MOODY'S
INVESTORS SERVICE

RATING METHODOLOGY

Pre-refunded and Escrow-backed Transactions Methodology

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This rating methodology replaces the *Approach to Pre-Refunded and Escrow-Backed Bonds* methodology published in December 2018. While this methodology reflects many of the same core principles as the 2018 methodology, we have clarified how we incorporate a weak structural framework into our analysis of pre-refunded and escrow-backed transactions. In addition, we have clarified how we incorporate an insufficiency of escrow cash flows into our analysis of escrow-backed transactions. We have also made editorial changes to enhance readability.

Introduction

In this rating methodology, we explain our general approach to assessing credit risk for pre-refunded and other transactions issued by US municipalities that are secured by investments deposited into an escrow account. We explain the qualitative and quantitative factors that are likely to affect rating outcomes for these transactions.

In a pre-refunded transaction, a municipal entity issues debt and uses the proceeds to invest in securities that are held in an escrow account. The principal and interest from these investments are used to pay the debt service of the pre-refunded debt obligations (i.e., the proceeds of new debt are used to repay specified existing debt over time). In an escrow-backed transaction, a municipal entity issues debt and uses the proceeds to invest in securities held in escrow to pay off the escrow-backed debt.

We also discuss other rating considerations, which are factors whose credit importance varies widely among pre-refunded and escrow-backed debt transactions or that may be important only under certain circumstances or for a subset of transactions. In addition, some of the methodological considerations described in one or more cross-sector rating methodologies may be relevant to ratings for these transactions.[1] Furthermore, since ratings are forward-looking, we often incorporate directional views of risks and mitigants in a qualitative way.

1 A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

Our presentation of this rating methodology proceeds with (i) the scope of this methodology; (ii) a description of a typical transaction structure; (iii) the methodology framework; (iv) a discussion of the rating factors; (v) other rating considerations; (vi) the assignment of instrument-level ratings; (vii) methodology assumptions; and (viii) limitations.

Scope of This Methodology

This methodology applies to pre-refunded and escrow-backed debt transactions issued by US municipal entities that are secured by investments held in a segregated escrow account for the sole purpose of paying principal and interest on specified debt obligations.

This methodology does not apply to pre-refunded or other transactions that are secured by a pledge of funds or revenue other than US dollar-denominated investments held in an escrow account. As explained in the discussion of the rating factors, pre-refunded transactions are rated under this methodology only if they meet certain criteria; e.g., a well-reasoned defeasance opinion of counsel[2]; otherwise, they are rated under the methodology relevant to the issuer.

Typical Transaction Structure

In a pre-refunded transaction, a municipal entity issues debt to defease existing debt, usually because the issuer is able to lock in lower interest rates on existing call-protected debt that cannot be redeemed before a certain date. In a typical transaction, the municipal entity issues debt and invests the proceeds in cash and securities held in a segregated escrow account, typically structured as a trust. The escrowed cash and securities, including the interest on these assets, are used to pay all debt service on the specified existing debt (i.e., the pre-refunded debt), including the final redemption payment.

In a typical escrow-backed transaction, a municipal entity issues debt to promote the construction of affordable housing. Similar to a pre-refunded debt transaction, proceeds from the debt issuance are invested in cash and securities that are held in trust, in a segregated escrow account. The escrowed cash and securities, and the interest on those assets, are used to pay debt service on the escrow-backed transaction, including any mandatory tender and the final redemption payment. The structure includes a project lender, who advances construction loans to the trust. The trust transfers a like amount of funds to the project owner without affecting the amount of the escrowed investments. This structure can protect debtholders from construction risk, while allowing affordable housing project owners to obtain low-income housing tax credits that can be sold to raise equity funds for the project.

For pre-refunded and escrow-backed transactions, the escrow account is typically established through (i) an escrow agreement between the borrower and the escrow agent, (ii) a letter of instructions to the trustee from the borrower or (iii) a trust agreement.

[2] Transactions that meet these criteria are sometimes referred to as "legally defeased,", in contrast to transactions that are "economically defeased." In economic defeasance, a refunding escrow is established, but the transaction does not meet the criteria necessary to obtain an opinion of counsel clearly indicating that the pre-refunded bondholders no longer have recourse to the issuer, e.g., that the interest of the bond trustee under the indenture has terminated and become void. Economically defeased transactions are not rated under this methodology.

Rating Approach

This methodology framework is composed of three factors. Some of the three factors comprise a number of sub-factors.

The Credit Quality of Escrow Investments factor is used to arrive at a transaction's highest possible rating. A transaction may be rated lower than the highest possible rating based on our assessment of the other two factors: Structural Framework and Escrow Sufficiency. As described below, ratings also incorporate other considerations.

EXHIBIT 1
Pre-refunded and Escrow-backed Transactions Methodology Overview

Factor	Sub-factor
Credit Quality of Escrow Investments	Quality of Initial Investments
	Quality of Permitted Investments
Highest Possible Rating	
Structural Framework	Escrow Irrevocability and Administration
	Amendments and Notifications
	Bankruptcy Risks and Mitigants
Escrow Sufficiency	--*

*This factor has no sub-factors.

