.

Mr. Schaefer managed the Public Finance Division of Bank of America in San Francisco and was the manager of the national municipal trading desk at Chemical Bank in New York City. He served more than twenty years on the Technical Assistance Committee to the California Debt and Investment Advisory Commission (CDIAC), including three terms as its chairman, and three years as a private sector advisor to the Standing Committee on Governmental Debt of the Government Finance Officers Association.

Mr. Schaefer is a co-author of the California Public Funds Investment Primer, published by CDIAC in 2006. He was part of a four-person team engaged in early 2014 to edit and revise the California Debt Issuance Primer, also published by CDIAC. He is a frequent speaker in the field of public finance. Mr. Schaefer is a member of the Risk Management Association, International City/County Management Association, National Federation of Municipal Analysts, Government Finance Officers Association, Appraisal Institute, and California Society of Municipal Finance Officers.