New England States GFOA 76th Annual Conference

What to Expect When Talking with the Rating Agencies



Geoffrey E Buswick, Managing Director & Government Sector Lead

S&P Global

Ratings

Agenda

- What is a rating?
- The rating process
- Local government criteria highlights
- Hot topics in public finance
 - Economy, urban core & workforce challenges
 - Disasters & insurance
 - Cyber (briefly)
 - Al & DeFi

PLEASE ASK QUESTIONS THROUGHOUT

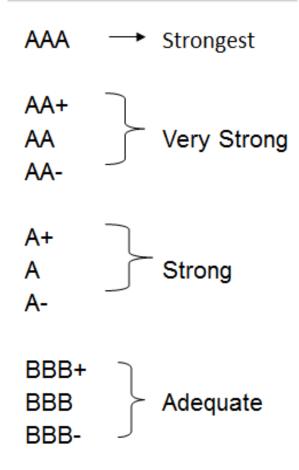
Understanding S&P Global's Ratings

- An issuer's ability and willingness to pay debt in a timely manner
- Credit ratings are forward looking
- S&P Global ratings are opinions, not guarantees of credit quality or exact measures of the probability that a particular issuer or particular debt issue will default
- The Ratings scale is relative and based on the creditworthiness of an issuer or credit quality of an individual debt issue, from strongest to weakest, within a universe of credit risk
- Criteria provide the analytic framework to derive the rating opinion

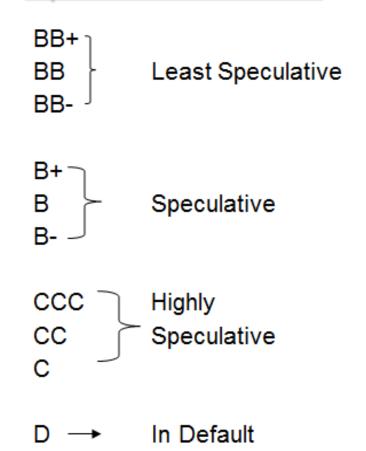
<u>Understanding Credit Ratings | S&P Global Ratings (spglobal.com)</u>

Ratings 101 | S&P Global's Ratings Scale

Investment-Grade



Speculative-Grade



Short-term U.S. Public Finance note ratings: SP-1+, SP-1, SP-2 & SP-3

Ratings 101 | Outlooks and CreditWatch

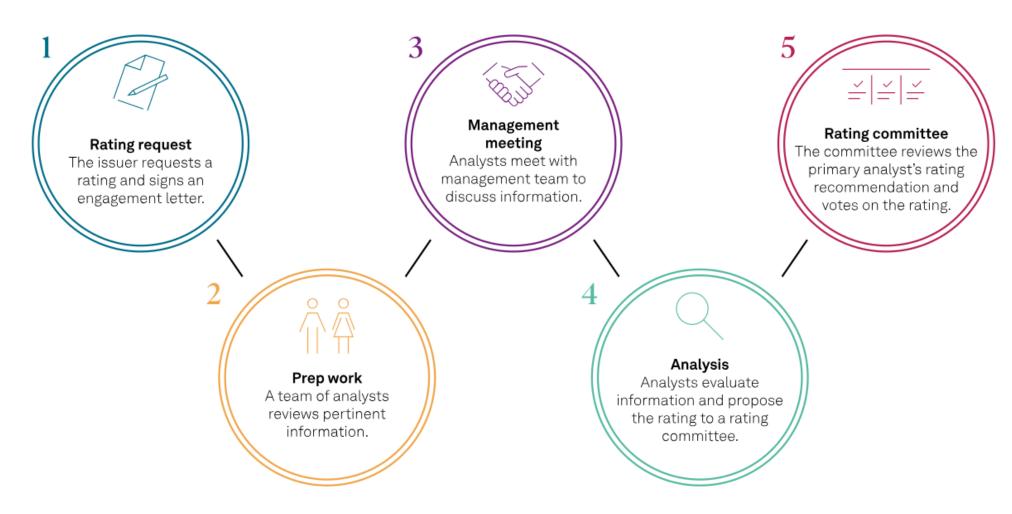
• Outlooks

- Potential rating change within 1 to 2 years
- At least 1-in-3 likelihood of rating action
- Outlooks can be:
 - Stable
 - Positive
 - Negative
 - Developing

