The Effect of COVID-19 on the Municipal Bond Industry

Rick Frimmer
Schiff Hardin LLP

Jon Barasch
Intercontinental Exchange, Ice Data Services

Danielle Moran
Bloomberg News

Barnet Sherman
The Tenbar Group

Thomas Buck
GlassRatner, a B. Riley Financial Company

Ginny Housum
UMB Bank, N.A.

May 8, 2020 – This webinar is being recorded

Agenda and Presenters

- Introduction – Rick Frimmer, Schiff Hardin LLP
- Featured Speaker – Danielle Moran, Bloomberg News
- Trends in New Issues and Secondary Market Pricing and Yields – Jon Barasch, Intercontinental Exchange, Ice Data Services
- The Gatekeepers: Who Brings a Solution Together in a Distressed Credit? – Ginny Housum, UMB Bank, N.A.
- De-Stressing a Distressed Situation: The Role of the Independent Advisor – Barnet Sherman, The Tenbar Group
- Key Issues in a Restructuring – Thomas Buck, GlassRatner, a B. Riley Financial company

Danielle Moran, Bloomberg News

State of Play

- State budget shortfalls from COVID-19's economic fallout could total **$650 billion** over three years, according to the Center on Budget and Policy Priorities
- State and city governments are starting to cut services with some furloughing public employees as tax revenue evaporates and unemployment claims mount
- Municipal high yield bonds have lost nearly **10% this year**, investment grade bonds down 1.6%
- Analysts widely expect to see more defaults and downgrades in the market
- Some borrowers have already started warning bondholders about the impacts of the pandemic with continuing disclosure documents

Healthcare

- Hospitals face a “temporary but serious cash crunch” as elective surgeries are postponed and ER visits aren’t always covered by insurance
- Senior living centers were among the riskiest borrowers and are at the center of the pandemic

Higher Education

- Small private colleges and universities were stressed before the crisis with rising tuition costs and declining enrollment
- Some colleges are preparing for Spring 2021 campus re-opening

Transportation

- Municipal bonds backed by airlines are commonplace for capital improvements, airport bonds appear to be more stable with potentially years of cash on hand
- Public mass transit, private rail transportation

Project Finance

- Shutdowns around the country have forced factories and muni-financed facilitates to close
- Malls, stadiums, hotels/convention centers, and economic development projects financed by muni bonds are shuttered

Trends in New Issues and Secondary Market Pricing and Yields

Jon Barasch
Director – Intercontinental Exchange, Ice Data Services

Market Volatility Began in Early March

Record Stock Market Volatility

1,000 & 2,000 pt swings became the new normal for the DJIA. The DJIA fell 2,300 pts on 3/12/20.

Risk Off Flight to Quality

Munis initially were viewed as a safe haven but that did not last for long and munis started to decouple from UST. Muni ratios hit all-time highs.

Money Market Breakdown

SIFMA spiked to 5% causing VRDN reset rates to jump and TOBs to collapse and unwind.

Fund Flows Turn Negative

After 60 straight weeks of inflows muni mutual funds experienced six straight weeks of outflows. Nearly $20 billion exited these funds in late March.

