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The Cost of Borrowing: Understanding Credit Ratings

With more than $1 trillion in infrastructure investment needs over the next 25 years (WUC 2012), many water, wastewater, and stormwater utilities across the United States will need continued access to the capital markets as a source for financing system improvements. And just as for someone borrowing money to buy a house, a utility's credit rating is a key component in determining its cost of debt or a creditor's required rate of return to compensate for the risk of lending money. Central to this discussion is the role that rating agencies play in evaluating credit. While credit ratings are not required in order to issue municipal securities, they provide a key benchmark and guidance to the market on the probability of default. There are three major agencies that provide ratings on approximately 95% of the market: Moody's Investors Service, Standard & Poor's Ratings Services (S&P), and Fitch Ratings.

In 2014, Moody's and S&P issued requests for comments on proposed updates to the methodologies used in assigning credit ratings on pledged revenue from essential-service municipal debt including water, wastewater, and stormwater municipal revenue bonds. (Fitch has not proposed any updates to its existing rating methodology. The most recent information on its bond-rating criteria for water and wastewater revenue bonds can be found at www.fitchratings.com in "U.S. Water and Sewer Revenue Bond Rating Criteria," dated July 31, 2013. The rating system and process used by Fitch uses many of the same types of metrics and information, although each rating agency employs its own method for evaluating this information and assigning a final credit rating.)

The proposed changes did not represent fundamental shifts in how these rating agencies assessed public utility credit but did provide additional transparency on the evaluation factors deemed most important, universal, and measurable. In fact, Moody's noted in its request for comments an expectation that only a modest number of ratings will change as a result of the implementation of its new methodology. Similarly, S&P estimated that roughly 75% of its ratings would remain unchanged, with the remaining 25% likely being an even split between upgrades and downgrades, and nearly all of these changes in ratings will be no more than one notch. Although it is unlikely the proposed methodologies will result in meaningful changes in credit ratings on outstanding utility revenue debt, both Moody's and S&P emphasized their intention to provide more openness and communication with market participants to better understand their processes, particularly the quantitative and qualitative factors used when assessing credit in this sector.

This installment of Money Matters explains the revised rating methodologies proposed by Moody's and S&P in order to provide insight on how these methodologies may have been modified in response to the financial crisis that resulted in significant changes to the financial markets and regulatory environment, including the additional requirements imposed by the Dodd–Frank Wall Street Reform and Consumer Protection Act (Dodd–Frank Act). This article focuses on a number of key factors affecting credit that should become an essential component of utilities' long-term financial planning in this new environment.

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Overall, the credit quality of essential-service utility revenue bonds is strong. Public water, wastewater, and stormwater utilities are largely government-protected, monopolistic enterprises with very low historical rates of default. The proposed rating methodologies from Moody's and S&P are similar in that they use a scoring matrix of key factors and subfactors, with subjective adjustments for specific conditions that may increase or decrease the rating. The final rating scales assigned by Moody's and S&P are summarized in Table 1.

As shown in Table 2, Moody's proposed methodology uses four broad rating categories or scorecard factors addressing (1) the characteristics of the system, (2) the utility's financial strength, (3) the utility's management, and (4) the legal provisions securing the debt. Each broad rating factor has a specific weighting that is allocated among two or three scorecard subfactors or metrics. Each of these subfactors is addressed by evaluating one or more quantitative or qualitative criteria (Moody's 2014a, 2014b).

In comparison, as summarized in Table 3, S&P's proposed analytical rating framework is divided into two broad categories, referred to as an enterprise risk assessment and a financial risk assessment. Each of these risk assessment categories includes four subcategories of information, or metrics, with various weightings applied to each one, addressing a number of quantitative and qualitative criteria (S&P 2014). Each risk assessment category is given a preliminary ranking of 1 to 6, the results of which are plotted in a matrix to determine an initial, indicative rating.

It is important to note that the proposed scoring frameworks identified here are designed to serve as a guideline for discussion but not the determination of the final credit rating, which is assigned ultimately by committee. Both Moody's and S&P use numerous qualitative criteria to adjust their initial scoring assessment, in a systematic fashion, to ensure that all meaningful, nonquantifiable variables are considered appropriately.