Source: Moody's Investors Service

Discussion of the Rating Factors

In this section, we explain our general approach for scoring each sub-factor or factor, and we describe why they are meaningful as credit indicators.

Factor: Credit Quality of Escrow Investments

Why It Matters

The credit quality of the escrow investments is important because they are the only source of funds available to pay the debt service. Any substitution of the initial investments (i.e., permitted investments), or reinvestment of the cash balances after the escrow closes, is also important because it may reduce the overall credit quality of the escrow investments and increase the risk of nonpayment of principal and interest on the debt.

This factor has two sub-factors: Quality of Initial Investment and Quality of Permitted Investments.

How We Assess It

QUALITY OF INITIAL INVESTMENTS:

Our assessment of the credit quality of the initial escrow investments is based on their credit rating. For transactions secured by escrow accounts with multiple investments that have different credit ratings, we use the lowest rated investment as our assessment of credit quality. The credit quality of the initial escrow investments is the transaction's highest potential rating.

In some cases, the initial or permitted escrow investments include derivatives of other municipal securities (e.g., bonds that are invested in other municipal bonds that are secured by escrow investments). We may consider that the credit quality of the derivative investments is lower than the credit quality of the underlying securities, based on heightened risks resulting from the structural features of the derivatives, or the complexity of administering these investments.

QUALITY OF PERMITTED INVESTMENTS:

Our assessment of the credit quality of the types of securities permitted for reinvestment and substitution in the escrow is based on the lowest potential rating of permitted investments as outlined in the transaction documents, often in the escrow agreement. The transaction's rating is typically capped at the lower of (i) the rating for the lowest-rated initial investments; and (ii) the rating for the lowest-rated permitted investments.

Following are examples of typical permitted investments:

» **US Government Obligations.** Obligations or securities whose timely payment of principal and interest is guaranteed by the US government.

» **Direct US Treasury Obligations.** Securities issued by the US Treasury Department and guaranteed by the US government, such as Treasury bills.

» **US Federal Agency Securities.** Debt instruments issued by federal agencies and federally related agencies that are backed by the full faith and credit of the US government. This group of issuers includes:

  » Government National Mortgage Association (Ginnie Mae)

  » Federal Housing Authority

  » US Maritime Administration, which operates within the US Transportation Department

  » Small Business Administration

  » General Services Administration

» **Government-sponsored Enterprises (GSEs).** While the debt of some GSEs is not backed by the full faith and credit of the US government, permitted investments may include GSE loan entitlements, lines of credit or other forms of security with the US Treasury that provide a form of extraordinary support for some GSE securities. This group includes the following GSEs:

  » Federal National Mortgage Association (Fannie Mae) and Federal Home Loan Mortgage Corporation (Freddie Mac)

  » Federal Home Loan Bank (FHLB)

  » Resolution Funding Corporation (REFCORP)

  » Tennessee Valley Authority

» **Money Market Funds.** SEC 2a-7 money market funds, provided that they are rated Aaa-mf, whether assigned through a published rating or a private assessment.

» **US Treasury STRIPS (Separate Trading of Registered Interest and Principal of Securities).** STRIPS are non-callable, non-prepayable zero-coupon instruments derived from selected Treasury bonds and notes with maturities of 10 years or more. STRIPS are created on request. The underlying bonds and notes are separated by the US Treasury into their component parts of principal and interest payments.

» **Bank Deposits.** Funds deposited with banks with a short-term rating of P-1 or a long-term deposit or debt rating that corresponds to a P-1 short-term rating.

Factor: Structural Framework

Why It Matters

The structural framework of a pre-refunded or escrow-backed transaction, as established in the transaction documents, is important because it determines whether the transaction is fully secured by the escrow investments. The structural framework also establishes the obligations of the escrow trustee with regard to the administration of the escrow account and the mitigants to other risks unrelated to the credit quality of the escrowed investments.

Other aspects of the structural framework may add risks to the transaction that may not be addressed by other rating factors in this methodology, and these weaknesses may introduce additional risk scenarios that are difficult to predict. For example, insufficient clarity on the source of payments for certain expenses paid by the trustee could have significant impact on default risk.

This factor has three sub-factors:

Escrow Irrevocability and Administration

It is important for the transaction documents to establish debtholders' security interest and the irrevocability of the escrow in order to prevent the escrow investments from being used for any purpose other than repayment of principal and interest on the debt. Escrow administration is important because clearly-delineated administrative procedures reduce the risk of errors by the escrow trustee that can result in delayed or insufficient funds for the repayment of principal and interest on the debt.

Amendments and Notifications

The escrow agreement's amendment procedures are important because they limit future changes to the escrow agreement that could increase the risk of nonpayment of principal and interest on the debt. Notification procedures inform investors and other market participants of allowable changes .