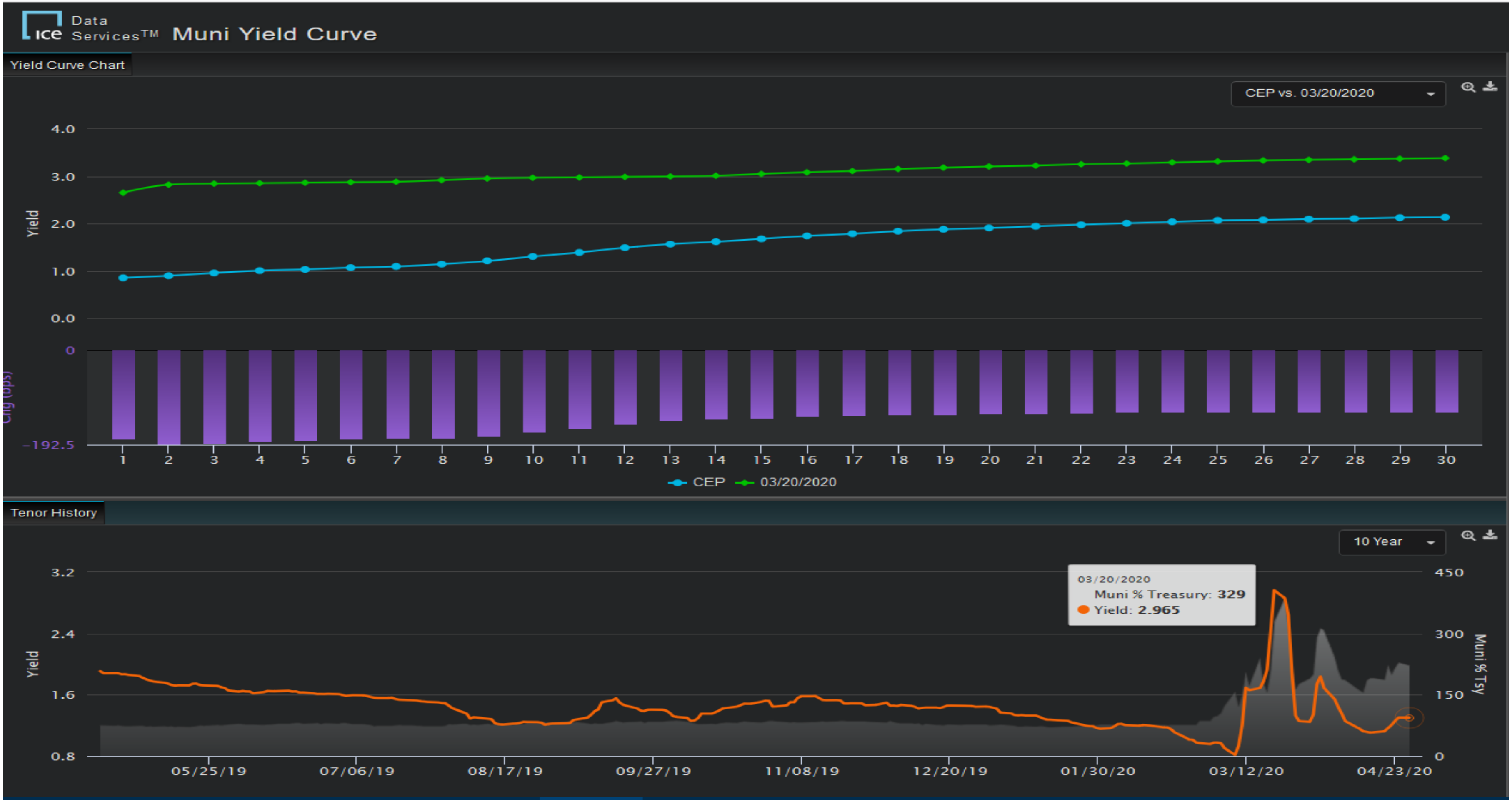
Regulatory Action from the Fed, Congress, and Treasury Department

The Fed introduced the Money Market Liquidity Fund. Congress passes the CARES Act. The Fed agrees to buy municipal bonds.

Credit Spreads Widen

Benchmark yield curves moved 50-60bps in a single day. Tax-loss swaps and customer bid-wanteds added to liquidity and price discovery challenges.

Benchmark yield curve tenors rose more than 50bp in a single day [3/20/20]



Sectors Impacted by COVID-19

- Transportation
- Airports
- Toll Roads
- Hospitals
- Senior Housing (CCRC, Assisted Living, Nursing Homes)
- Hotel/Convention Centers
- Stadiums
- Education
- TIFs; Sales-Tax

States Impacted by COVID-19

- New York
- New Jersey
- Illinois
- Hawaii
- Texas
- Oklahoma
- Alaska

The Gatekeepers: Who Brings a Solution Together in a Distressed Credit?

Ginny Housum
Senior Vice President, UMB Bank, N.A.