While the specific nomenclature may be different, Moody's and S&P (and Fitch) identify similar credit evaluation criteria within the context of their unique frameworks for credit assessment. The scoring frameworks are filled with a variety of economic, service area, financial, and management characteristics and factors, with significant emphasis placed on the economic fundamentals of the utility system and service area, and the financial strength of the utility. Because the list of specific credit evaluation criteria is extensive, and for the sake of brevity, the following discussion focuses on major factors and related metrics that may be most meaningful to a utility seeking access to the capital markets.

SYSTEM CHARACTERISTICS AND ENTERPRISE RISK

Moody's and S&P both place significant emphasis on broader system-level characteristics and economic factors addressing the community or service area in which the utility operates. Moody's places 30% of its proposed credit weighting on the characteristics of the system. The three quantifiable subfactors focus on the health of a utility's capital assets, size, and diversity of its operations, and the strength and resources of its service base. Specifically, the condition of a utility's assets is assessed on the basis of the net fixed assets divided by the most recent year's depreciation, expressed in years. While this measurement needs to be considered in the context of the type of utility being evaluated, it provides a sense of the remaining useful life of the system and how a utility is reinvesting in the system as it depreciates. The wealth of the service area is represented by the median family income, expressed as a percentage of the US median. This provides a broad point of reference related to a service area's household economics and the ability for customers to bear the cost of current and future utility rates. Moody's considers other factors such as poverty rates, unemployment, and per capita income as a supplement to this measurement. Moody's considers the size of the system on the basis of the utility's most recent year of operations and maintenance expenditures, expressed in dollars. In general, larger systems

TABLE 1 Credit rating scales

S&P	Moody's	Rating Grade Description
AAA	Aaa	Minimal credit risk
AA+	Aa1	Very low credit risk
AA	Aa2	
AA–	Aa3	
A+	A1	Low credit risk
A	A2	
A–	A3	
BBB+	Baa1	Moderate credit risk
BBB	Baa2	
BBB–	Baa3	
BB+	Ba1	Substantial credit risk
BB	Ba2	
BB–	Ba3	
B+	B1	High credit risk
B	B2	
B–	B3	
CCC+	Caa1	Very high credit risk
CCC	Caa2	
CCC–	Caa3	
CC	Ca	In or near default, with possibility of recovery
C		
SD	C	In default, with little chance of recovery
D		

Moody's—Moody's Investors Service, S&P—Standard & Poor's Ratings Services

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have broader, more diverse revenue streams with additional system redundancies to reduce risk and mitigate unforeseen events. Table 4 presents Moody's proposed rating scorecard of system characteristics.

S&P captures similar evaluation criteria associated with the utility system's characteristics within its enterprise risk assessment, in which the subcategory of economic fundamentals represents 45% of this assessment. Similar to Moody's, S&P's economic fundamentals focus on quantitative measures including, again, the utility-service-area median household income as a percentage of the US median. S&P also assesses the economic output of the service area, as measured by the growth rate in gross county product (GCP), compared with the US rate of gross domestic product (GDP) annual growth. S&P uses a number of other qualitative factors, such as utility size, employment base, revenue profile, and population projections, to adjust its initial assessment of economic fundamentals. Table 5 presents S&P's proposed assessment of economic fundamentals including the scale used for the initial assessment.

Many of the factors and metrics described here are outside the control of utility management; however, because of the importance of these factors in determining a credit rating, it may be helpful to understand how they factor into the analysis. If a utility knows ahead of time that it may score poorly on certain criteria, the utility can prepare its information and arguments to address these aspects of the evaluation and may be able to influence the qualitative aspects of the

TABLE 2 Moody's[a] municipal utility scorecard factors

Broad Scorecard Factors	Factor Weighting %[b]	Scorecard Subfactor	Subfactor Weighting %[b]
System characteristics	30	Asset condition (remaining useful life)	10
		Service area wealth (median family income)	12.5
		System size (operations and maintenance)	7.5
Financial strength	40	Annual debt service coverage	15
		Days cash on hand	15
		Debt to operating revenues	10
Management	20	Rate management	10
		Regulatory compliance and capital planning	10
Legal provisions	10	Rate covenant	5
		Debt service reserve requirement	5