CreditWatch

- Potential rating change within 60 to 90 days
- At least 1-in-2 likelihood of rating action
- CreditWatch can be:
 - Positive
 - Negative
 - Developing

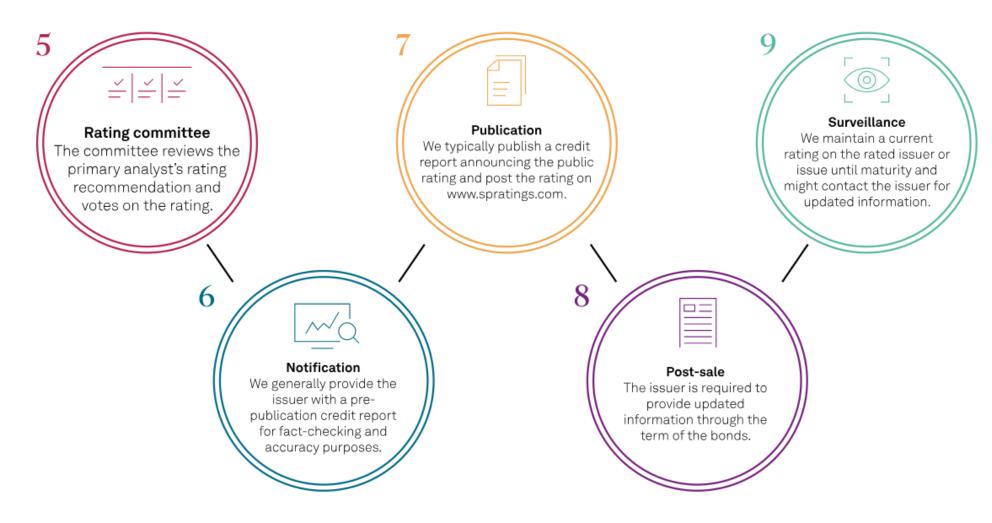
S&P Global Ratings' process to committee



Source: S&P Global Ratings.

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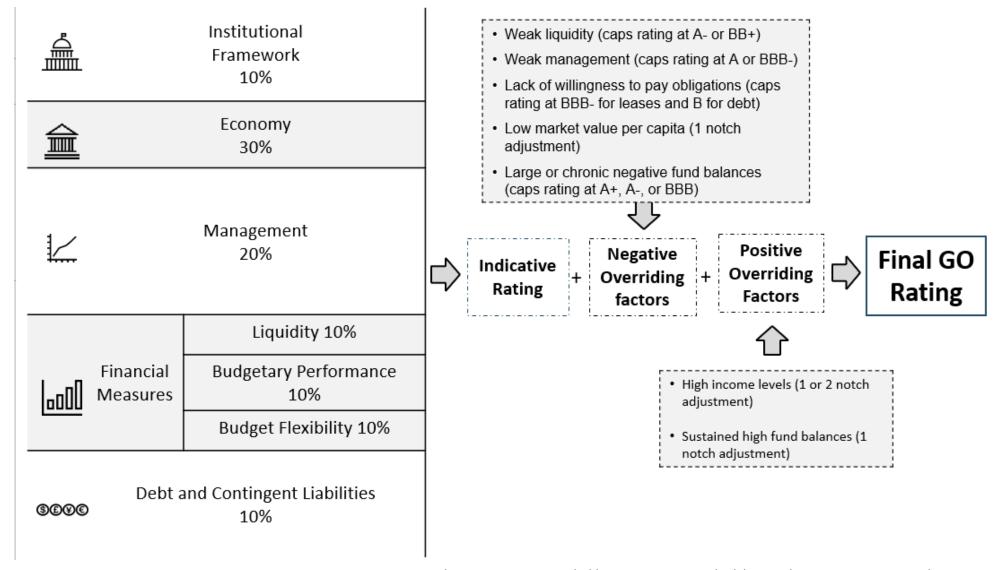
S&P Global Ratings' process post-committee



Source: S&P Global Ratings.