Framework for the Trustee

- Necessity of a trustee
  - Under the Trust Indenture Act of 1939 (15 U.S.C. Section 777aaa *et seq*.) debt securities cannot be sold unless issued under a trust indenture administered by an independent and qualified trustee
  - The TIA is enforced by the SEC
  - The requirement of the TIA for an independent and qualified trustee does not apply to municipal or governmental securities
  - Model indentures put in place for corporate debt were carried over into municipal securities
  - Traditional for a trustee to be appointed
- Role of the Trustee
  - Pre-default, the trustee is responsible for distributing funds
    - The trustee has no fiduciary duties to the bondholders
    - “Registered holder” and “beneficial holders”
  - Post-default, the trustee acts as a fiduciary

What Should Investors Expect From a Trustee Post-Default?

- Under the indenture, the trustee will have no duty to investigate defaults or to give notice of a default
- Trustee should:
  - Learn identities of bondholders
  - Obtain execution of NDAs
  - Convene such restricted holders and obtain a sense of their intentions on whether there should be a restructuring or temporary forbearance
  - Be the voice of the bondholders to the borrower or obligated group, and its underwriter or FA
  - Solicit direction from the investors on selection of counsel and an FA
  - Generally act on informal direction from the investors
  - Coordinate between counsel, the FA, and the bondholders
  - Take responsibility for keeping the marketplace informed on developments in a restructuring or distressed transaction
- The trustee is authorized to file a proof of claim on behalf of all bondholders for principal, interest, and costs incurred after a default, but is not authorized to vote on behalf of bondholders on a plan of reorganization

Interesting Problem Areas for the Trustee

- How should the trustee proceed if there are only retail holders?
- What is the role of the trustee when the investors do not agree on a course of action?
- To what extent can or should the trustee advance funds to the trust estate without bondholder consultation to protect the collateral of bondholders, for example by paying real estate taxes?
- Should the trustee take title to operating assets, for example, a nursing home or low income housing development?
- Can a trustee successfully disclaim responsibility by informing the marketplace that it does not intend to take action unless it is indemnified?

De-Stressing a Distressed Situation: The Role of the Independent Advisor

Barnet Sherman
Founder, Senior Managing Partner, The Tenbar Group

TENBAR GROUP

Systemic Problems in Municipal Bond Distressed Situations

- **Essential Public Purpose Services.** The credit strength of inelastic social needs can become a burden, limiting options and introducing public and political pressure
- **Single Purpose Entity.** Assets are generally project-specific (i.e. School, CCRC, Hospital, Shopping Mall), limiting repurposing and resale liquidity
- **Fixed Asset.** Projects are immobile, often limited by geography and service area

Systemic Problems in Municipal Bond Distressed Situations

- **Tax-Exempt Financing Structure.** Due to Code Restrictions, State Bond Issuance Legislation, and Financing Structure, tax-exempt bonds offer limited restructuring options
- **Revenue and Funding Sources.** Nonprofit service providers often receive Federal and state monies that may be regulated as to rate, amount, and use. Additionally, rate increases may be regulated
- **Low Rates.** Financings done in a low rate environment may have limited restructuring options. Financings may have been overleveraged. Reductions in already low interest payments have less effect on cash flow, exposing lenders to focus on principal adjustments

The Benefits of the Independent Advisor

- **Credibility.** The IA brings objectivity, a broad skillset and perspective, demonstrated subject matter expertise in a complex and somewhat arcane area of debt finance, a depth of prior experience, and has no vested economic interests
- **Transparency.** When engaged by agreement of all stakeholders, the work of the IA is open and available
- **Mediator.** In a distressed situation, often tension is high and people may not be at their best. The effective IA acts as a mediator to keep stakeholders focused on key issues. This expedites resolution while dampening costly, time consuming, and unproductive brinksmanship and conflict

The Benefits of the Independent Advisor

- **Communication.** Keeping channels of communication and dialogue open and clear is a key function of the IA, regardless of the engaging stakeholder or stakeholders
- **Lightening Rod.** An IA can present senior decision makers with difficult choices and guide them to the best outcome given the facts and circumstances
- **Reasonableness Test.** The IA can both develop and offer alternatives based on objective facts for all parties to consider, as well as assess the viability of options developed by other stakeholders

