

**MARKET RISK ADVISORY COMMITTEE MEETING
SPEAKER BIOGRAPHIES
July 12, 2018**

THOMAS WIPF, FACILITATOR

Thomas Wipf is Vice Chairman of Institutional Securities. In his role, Tom is responsible for assisting the President of Morgan Stanley with regulatory and other matters. Additionally, Tom continues to lead the firm's Global Business Continuity Management Organization, which is responsible for strategic planning and risk management for potential cyber and physical disruptions. Tom is responsible for the firm's transition efforts to alternative reference rates to replace LIBOR. He is a member of the firm's Securities Operating Committee, Risk Management Committee and Asset/ Liability Management Committee.

Prior to being named Vice Chairman, Tom was the Global Head of the Bank Resource Management Division where he was responsible for the firm's secured funding, securities lending, global hedging and collateral management activities.

Beginning his career in the industry in 1977, Tom joined Morgan Stanley in 1986 and has been engaged in the Firm's funding, collateral and hedging activities throughout his career at the firm. Based in New York, Tom has also completed multi-year assignments in Morgan Stanley's London and Tokyo offices.

Tom serves as Chair of the Treasury Market Practices Group. Sponsored by the New York Federal Reserve, this industry group is committed to supporting the integrity and efficiency of the U.S. Treasury and Agency Mortgage Securities Markets. Tom serves on the board of directors of International Swaps and Derivatives Association, Inc. (ISDA). Tom was appointed to the Alternative Reference Rate Committee, sponsored by the Board of Governors of the Federal Reserve in 2014. Tom previously served on the Financial Research Advisory Committee to the US Treasury Office of Financial Research from 2012 to 2017.

PANEL 1-OVERVIEW OF LIBOR REFORM

David Bowman
Advisor, Federal Reserve Board of Governors

David Bowman is a Senior Advisor at the Board of Governors of the Federal Reserve System. Mr. Bowman has served as the Board's senior staff liaison to the Alternative Reference Rates Committee, a group of private sector participants convened by the Board of Governors and Federal Reserve Bank of New York to help identify alternatives to LIBOR and to develop strategies to promote their use. Mr. Bowman has also served as a senior staff member supporting Governor Jerome Powell in his capacity as co-chair of the FSB's Official Sector Steering Group (OSSG) and helped coordinate the OSSG's work summarized in the 2014 FSB report, *Reforming Major Interest Rate Benchmarks*, as well as its subsequent 2015 report, *Progress in Reforming Major Interest Rate Benchmarks*. Mr. Bowman additionally serves as the Board of Governor's representative as an observer to the IBA LIBOR Oversight Committee.

Mr. Bowman has a Ph.D. in Economics from the University of California at Berkeley.

Sandra O'Connor

Chair of the Alternative Reference Rates Committee; Chief Regulatory Affairs Officer, JP Morgan Chase & Co

Sandie O'Connor is the Chief Regulatory Affairs Officer for JPMorgan Chase & Co. She also serves on firmwide governance committees and chairs the JPMorgan Chase Foundation Investment Committee.

As Chief Regulatory Affairs Officer, O'Connor sets the firm's comprehensive regulatory strategy and leads engagement with G-20 international standard setters, regulators and policymakers regarding evolving regulation and legislation. She provides meaningful perspective on the impact of evolving financial stability regulation on clients, business activities and economic growth using quantitative analysis and a deep understanding of capital flows, balance sheets and market liquidity. She is also a thought leader on emerging areas of policy, including cybersecurity, fintech, data use and privacy, creating focus, building common understanding and driving for collaborative solutions.

O'Connor joined J.P. Morgan in 1988 and has held several key executive positions. Most recently, she was Treasurer of JPMorgan Chase, where she managed the firm's capital, balance sheet, liquidity and funding strategy and positions, as well as the firm's rating agency relationships and corporate insurance activities.

O'Connor serves on the boards of several industry trade associations, including the Securities Industry and Financial Markets Association and as Chair of the Global Financial Markets Association. She also serves as the chair of the Federal Reserve's Alternative Reference Rates Committee, member of the Treasury Markets Practitioners Group, member of the Office of Financial Research Advisory Committee, and Chair of an Advisory Committee of the Salzburg Global Seminar.

In addition to her work, O'Connor also serves as Vice Chair of the Board of Directors of the YMCA of Greater New York and Chair of its Development Committee.

Mauricio Melara

Associate Director, Office of International Affairs, CFTC

Mauricio Melara joined the Office of International Affairs (OIA) of the Commodity Futures Trading Commission (CFTC) in March 2012. OIA provides advice and technical support to CFTC Commissioners and the operational groups within the CFTC with respect to domestic and international regulatory systems and related developments. OIA also coordinates the CFTC's international activities, executes requests for technical assistance submitted by other jurisdictions, and organizes the CFTC's annual training seminar for international regulators.