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Analytical Framework For Local Government GO Ratings





USPF 2023 Midyear Outlook

What we're watching

- Higher interest rates and inflation continue to be headwinds
- Summer storm and fire season heightens the possibility of catastrophic events

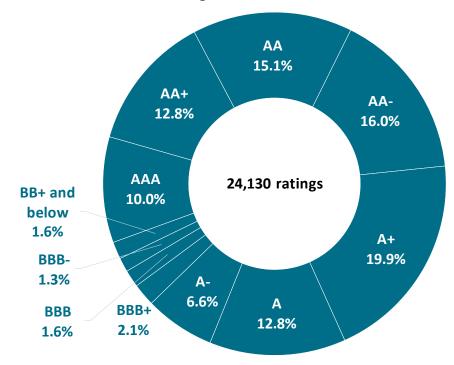
Trends

- Credit conditions have been largely stable, and upgrades have exceeded downgrades this year for most sectors
- The U.S. economy has been resilient
- Federal stimulus and healthy financial reserves continue to provide significant flexibility

Rest of year expectations

 Our baseline U.S. economic forecast is now for a shallower but more protracted slowdown rather than a recession; however, we don't expect this to disrupt credit stability for most issuers

U.S. Public Finance Ratings Distribution



Source: S&P Global Ratings.

Outlook distribution

Negative 2% Positive 2%

Stable 96%

Source: S&P Global Ratings.

USPF 2023 Midyear Sector Summary

Local government

What we're watching

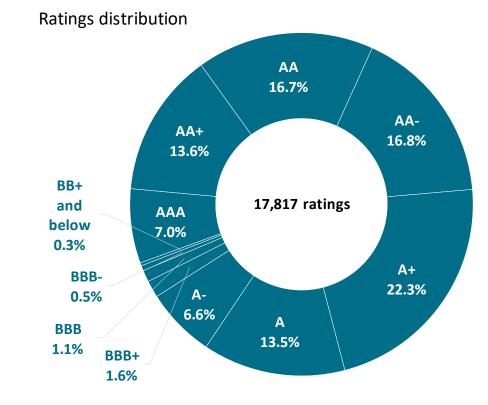
- The potential for lower consumer spending that could affect collections of economically sensitive revenues
- Credit strength/stability of state governments

Trends

- Reserve growth has been supported by good revenue collections and ongoing tax base growth
- Pandemic-related federal stimulus is helping to support capital needs and offset rising operating costs

Rest of year expectations

- Credit quality and stability will continue to be supported by federal stimulus dollars
- Summer storm season increases the possibility of catastrophic events



Source: S&P Global Ratings.

Outlook distribution

Negative 1% Positive 1%

Stable 98%

Source: S&P Global Ratings.

S&P Global Ratings' U.S. Economic Forecast Overview Key indicators

	2019	2020	2021	2022	2023f	2024f	2025f	2026f
Real GDP (annual average % change)	2.3	-2.8	5.9	2.1	1.7	1.3	1.5	1.8
Real consumer spending (annual average % change)	2.0	-3.0	8.3	2.8	2.0	1.2	1.4	2.1
Real equipment investment (annual average % change)	1.3	-10.5	10.3	4.3	-0.7	1.4	2.0	2.7
Real nonresidential structures investment (annual average % change)	2.3	-10.1	-6.4	-6.5	8.0	0.2	-0.3	1.1
Real residential investment (annual average % change)	-1.0	7.2	10.7	-10.5	-11.5	1.1	4.4	1.8
Core CPI (annual average % change)	2.2	1.7	3.6	6.2	5.0	3.3	2.4	2.2
Unemployment rate (%)	3.7	8.1	5.4	3.6	3.5	4.0	4.5	4.6
Housing starts (annual total in mil.)	1.3	1.4	1.6	1.6	1.4	1.3	1.4	1.4
Light-vehicle sales (annual total in mil.)	17.0	14.5	15.0	13.8	15.1	15.1	15.9	16.0
10-year Treasury (%)	2.1	0.9	1.4	3.0	3.7	3.6	3.4	3.3



U.S. Local Governments | What We're Watching



Federal stimulus

ARPA and other federal stimulus can help maintain credit quality and provide liquidity for many LGs



Looming recession

Federal aid helps with downside cushion, but a deteriorating economy could still disrupt stability



Inflation implications

Higher costs affect labor, materials, borrowing, etc., and could have long-term implications



Housing market

Slower housing market should cool prices, but an extended slowdown could affect tax base



State credit health

State credit strength lessens the chance for cuts to locals and supports economic stability