[a]Moody's Investors Service
[b]Total = 100

TABLE 3 S&P's analytical framework for municipal water and sewer utility ratings

Enterprise Risk Assessment (Weighting—%)	Financial Risk Assessment (Weighting—%)
Economic fundamentals (45)	Coverage metrics (40)
Market position (25)	Liquidity and reserves (40)
Industry risk (20)	Debt and liabilities (10)
Operational management assessment (10)	Financial management assessment (10)

Determining the Initial Indicative Rating for US Finance Utilities

		Financial Risk Profile, Ranked 1–6					
		1	2	3	4	5	6
Enterprise Risk Profile, Ranked 1–6		Extremely strong	Very strong	Strong	Adequate	Vulnerable	Highly vulnerable
1	Extremely strong	aaa	aa+	aa–	a	bbb+/bbb	bb+/bb
2	Very strong	aa+	aa/aa–	a+	a–	bbb/bbb–	bb/bb–
3	Strong	aa–	a+	a	bbb+/bbb	bbb–/bb+	bb–
4	Adequate	a	a/a–	a–/bbb+	bbb/bbb–	bb	b+
5	Vulnerable	bbb+	bbb/bbb–	bbb–/bb+	bb	bb–	b
6	Highly vulnerable	bbb–	bb	bb–	b+	b	b–

S&P—Standard & Poor's Ratings Services

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evaluation in the utility's favor. If nothing else, a utility can demonstrate its awareness of the circumstances and any efforts to mitigate these issues with internal financial and capital planning initiatives.

FINANCIAL STRENGTH

The second broad category of emphasis for Moody's and S&P relates to the financial strength of the utility operation as an independent business entity or enterprise fund. The financial strength of the issuer is critical when assessing credit. Utilities demonstrating strong financial metrics are perceived as having the resources to manage ongoing operations and mitigate unforeseen, negative events. From a credit perspective, two of the most important measurements of financial health consider the level of revenues available to meet debt service obligations (debt service coverage) and the level of unrestricted reserves (liquidity).

Debt service coverage. Debt service coverage represents a utility's cushion to meet annual debt service requirements. Total debt service coverage is calculated on the basis of net revenues available for debt service divided by total annual debt service. Although the specific rate covenants identified in a utility's bond documents will dictate an issuer's actual coverage calculation requirements for disclosure purposes, an assessment of credit will typically consist of several different types of coverage calculations. These may include annual debt service coverage on total debt, maximum annual debt service coverage, and coverage with and

TABLE 4 Moody's[a] proposed rating scorecard of system characteristics

System Characteristics (Weighting—%)[b]		Rating					
		Aaa	Aa	A	Baa	Ba	B and below
Asset condition (10)	Net fixed assets/ annual depreciation—*years*	>75	75 ≥ *n* > 25	25 ≥ *n* > 12	12 ≥ *n* > 9	9 ≥ *n* > 6	≤6
System size (7.5)	Water and/or sewer–solid waste—*millions of $*	O&M > 65	65 ≥ O&M > 30	30 ≥ O&M > 10	10 ≥ O&M > 3	3 ≥ O&M > 1	O&M ≤ 1
	Stormwater—*millions of $*	O&M > 30	30 ≥ O&M > 15	15 ≥ O&M > 8	8 ≥ O&M > 2	2 ≥ O&M > .75	O&M ≤ .75
Service area wealth (12.5)		>150% of US median	150% ≥ US median > 90%	90% ≥ US median > 75%	75% ≥ US median > 50%	50% ≥ US median > 40%	≤40% of US median

O&M—operations and maintenance

[a]Moody's Investors Service
[b]Total weighting = 30%

TABLE 5 S&P's proposed assessment of economic fundamentals

	Real Gross County Product, Rate of Change Last 2 Years Plus Projected Next 2 Years		
Current median household effective buying income *% of United States*	**Stronger than US rate of GDP annual growth by 1% or more**	**Within ±1% of US rate of GDP annual growth**	**Weaker than US rate of GDP annual growth by 1% or more**
≥125	1	1	2
100–125	1	2	3
75–100	2	3	4
35–75	3	4	5
<35	4	5	6