Key Issues in a Restructuring

Thomas Buck
Principal, GlassRatner

The Restructuring

- **Bond Defaults**
  - Covenant Violations
  - Payment Defaults
- **Forbearance:** Under a forbearance, the indenture trustee (with the approval of the majority bondholders if required under indenture) will enter into a written agreement not to exercise remedies for a period of time in exchange for certain promises from the project debtor
  - Forbearances seldom do more than temporarily suspend financial covenants and may involve reduced (but not forgiven) interest payments
  - In many cases, the parties simply can’t reach agreement on terms of a forbearance. The project debtor simply does not want to operate long-term with the debt structure in place
    - Now full-scale pre-bankruptcy restructuring negotiations begin. These will either result in a non-judicial workout, or end up in Federal bankruptcy court

The Restructuring

- **Chapter 11**
  - The difficulty with bond workouts is that a group of bondholders who do not own 100% of the bonds generally cannot, without the consent of all bondholders, permanently change key terms of underlying indenture such as principal, interest, and maturity.
  - Under the trust indenture, a majority but less than 100% of the bondholders may only have the ability to change collateral requirements and/or the financial covenants
  - Bankruptcy is the only process that can force all of the bondholders to accept real changes in the terms or amount of the bonds. In bankruptcy, all bondholders can be bound to standard plan acceptance rules (2/3 in amount of the outstanding bonds and ½ of the number of bondholders)
- **Out of Court Restructurings** and re-issuances are possible but it requires consent of all stakeholders (not impairing any 3rd parties)
- **Minnesota Trust Instruction Proceedings (TIP**) may create optionality in some circumstances for a lower cost proceeding in comparison to Chapter 11.

The Restructuring

- **Pre-Filing Negotiations.** Generally the majority of work and expense in a single purpose tax free restructuring occurs prior to a Chapter 11
  - The issuer (assuming it is not a state or local government) always has the right to file for reorganization under Chapter 11 of the federal bankruptcy laws
  - The best and least expensive approach, depending upon the complexity of the situation, is to negotiate a “pre-negotiated” bankruptcy plan
  - Such “pre-negotiated” plans typically have the majority of bondholders with at least two-thirds in amount of the bonds outstanding agree to a “Plan Support Agreement”
    - Laying out the key terms of the restructuring
    - The majority bondholders agreeing to vote for the reorganization plan and the project debtor agreeing to conduct a bankruptcy within certain time frames
    - Plan Support Agreements materially increase the potential of a successful restructuring and reduce the cost and duration of a Chapter 11 proceeding versus a free fall filing
    - Any unresolved issues and 3rd party issues can be resolved in the Chapter 11 proceeding

The Restructuring

- **Viability**
  - Will a sale/liquidation of the operating assets provide a better tax adjusted recovery for the creditors or not?
  - Unlike most middle market bankruptcies today that result in 363 sales and/or liquidations, it is not uncommon for non-profit entities to have unencumbered collateral available
  - The distressed entity also needs to assess where it has leverage in negotiations with the indenture trustee, such as lien perfection issues
  - Most critical is to be pro-active in assessing the time horizon
  - Bondholders rarely have the capacity to provide new funds to recapitalize the business. Does the business have sufficient liquidity to implement improvement initiatives, stabilize, and effectuate a restructuring?
  - It is not uncommon for bondholders to be willing to reissue bonds with 30+ year amortizations, enhances the potential of finding feasible solutions

Engaging with Indenture Trustee and Bondholders

- **Complexity.** Single purpose tax free bond restructurings are complex in nature with multiple constituents
  - Issuer (operating entity or Authority), Counsel, and Financial Advisor
  - Bond Group (Indenture Trustee, Bondholders, Bond Insurer, Bond Counsel, Bond FA)
  - Operating Managers
  - Local and State government entities
  - Other 3rd Parties
- **Engageable Party.** While taxable bonds frequently have hundreds or thousands of investors, single purpose tax free bonds often have manageable level of investors that control the majority of an issuance
- **Vocal Bondholders/Funds.** Funds have become very active in asserting rights and controlling the process after a default