Mr. Melara served as Special Counsel in the Exchange and Data Repository Branch in the Division of Market Oversight (Division) at the CFTC from April 2010 to March 2012. In that role, Mr. Melara advised the Division and other CFTC staff on interpretations of law and proposed changes to market practices, including: proposed legislation and industry efforts regarding the execution and processing of derivatives transactions on exchanges or trading platforms.

Prior to joining the CFTC, Mr. Melara was an associate at Winston & Strawn LLP from 2008 to 2010, an associate at Cadwalader, Wickersham & Taft LLP from 2005 to 2008, and a trading officer at Sumitomo Trust & Banking, Co. from 1999 to 2002. He received his Juris Doctorate from Fordham University School of Law in New York in 2005, and earned his Bachelor of Science degree from the New York University Stern School of Business in New York in 1999.

PANEL 2-LATEST DEVELOPMENTS WITH LIBOR, SOFR and SOFR DERIVATIVES

Emma Vick Director, ICE Benchmark Administration

Emma Vick is responsible for the Financial Conduct Authority (FCA) compliance in respect of the following regulated benchmarks: ICE LIBOR; ICE Swap Rate; the LBMA Gold and Silver Prices; and the ICE Brent Index.

Emma was a key member of NYSE Euronext's project team for tendering to the Hogg Committee for the selection of a new administrator for LIBOR in 2013. She was then closely involved in setting up ICE Benchmark Administration Limited and made the applications to the FCA for authorisation as well as BMR authorisation.

Her career has included working at a number of stock exchanges in a variety of roles: the London Stock Exchange (including as Deputy Head of Market Regulation, Head of Membership and Chief Risk Officer), Tradepoint (Director of Operations, Regulation and Compliance), virt-x plc (Deputy CEO) and the Qatar Stock Exchange (Consultant for NYSE Euronext).

Emma is a Chartered Fellow of the CISI and a member of the Worshipful Company of International Bankers.

Scott Rofey Managing Director, Goldman Sachs

Scott Rofey is global head of US Interest Rate Products Trading. He serves as a member of the Goldman Sachs & Co. Fixed Income Best Execution Subcommittee and Goldman Sachs Bank USA Client and Business Standards Committee. Scott is also active with various groups shaping the evolving market structure of swap derivatives.

Prior to his current role, Scott managed US Swap Derivatives Trading, and prior to that, US Rate Options and Exotics Trading. Scott traded the firm's vanilla US Dollar Interest Rate Options book for three years, followed by two years trading Exotics in both the New York and London offices. Scott joined Goldman Sachs in 2003; he was named managing director in 2007 and partner in 2012.

Prior to joining the firm, Scott traded vanilla US Dollar interest rate options at J.P. Morgan.

Agha Mirza
Managing Director and Global Head of Interest Rate Products, CME Group

Agha Mirza serves as CME Group's Managing Director and Global Head of Interest Rate Products. He is responsible for managing CME Group's Interest Rate business strategy, and he focuses on growing volume and revenue through client-driven new product development, product extensions and electronic trading optimization.

In 2015, Mirza was appointed to the Alternative Reference Rate Committee, sponsored by the Board of Governors of the Federal Reserve.

Before joining the company in 2013, Mirza served as Managing Director and Head of the Canadian Rates business at Citigroup, where he spent 17 years as an interest rates trader and trading manager.

Mirza has taught the MBA class "Rethinking Risk Management" at Insead Business School. He holds both a Master of Science degree and a Bachelor of Science degree from MIT.

Phil Whitehurst
Head of Service Development, Rates, LCH Group

Philip Whitehurst is Head of Service Development for LCH's Rates & FX Derivatives business which includes SwapClear, the market-leading swap clearing service it operates.

Based in London, Philip has over 25 years' experience in the OTC Derivatives markets in a range of functions and firms. Following initial roles trading GBP and DEM interest rate swaps and options, Philip spent more than 10 years structuring fixed income derivatives solutions for institutional and retail clients for AsiaPac and EMEA clients for the major international investment banks.

Philip joined LCH in 2009 to lead the SwapClear's Product Management function, and has been heavily involved in the design & development of many of LCH's recent initiatives including SwapClear's client clearing models, its compression services and the nascent extension into non-cleared OTC derivatives.

Philip is a graduate of St Catherine's College, Oxford.

PANEL 3- EFFECT OF LIBOR REFORM ON THE DERIVATIVES MARKETS

Scott O'Malia
Chief Executive Officer, International Swaps and Derivatives Association, Inc. (ISDA)

Scott O'Malia is Chief Executive Officer of the International Swaps and Derivatives Association, Inc. (ISDA), a position he has held since August 2014. At ISDA, Scott has led the Association's drive to promote safe and efficient markets, and develop industry standards and legal documentation. This includes a push to develop common standards and processes to support new technologies aimed at improving post-trade efficiency through the adoption of innovative and scalable fintech and regtech solutions.