Wildcards

- RTO/downtown core
- Unemployment
- Infrastructure needs

U.S. Local Governments | By The Numbers

45,310

Number of LG projects where ARPA funds were deployed



69%

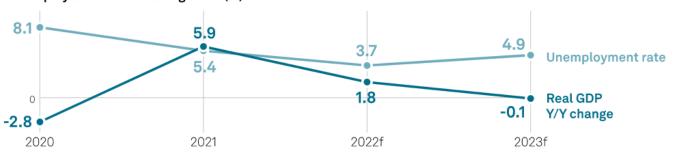
Finance officers reporting being better able to meet needs in FY2023 vs. FY2022



81%

Rate of voter approval for bond referendums in Nov 2022 elections

Unemployment rate vs. GDP growth (%)



 $7_{\sf years}$

until all Baby Boomers will be over **65**



90%

Share of MSAs with overvalued home prices



+50%

Growth in S&P/Case-Shiller National Home Price Index (2020-2022) -14.3%

Projected 2023 Y/Y change in real residential investment



15 bil.

of dollars of weather and climate disasters in the U.S. (Jan-Oct 2022)

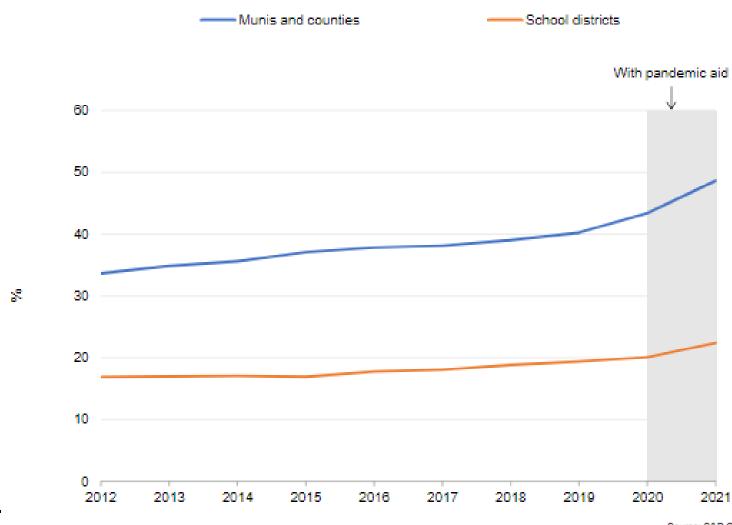


60%

Share of households that will not be able to buy a house by 2025

U.S. Local Governments | Reserve Trends

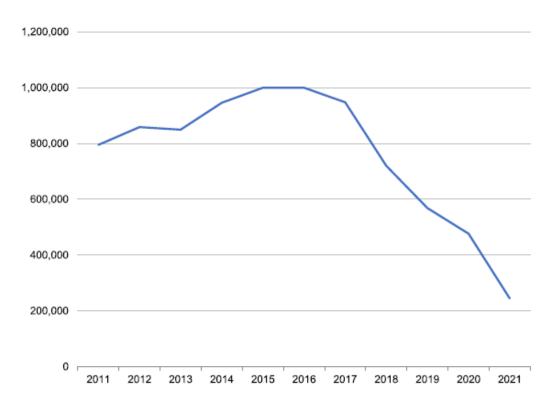
Unassigned General Fund Balance as Share of General Fund Expenditures





Workforce Challenges | Demographics/Migration

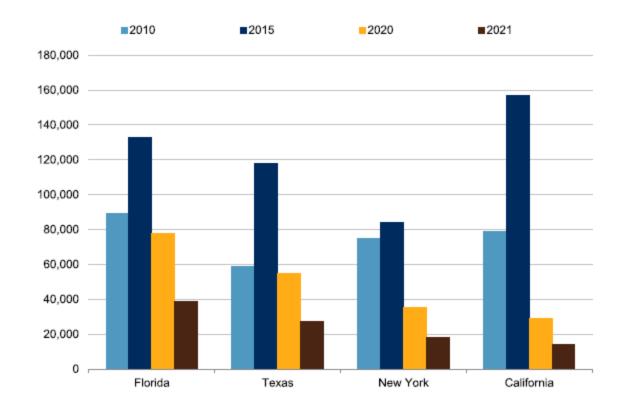
Net International Migration



Source: U.S. Census Bureau

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Net International Migration To Select High-Immigration States