Engaging with Indenture Trustee and Bondholders

- **MNPI.** Where bondholders undertake direct contact with the issuer (or project debtor), the information they gather is usually considered "material non-public information" (MNPI)
  - Trading Restrictions
  - EMMA information releases related to negotiations
  - Delegating negotiations to outside professionals as gatekeepers may not be sufficient protection related to MNPI
- **Bond Insurer.** Where a bond insurer is involved, the bond insurer generally has all of the rights that the bondholders would otherwise have against the issuer
  - Where a bond insurance exists, in post-default situations the bond insurer often becomes the control party under the indenture
  - Post-default, often the bond insurer and the underlying bondholders can have their own negotiating tensions
- **Trust and Transparency.** Successful single purpose tax free bond restructurings require developing a high level of trust and transparency between stakeholders and professionals
  - Single purpose tax free bond restructurings can move at a snail's pace which can increase the risks and overall costs

Case Study: Lombard Public Facilities Corporation

Background
The Lombard Public Facilities Corporation (the "Debtor" or "LPFC") built and operates the Westin Lombard Yorktown Center (the "Hotel"), a 500 room hotel convention center located in Lombard, Illinois. Optimistic original projections, the overhang from the financial crisis, and changing local market and economic conditions made the capital structure unsustainable.

Following payment defaults on the bond debt, the key constituents, including the bond guarantor, significant holders of the bonds, the Debtor, Marriott/Westin and other Operating Manager, the Village of Lombard, and the Asset Manager, negotiated the consensual restructuring.

Challenges
In addition to the many hurdles surrounding the implementation of a multi-party, complex restructuring, the Debtor's Chapter 11 filing was challenged by certain parties as an unauthorized filing by an ineligible entity. The Debtor and the other Plan constituents were able to successfully defeat the eligibility challenge after a contested trial. If the Debtor had not defeated the eligibility challenge, the bankruptcy would have been dismissed. The Bankruptcy Court's decision with respect to the Debtor's eligibility for Chapter 11 relief will likely be used as a key precedent for future Chapter 11 cases involving the restructuring of public private partnership financings.

Outcome
The reorganization plan included the restructuring of over $250 million of bond debt through a multi-tranche issuance new tax exempt bonds, the formation of a TIF District by the Village of Lombard to include the Hotel, and a $20 million property improvement plan. The capital appreciation bonds were the first tax exempt bonds issued by DTC with a PIK interest component.

In addition, as part of the restructuring, the Debtor was able to take advantage of new laws relating to qualified management agreements and modify the hotel management agreement from a fixed fee to a percentage fee arrangement to help align the Hotel Manager interests with the Hotel's performance.

Case Study: KidsPeace

Background
KidsPeace Corp. ("KidsPeace") is a non-profit multistate behavior healthcare system focused on adolescent psychiatric needs, offering residential services, a psychiatric hospital, foster care, outpatient services, and outreach programs. A combination of poor strategic decisions, operational issues, and a decline in reimbursement rates left KidsPeace with approximately $170 million of liabilities while operating with insufficient EBITDA to meet its obligations.

Challenges
The non-profit retained a Financial Advisor to assess strategic alternatives. Strategic options evaluated included an out of court restructuring, a sale, and various liquidation scenarios. It was determined that the value maximizing strategy for navigating the path forward was to file for Chapter 11 bankruptcy. The process included working with management to develop a preliminary operational and financial turnaround plan and integrated financial model; engaged bondholders and negotiated a tentative term sheet supporting the plan of reorganization; assisted in getting the PBGC to terminate the defined benefit plan; and executed short term operational goals. The Financial Advisor also assisted KidsPeace in obtaining debtor-in-possession financing which was later converted into an exit financing facility.

Outcome
The confirmed Chapter 11 plan of reorganization restructured approximately $170 million of liabilities to approximately $40 million of long term liabilities, plus the exit financing facility. KidsPeace successfully completed a financial and operational restructuring and is providing hope, help, and healing to children, families, and the community today.

Questions?

Please use the Q&A function in Zoom to ask a question.

To obtain a copy of today’s slides or access a recording, please email
marketing@schiffhardin.com

Schiff Hardin has organized an information center to help clients deal with questions that arise in connection with the virus
Visit www.schiffhardin.com/coronavirus-task-force for more information

Jon Barasch

Jon Barasch is a Director in Intercontinental Exchange's Ice Data Services division. He is currently tasked with overseeing the daily high-yield evaluated pricing activities which covers municipal evaluations and municipal credit analysis. Jon is also involved with quality assurance initiatives across all municipal bond sectors.