ISDA is a global derivatives association that represents all derivatives users on key industry issues, including trading, clearing, reporting, margin, capital and legal standards. During Scott's tenure, ISDA has expanded its Board to include broader representation of derivatives users, making it the most diverse in the Association's history. Scott has also brought greater focus on market infrastructure issues – in particular, the cross-border harmonization of global central counterparty regulation, trade execution and data rules.

Prior to joining ISDA, Scott was appointed by President Obama and was confirmed by the US Senate to serve as Commissioner of the Commodity Futures Trading Commission (CFTC). He served in this position from October 2009 until August 2014. During this time, Scott debated and cast votes on the CFTC rules related to Title VII of the Dodd-Frank Act. While at the CFTC, Scott revived the Technology Advisory Committee, and led an active agenda investigating data standardization, highlighting trade execution rules and developing a better understanding of how algorithmic trading operates in regulated markets.

Scott has also had a distinguished career spanning 15 years in the US Senate, including roles as Clerk to the US Senate Appropriations Subcommittee on Energy and Water Development, Professional Staff on the US Senate Energy and National Resources Committee under Chairman Pete Domenici (R-N.M.), and nearly 10 years working for US Senator Mitch McConnell (R-Ky.), now the Senate Majority Leader. During his career, Scott also helped establish the Washington, DC office of Mirant Corp., where he worked on rules and standards for corporate risk management and energy trading among wholesale power producers.

**William De Leon,
Managing Director and Global Head of Portfolio Risk Management, PIMCO**

William De Leon is a managing director in the Newport Beach office and global head of portfolio risk management. He previously served as a portfolio manager focusing on derivatives and absolute return strategies as well as interim head of analytics. He chairs its counterparty risk committee and best execution committees. Additionally, he represents PIMCO on the board of ISDA and serves on PIMCO's global risk committee, new product review committee and BCP/DR recovery oversight group. Prior to joining PIMCO in 2007, he was a portfolio manager at the hedge funds Ellington Management Group and Caxton. Previously, he was a managing director and a senior member of the investment strategy group at BlackRock. He has 28 years of investment experience and holds an undergraduate degree from the University of Pennsylvania.

**Subadra Rajappa
Managing Director, Head US Rates Strategy, Société Générale**

Subadra Rajappa joined Societe Generale in October 2014 as Head of US Rates Strategy. In her current role she is responsible for publishing thematic research on US rates markets and highlighting relevant trading opportunities. She is a frequent speaker at internal and industry conferences where she presents her broader market views to the firm's clients. She recently represented SG at the alternative reference rates committee (ARRC) and is actively involved in discussions with industry groups around transitioning to the new reference rate.

Subadra has over 20 years of experience in the financial industry. Previous at Morgan Stanley, she was a senior rates strategist focused on macro themes in the rates markets. She was the

lead strategist covering many topics and presenting in-depth research in fixed-income derivatives, inflation, money markets and the evolving regulatory environment.

Subadra has extensive experience in global fixed-income markets including positions in research, sales and strategy at Morgan Stanley and Citigroup. She has a strong quantitative background and started her career in finance at Salomon Brothers as a quantitative analyst where she focused on emerging market derivatives and credit derivatives before transitioning to rates.

**Charles Schwartz,
Head of Derivatives, AXA Equitable Life**

Charles Schwartz is Head of Derivatives at AXA Equitable, the main insurance arm of AXA Equitable Holdings (NYSE: EQH), a major financial services company in the US. In this role Mr. Schwartz oversees the AXA Equitable's derivatives-based hedging and investment programs. Mr. Schwartz represents AXA Equitable Holdings at the Alternative Reference Rate Committee, and oversees AXA Equitable Holdings' LIBOR transition efforts across its insurance and asset-manager divisions. He has over fifteen years' experience managing derivatives in an insurance company setting. Mr. Schwartz earned a PhD in engineering from Northwestern University.

**Robert Mangrelli,
Director, Global Real Estate Hedging and Capital Markets Team, Chatham Financial**

Rob Mangrelli is a Director on Chatham's Global Real Estate hedging and capital markets team. He advises clients ranging from publicly traded equity and mortgage REITs to specialty finance, debt funds, and private real estate funds. Rob specializes in providing interest rate and foreign currency risk management strategies. Since joining Chatham in 2007, Rob has provided hedging strategies, derivatives regulatory advisory, and hedge accounting guidance for commercial real estate investors. Prior to joining Chatham, Rob worked for Ernst & Young focusing in audits of financial institutions. He is an inactive CPA in the state of Pennsylvania and a CFA charterholder. Rob graduated from the University of Delaware with a BS in Accounting and a minor in Management Information Systems.