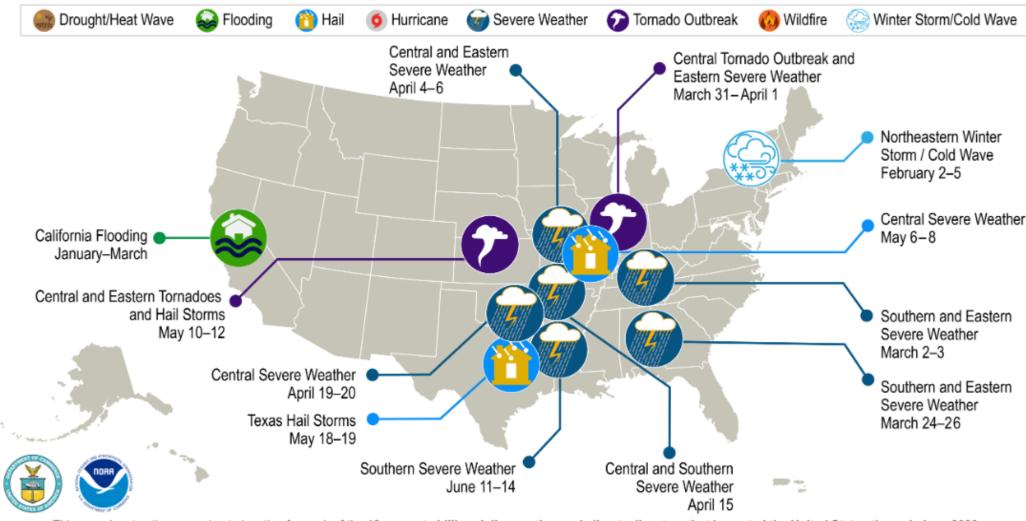
Source: U.S. Census Bureau

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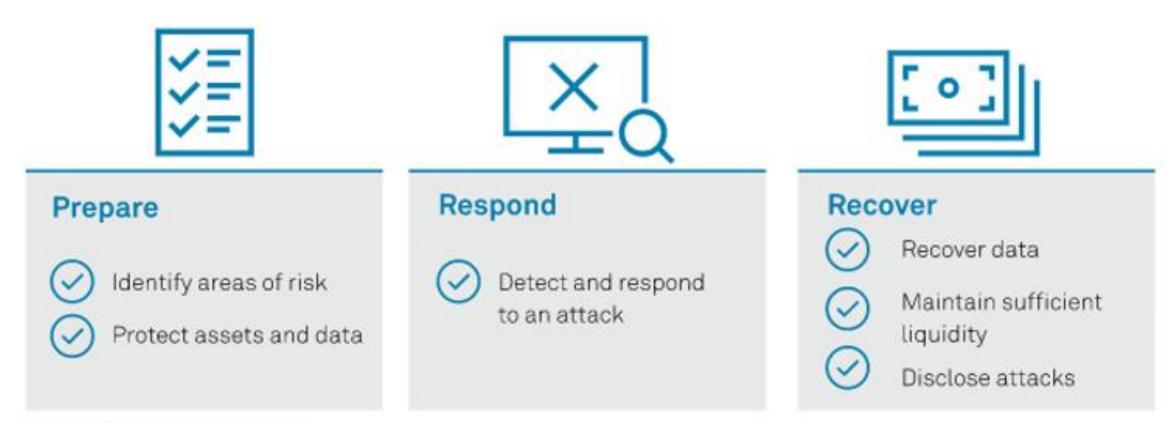
Disasters | Extreme Weather Risk

U.S. 2023 Billion-Dollar Weather and Climate Disasters





Disruptors | Cyber Risk Management



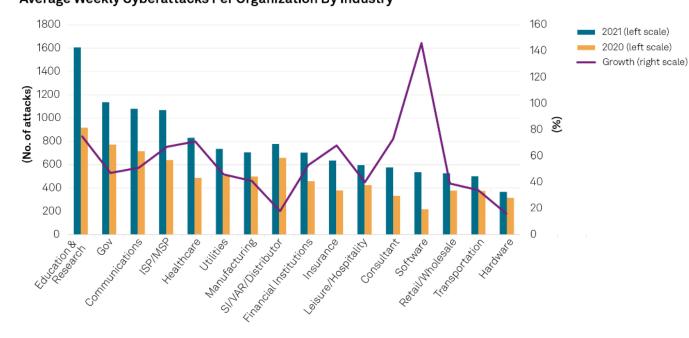
Source: S&P Global Ratings.