Jon has a research background and previously worked as a senior credit analyst for Muller Data. Jon has been with the company for 22 years, having started at Muller Data Corp. Interactive Data acquired Muller Data in 1999. He has been working in the municipal bond industry for the last 28 years. Prior to joining Muller Data Corp. he worked as a high-yield credit analyst at Rickel Securities, Tucker Anthony, and Gardnyr, Michael Capital.

Jon received his MBA from Rutger's Graduate School of Management and a B.S. in Finance from the University of Maryland at College Park. He is an active MAGNY and NFMA member.

Jon Barasch, Director, Municipal Evaluations, Intercontinental Exchange, Ice Data Services
Tel: 212.497.3266 | Mob: 917.270.4451 | Fax: 917.591.2607 | jon.barasch@theice.com | www.theice.com

Thomas Buck

Tom Buck is a crisis management professional with nearly 20 years of experience advising distressed businesses in a wide variety of industries. His restructuring acumen includes operational turnarounds, financial restructurings, divestiture transactions, merger integration, enterprise improvement and orderly liquidations. Tom has performed many debtor and creditor roles within the bankruptcy process, including such cases as Transit Group, Inc., Parmalat USA Corp., Best Manufacturing Group LLC, North Oakland Medical Centers, Autobacs Strauss, Consolidated Horticulture Group, Qualteq, Inc., KidsPeace Corp., Saint Michaels Medical Center, Inc., and Lombard Public Facilities Corporation. He can perform interim management and financial advisor roles for distressed companies. His experience managing the complex dynamics across the stakeholder spectrum has resulted in many innovative and consensual solutions.

Prior to joining GlassRatner in 2018, Tom was a restructuring advisor at Glass & Associates, Huron Consulting and most recently a Principal at EisnerAmper. Before his restructuring career, Tom spent approximately 9 years in industry (extruded polymers), in a variety of roles including manufacturing operations, marketing, and executive management. He has worked directly or managed consulting engagements in many industries, including chemicals/plastics, textiles, automotive, heavy and light industrial manufacturing, tax-free bonds (range of industries), hospital/SNF/CCRC, credit cards, transportation and logistics, retail energy, engineering and construction, food processing, metals/mining, fertilizer processing, personal care products, dairy, steel, outdoor retailing, industrial rental equipment, and vending.

Tax-free bond restructuring experience includes St. Mary's Hospital, North Oakland Medical Centers, KidsPeace Corp., St. Michaels Medical Center, Lombard Public Facility Corporation and Anuvia Nutrients LLC.

Tom has a BS from Lehigh University and an MBA from Wake Forest University and holds the CTP and CIRA designations.

Thomas Buck, Principal, GlassRatner, a B. Riley Financial company
212-457-3322 | tbuck@glassratner.com | www.glassratner.com

Rick L. Frimmer

Rick has extensive experience providing legal, financial advisory, and strategic counseling in restructurings of municipal and corporate debt, as well as equity. Over the past 35 years, he has represented nearly every high yield bond fund, all of the major corporate trustees, and many private hedge funds.

His national practice has spanned bankruptcy and creditors' rights, public finance, commercial and tax litigation, mergers and acquisitions, corporate securities law, and taxation. Rick has successfully worked on over 150 restructurings of corporate and public debt, both in and out of bankruptcy. He has appeared in more than 20 Federal Courts of Appeal, District Courts, and Bankruptcy Courts, as well as state trial and appellate courts.

In addition to being admitted to the bars of California, Illinois and Pennsylvania, as well as the US Supreme Court, the US Tax Court and the US Claims Court, Rick is a Wharton finance graduate and Certified Public Accountant. Rick brings unique financial and accounting skills to every matter, along with a solutions-driven approach to achieving the best results for his clients. He has advised clients in multiple industries, including cannabis and health care where he has worked out debt for hospitals, nursing homes, continuing care communities, and adult housing across the United States. Rick represented a bank owned by the German government in the City of Detroit bankruptcy case. Most recently, Rick gained experience on the financial advisory side of the restructuring world, as a Managing Director with a leading national accounting and consulting firm.