Ranges for Enterprise Risk Profile Factors	
Description	**Assessment**
Extremely strong	1
Very strong	2
Strong	3
Adequate	4
Vulnerable	5
Highly vulnerable	6

GDP—gross domestic product, S&P—Standard & Poor's Ratings Service

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TABLE 6 Moody's[a] proposed initial scorecard for debt service coverage

Financial Strength[b]	Aaa	Aa	A	Baa	Ba	B and below
Annual debt service coverage[c]	>2.00 times	2.00 times ≥ *n* > 1.70 times	1.70 times ≥ *n* > 1.25 times	1.25 times ≥ *n* > 1.00 times	1.00 times ≥ *n* > 0.70 times	≤0.70 times

[a]Moody's Investors Service
[b]40% weighting
[c]15% weighting

without nonoperating revenue such as capacity fees (i.e., upfront charges assessed to new customers to recover the cost of system capacity, sometimes referred to as impact fees or connection fees).

Moody's proposed primary debt service–coverage calculation is based on the net revenues for the utility's most recent fiscal year divided by the debt service for that year, expressed as a multiple. This metric represents 15% of the financial strength rating. Capacity (or similar) fees are included if they represent a pledged revenue, with potential negative adjustments made after the initial score if these types of revenue represent an inordinate share of total revenue or exhibit excessive volatility. Other supplemental considerations related to coverage, which may be credit positive or negative, include, for example, the stability of the revenue stream, term structure on outstanding debt, and amount of future capital spending that may affect projected coverage. Table 6 presents Moody's proposed initial scorecard for debt service coverage.

S&P's proposed primary coverage calculation is referred to as "all-in coverage," which represents 40% of the financial risk assessment (Table 3). All-in coverage is an internally adjusted debt service–coverage metric that removes "fixed charges," which are defined as certain long-term, recurring items that are debt-like in nature even if treated legally as an operating expense. The fixed charges are removed from the calculation of net revenue and included as a component of total debt service. Examples of fixed charges are a take-or-pay agreement with a utility's wholesale provider or other arrangements that reflect support of "off balance sheet" debt. While vertically integrated utilities might not have fixed charges, the net effect of shifting fixed charges from the numerator to the denominator will reduce coverage, which may be different from the legal definition derived from the issuer's rate covenant in its bond documents. S&P's proposed methodology would also treat recurring transfers to the general fund as an operating expense even if legally allowed to come from a surplus of net revenues per the bond covenants. Table 7 presents S&P's proposed initial assessment of debt service coverage.

TABLE 7 S&P's proposed initial assessment of debt service coverage

Initial Assessment	All-In Coverage *times*
1—Extremely strong	≥1.60
2—Very strong	1.40–1.60
3—Strong	1.20–1.40
4—Adequate	1.10–1.20
5—Vulnerable	1.00–1.10
6—Highly vulnerable	<1.00

S&P—Standard & Poor's Ratings Services

Liquidity and reserves. The level of reserves is another essential component of a credit evaluation. Ample liquidity provides a utility with the flexibility to manage revenue volatility, meet ongoing working capital needs, and mitigate operational risk. Both Moody's and S&P define reserves as cash and cash equivalents that are unrestricted and liquid. Reserves do not include any bond proceeds, debt service reserves, or other forms of restricted cash and cash equivalents.

Moody's proposed methodology measures reserves on the basis of unrestricted cash and liquid investments divided by annual operating expenses and multiplied times 365 to be expressed in days (days cash on hand). This metric represents 15% of the financial strength rating. Table 8 presents Moody's proposed initial scorecard for reserves.

Similarly, S&P's proposed methodology measures days cash on hand on the basis of cash plus cash equivalents but also recognizes the level of actual cash, since small utilities may have a high number of days cash on hand and relatively low amounts of actual cash. This metric represents 40% of the financial risk assessment (Table 3). Table 9 shows S&P's proposed preliminary evaluation of liquidity and reserves.