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Disruptors | Risk Management

Cyberattacks Increasing Across All Industries

Average Weekly Cyberattacks Per Organization By Industry

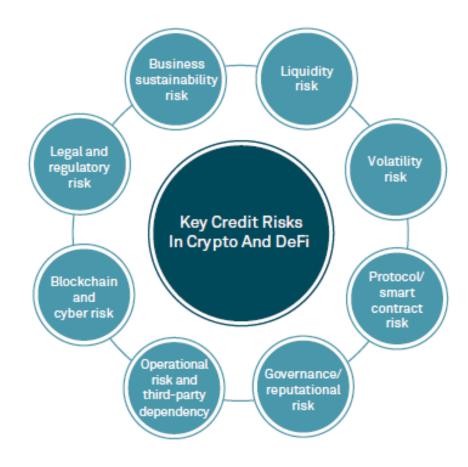


Source: Check Point Research

As Threats Rise, U.S. Public Finance Entities Take On Mounting Challenges To Secure The Digital Front Line, published Dec. 13, 2022

S&P Global Ratings

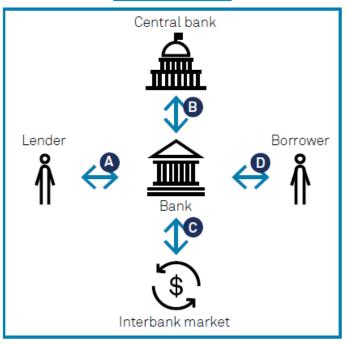
Cryptocurrency and Decentralized Finance



Source: Exploring Crypto And DeFi Risks In Credit Ratings, published June 30, 2022

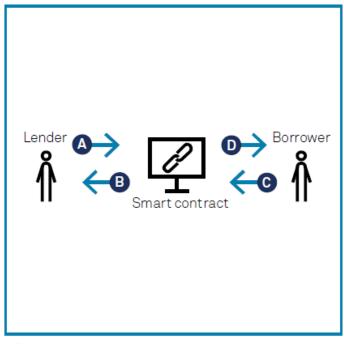
Disruptors | DeFi Uses Smart Contracts In Place Of Conventional Financial Risk Functions

Traditional



- A Lender deposits fiat money to receive interest
- B Central bank provides liquidity to banks and sets interest rates based on inflation and other parameters
- C Interest rates on bank loans affected by interbank market
- Loan approval and interest rate for borrower depends on coll ateral and borrower risk profile

Decentralized



- Provides eligible crypto assets as liquidity
- Receives tokens as determined by protocol as form of interest
- Provides other eligible crypto assets as collateral*
- Receives a borrowed amount of crypto assets



Disruptors | What is AI?

Machine Learning

All subset which uses statistical models and deep neural networks - typically algorithms - to enable machines to improve through repetitive iterations

Regression

A mathematical formula which measures the relationship between two or more variables.

Decision Tree

Uses flow-chart structures to move. down a 'tree' of possible outcomes to arrive at a conclusion. or predict an outcome

Instance Based

Compares new problem instances with previous instances in memory to come to a conclusion.

Topic Modeling

Scans groups or articles of documents to discover latent themes:

Clustering f(x)

Using functions to search for commonalities. between elements, and then grouping them

Engineering

The process of extracting features from raw data to transform the data, which enables the building of models

K-Means

Uses averages to group data by category or topic



Analytical Contacts

Robin Prunty

Chief Analytical Officer

Managing Director

robin.prunty@spglobal.com

Jane Ridley

Local Governments

Senior Director

jane.ridley@spglobal.com

Nora Wittstruck

Cross Practice

Senior Director

nora.wittstruck@spglobal.com

Jessica Wood

Charter Schools & Higher Education

Senior Director

jessica.wood@spglobal.com

Marian Zucker

Housing

Senior Director

marian.zucker@spglobal.com

Kurt Forsgren

Transportation

Managing Director

kurt.forsgren@spglobal.com

Geoffrey Buswick

Governments

Managing Director

geoffrey.buswick@spglobal.com

Jenny Poree

Utility Revenue

Senior Director

jenny.poree@spglobal.com

Charlotte Perry

Analytics & Research

Associate Director

charlotte.perry@spglobal.com

Suzie Desai

Health Care

Senior Director

suzie.desai@spglobal.com

David Bodek

Municipal & Cooperative Power

Senior Director

david.bodek@spglobal.com



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