Rick L. Frimmer, Counsel, Schiff Hardin LLP
CHI Phone: 312-258-5526 | AZ Phone: 928-862-4242 | Cell: 760- 877-6767 | rfrimmer@schiffhardin.com | www.schiffhardin.com

Virginia Housum

Virginia Housum is a Senior Vice President and municipal bond workout specialist at UMB Bank, N.A. in Minneapolis, Minnesota. Ginny has over 20 years of experience in municipal bonds defaults as a corporate trust officer. In that time, she has worked on numerous defaults of CCRCs, hotels, multifamily housing facilities, sports arenas, charter schools, private schools, and other facilities financed with municipal debt. Ginny has extensive experience working with institutional investors, especially mutual fund analysts. Trained as an attorney, Ginny has a law degree from the University of Denver and an LLM in Taxation from New York University. In a former life as an attorney with Dorsey & Whitney, Ginny specialized in workouts and municipal bond defaults, representing indenture trustees. She has participated in numerous bankruptcy cases, including Orange County, California, Vallejo, California, and approximately 15 “dirt district” Chapter 9 filings in Colorado. Ginny has been a speaker at NABL, National Federation of Municipal Analysts, Western Securities Transfer Association, PLI Annual Financial Services Institute, and the Association of Bank Holding Companies Lawyers Committee meetings.

Virginia Housum, SVP/Workout Specialist | Corporate Trust, UMB Bank, N.A.
612-337-7003 | Cell: 612-384-6452 | virginia.housum@umb.com | www.umb.com

Danielle J. Moran

Danielle Moran is a journalist at Bloomberg News where she covers municipal bonds and public finance. Her reporting on municipal high-yield and the impact of climate change on the market has been published in Bloomberg's Businessweek and Market's Magazines and she has frequent appearances on Bloomberg's TV and radio shows. Danielle has investigated buying patterns in the market, covered primary market underwriters on Wall Street and reported on the politics of state and local governments. Prior to joining Bloomberg News, Danielle had worked as a municipal bond Data Analyst for Bloomberg Global Data.

Danielle received her Master's Degree in Data and Computational Journalism from Columbia University and has a Bachelor of Arts degree from Lafayette College.

Danielle J. Moran, Journalist, Municipal Market, Bloomberg News
212-617-8415 | dmoran21@bloomberg.net

Barnet Sherman

Barnet Sherman is the Founder and Senior Managing Partner of The Tenbar Group. With over 30 years of municipal bond market experience, he analyzed, negotiated, structured, and closed billions of dollars of financings in lower rated and high yield debt. His sector expertise includes healthcare, higher education, senior care, senior living, economic development, CDDs and TIFS. He has managed portfolios for institutional investors such as TIAA and Morgan Stanley and advised hedge funds, family offices, and high net worth advisors.

With first-hand experience in distressed situations, he draws on his experience in successfully representing bondholder interests on Creditors' Committees with 100% or majority recovery as well as testifying in both US Bankruptcy Court and SEC Administrative Court.

In his position as an Adjunct Professor of Corporate Finance and Accounting at Boston University, he brings credibility, expertise, and an independent perspective to every engagement. Completing the Harvard Law School Program on Negotiation, he received certification from that program. As a Senior Contributor to Forbes, Mr. Sherman has published numerous articles on municipal bankruptcy. Finally, in his role as a Board member of a nonprofit senior care and living facility, serving on its finance committee, he is actively involved in the decisions guiding the strategy of the business.

His undergraduate degree is from Syracuse University, Maxwell School and he earned his Master's in Public Administration from Columbia University, School of International and Public Affairs.

The Tenbar Group LLC offers financial services consulting on impact investing, ESG assessment/monitoring/outcome metric quantification, portfolio credit risk assessment and monitoring, and distressed and subject matter expertise on distressed situations. The Tenbar Group does not offer investment advice, does not make investment recommendations, and does not engage in the purchase or sale of securities for itself or others. Information herein was prepared from generally available information believed to be reliable but we make no representation as to its accuracy or otherwise and is not a confirmation of terms.