In addition to the metrics shown here, Moody's and S&P evaluate various measures of the amount of debt or leverage, such as the ratio of debt to operating revenues (Moody's) and debt to capitalization (S&P), to evaluate a utility's capacity to take on additional future debt to address capital investment needs. Emphasis is placed on the effectiveness of longer-term capital and financial planning as well as the appropriate identification of the timing and magnitude of future capital

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TABLE 8 Moody's[a] proposed initial scorecard for reserves

Financial Strength[b]	Aaa	Aa	A	Baa	Ba	B and below
Days cash on hand[c]	>250	250 ≥ *n* > 150	150 ≥ *n* > 35	35 ≥ *n* > 15	15 ≥ *n* > 7	≤7

[a]Moody's Investors Service
[b]40% weighting
[c]15% weighting

investments. Both agencies also consider whether policies exist to set goals related to financial and capital planning, and the strength of those policies and goals. It is one thing to make sure that all legal coverage and liquidity requirements identified in the bond covenants are addressed, but it is also important to set target levels of coverage and liquidity that take into account future borrowing needs and the importance of adjusting rates proactively as a component of effective planning.

FINANCIAL PLANNING AND MANAGEMENT CONSIDERATIONS

Another key component of the overall ratings methodology is evaluating the efficiency and effectiveness of utility management. For this criterion or area of evaluation, Moody's and S&P appear to take significantly different approaches, but in reality the differences are mainly structural. The information and metrics used to assess this area of credit risk are fairly similar.

For Moody's, the management scoreboard factor is considered separately and represents 20% of the overall scoring. Within this category, subcriteria are rate management, and regulatory compliance and capital planning (Table 2). These criteria take into consideration the rate-setting process and policies, capital planning and funding processes, effectiveness of budgeting and cost control, plus planning for compliance with environmental regulations.

For S&P, operational management considerations are considered a component (10%) of the enterprise risk assessment, whereas financial management considerations are considered a component (10%) of the financial risk assessment. Within the operational management criterion, three subcategories are asset management effectiveness, rate-setting processes, and a general category addressing drought management and operational effectiveness and expertise. Within the financial management criterion, subcategories include, among others, budget management and reporting; long-term financial and capital planning; asset management; and policies related to investments, liquidity, and debt management. In each case, there is increased emphasis on effective and longer-term financial and capital planning. These are areas in which any utility can be proactive, particularly if there is a future need to borrow funds and a desire to maintain or enhance its credit rating.

LESSONS LEARNED

With the changes that have occurred over the last several years in the financial industry and credit markets, including the Dodd–Frank Act, it is important for government-owned utilities to understand how creditworthiness is evaluated and credit ratings are assigned. The latest information provided by Moody's and S&P provides a new level of transparency and insights into how this process works.

Utilities looking to borrow money in the municipal bond market need to understand this process and take steps to ensure that they are addressing the metrics and criteria that will be used to determine their credit rating. They can work with a municipal advisor and/or financial advisor to identify and start calculating and tracking a number of the ratios, metrics, and measures used by Moody's and S&P, as identified in their proposed rating methodologies, in addition to the coverage ratios and other financial measures that are already tracked to address bond covenants and existing policies.

It may not be essential to exactly match the way Moody's and S&P measure or calculate the various factors or metrics, but utilities will want to come close enough to understand the trends and whether a particular ratio or metric may be out of alignment with measures or may raise questions that could complicate the credit rating process. Financial and capital planning processes and procedures may need to be enhanced to add more structure and consistency and to provide a longer-term perspective. Financial and capital investment policies may need to be adjusted (or formalized if

TABLE 9 S&P's proposed preliminary evaluation of liquidity and reserves

Preliminary Assessment	Days Cash on Hand	Actual Cash *millions of $*
1—Extremely strong	>150	>75
2—Very strong	90–150	20–75
3—Strong	60–90	5–20
4—Adequate	30–60	1–5
5—Vulnerable	15–30	.50–1
6—Highly vulnerable	<15	<.0

S&P—Standard & Poor's Ratings Services

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written policies don't already exist) to reflect new targets that are more consistent with those identified by Moody's and S&P. The more proactive a utility is in addressing these issues, the easier it will be to assemble the right information and make a case to the rating agencies when it comes time to borrow money and to preserve or enhance a utility's credit rating.

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