Barnet Sherman, Founder, Senior Managing Partner of The Tenbar Group
617-799-3576 | bsherman@tenbarcapital.com | www.tenbargroup.com

Data
ICE Services

Limitations

This presentation contains information that is confidential and proprietary property and/or trade secret of Intercontinental Exchange, Inc. and/or its affiliates, and is not to be published, reproduced, copied, disclosed or used without the express written consent of Intercontinental Exchange, Inc. and/or its affiliates.

This presentation is provided for informational purposes only. The information contained herein is subject to change and does not constitute any form of warranty, representation, or undertaking. Some of the information described herein is still in development, and as such, pursuant to Intercontinental Exchange Inc. and/or its affiliates' sole discretion, the services and/or methodologies that may ultimately be developed may deviate from the description included herein or may not be developed at all. Nothing herein should in any way be deemed to alter the legal rights and obligations contained in agreements between Intercontinental Exchange, Inc. and/or any of its affiliates and their respective clients relating to any of the products or services described herein. Nothing herein is intended to constitute legal, tax, accounting or other professional advice.

Intercontinental Exchange, Inc. and its affiliates, makes no warranties whatsoever, either express or implied, as to merchantability, fitness for a particular purpose, or any other matter. Without limiting the foregoing, Intercontinental Exchange, Inc. and its affiliates makes no representation or warranty that any data or information (including but not limited to evaluations, evaluated curves, and model-based curves) supplied to or by it are complete or free from errors, omissions, or defects.

Securities products and services are offered through Creditex Securities Corporation member FINRA <https://www.finra.org/>, MSRB, NFA <https://www.nfa.futures.org/> and SIPC <https://www.sipc.org/> or TMC Bonds, L.L.C member FINRA <https://www.finra.org/>, MSRB and SIPC <https://www.sipc.org/>. The information found herein, has been prepared solely for informational purposes and should not be considered investment advice, is neither an offer to sell nor a solicitation of an offer to buy any financial product(s), is intended for institutional investors only and is not intended for retail customer use. Credit Default Swaps (CDS) products and services offered through Creditex LLC.

Evaluated pricing (including fixed income evaluations, evaluated curves and model-based curves), continuous evaluated pricing, end-of-day evaluations, evaluated pricing for listed and unlisted ADRs, and Fair Value Information Services and any other investment advisory services with respect to securities are provided in the US through ICE Data Pricing & Reference Data, LLC and internationally through ICE Data Services entities in Europe Asia Pacific. ICE Data Pricing & Reference Data, LLC is a registered investment adviser with the US Securities and Exchange Commission. ICE Data Services Australia Pty Ltd. is licensed by the Australian Securities and Investments Commission. Additional information about ICE Data Pricing & Reference Data, LLC is available on the SEC's website at www.adviserinfo.sec.gov. A copy of ICE Data Pricing & Reference Data, LLC's Form ADV is available upon request.

ICE Data Services refers to a group of products and services offered by certain Intercontinental Exchange, Inc. (NYSE:ICE) companies and is the marketing name used for ICE Data Services, Inc. and its subsidiaries globally, including ICE Data Pricing & Reference Data, LLC, Interactive Data (Europe) Ltd. and ICE Data Services Australia Pty Ltd. ICE Data Services is also the marketing name used for ICE Data Indices, LLC, ICE Data Analytics, LLC and certain other data products and services offered by other affiliates of Intercontinental Exchange, Inc. (NYSE:ICE). ICE Credit Risk does not purport to be an NRSRO or a credit rating agency, or to provide credit ratings. "ICE Bonds" is a marketing name used to describe the entirety of Intercontinental Exchange, Inc.'s (ICE) Fixed Income offering, to include execution services, ETF related services, data and analytics.

Trademarks of Intercontinental Exchange, Inc. and/or its affiliates include: Intercontinental Exchange, ICE, ICE block design, NYSE, ICE Data Services, ICE Data and New York Stock Exchange. Information regarding additional trademarks and intellectual property rights of Intercontinental Exchange, Inc. and/or its affiliates is located at www.intercontinentalexchange.com/terms-of-use. BofA is a trademark of Bank of America Corporation in the United States and other countries. Other products, services, or company names mentioned herein are the property of, and may be the service mark or trademark of, their respective owners.