Bankruptcy Risks and Mitigants

Bankruptcy risks and mitigants are important because a bankruptcy of a party to the transaction could, in the absence of structural mitigants, prevent repayment of the pre-refunded or escrow-backed debt, resulting in credit loss.

Bankruptcy risks include automatic stay risk and preference risk. Automatic stay risk is the risk that a bankruptcy proceeding will postpone or halt an entity's payment of funds, until the bankruptcy court agrees that they may be paid. For example, if an issuer of a pre-refunded transaction enters voluntary or involuntary bankruptcy proceedings, an automatic stay could be placed on the funds and accounts of the transaction, preventing the payment of debt service and leading to a default. Preference risk is the risk that assets deposited into the escrow within a specific time frame in advance of a bankruptcy filing (90 days is a typical preference period) could be subject to disgorgement and unavailable for debt service.

If an issuer of a pre-refunded transaction files for bankruptcy, the court may determine that the escrowed assets are part of the bankruptcy estate and must be shared among the issuer's general creditors, i.e., the pre-refunded bondholders may lose their exclusive right to those assets.

In an escrow-backed transaction, the issuer is typically a municipal conduit. As a conduit, the issuer normally has no assets or revenue outside of the transaction to pay the escrow-backed debt, and its activities are usually very limited by the transaction documents.

Escrow-backed transactions typically include additional parties that have a greater potential to file for bankruptcy, such as a project owner and a project lender. The lender typically makes construction loans to the project owner that pass through the trust accounts of the escrow-backed transaction, although all of the pledged investments stay in the escrow. However, if any of the additional parties files for bankruptcy, the bankruptcy court may determine that the escrowed assets must be shared among the party's general creditors.

A bankruptcy of the trustee, which is a party to pre-refunded and escrow-backed transactions, is unlikely to expose bondholders to the risk of nonpayment of debt service, because the trustee holds the escrow funds as a fiduciary.

How We Assess It

The information we use to assess a pre-refunded or escrow-backed transaction is typically found in the transaction documents, including opinions of counsel. We may also incorporate non-public information.

For a pre-refunded or escrow-backed transaction to be rated under this methodology, the transaction must be fully secured by the escrow investments, and the structural features must substantially mitigate risks that are not related to the credit quality of the escrowed investments. The transaction must also be sufficiently mitigated from bankruptcy risk. A pre-refunded transaction that is not fully secured by the escrow investments or not sufficiently mitigated from bankruptcy risk is rated under the sector methodology relevant to the obligor of the refunded transaction, because the investors in that transaction retain recourse to the obligor. Escrow-backed transactions typically do not have recourse to any other obligor or to any assets that are not in the escrow; therefore, an escrow-backed transaction that is not fully secured by the escrow investments or not sufficiently mitigated from bankruptcy risk introduces risk scenarios to the transaction that are difficult to predict.

ESCROW IRREVOCABILITY AND ADMINISTRATION:

In order for a pre-refunded or escrow-backed transaction to be rated under this methodology, the escrow agreement must include the following provisions or provisions that provide similar protections:

» Escrow deposits are irrevocable and are for the sole benefit of the escrow-secured debtholders.

» The security pledge is limited to the assets in the escrow account.

» The escrow account is held by an independent agent or trustee and the escrow agreement has clear instructions on all aspects of trust administration and a clear succession plan should there be a need for a replacement trustee.

- Neither the trustee nor any other third party can assert a lien on the trust assets for payment of their own fees and expenses.
- The initial escrow investments, as well as all permitted substitution investments, are clearly defined.
- Any substitution of investments is preceded by a required updated cash flow verification report, demonstrating that the escrow funds available after the substitution will be sufficient, without further reinvestment, to pay the debt service due on the transaction in full and on time.
- The transaction documents require that sufficient securities in the portfolio have scheduled maturities on or prior to dates on which any debt service payment or other required payment becomes due, in accordance with the most recent cash flow verification report.
- Transaction documents clearly define which bonds are secured by the escrow and provide detailed instructions on the manner and timing of debt service payments.
- Any disbursement of funds to third parties, including to the borrower, is outlined in the escrow agreement and verified by the accompanying cash flows or a verification report demonstrating sufficiency of the remaining assets in the trust to meet all debt service and other required payments.

In addition, we review the agreements for clarity regarding the sources and uses of funds, including how expenses are paid. A lack of clarity has the potential to create uncertainty about the sufficiency of the escrow, which is necessary for the transaction to be rated under this methodology.

AMENDMENTS AND NOTIFICATIONS:

In order for a pre-refunded or escrow-backed transaction to be rated under this methodology, the escrow agreement must include the following provisions or provisions that provide similar protections:

- Processes and conditions for amending the escrow agreement, as well as the subsequent notification requirements, are clearly defined.
- Amendments to the escrow agreement that do not require 100% bondholder approval are limited to the correction of errors, preservation of the bonds' tax-exempt status or other amendments that do not adversely affect transaction collateral or bondholders' security interest therein.
- There is a requirement for notification to market participants of any proposed amendments to the escrow agreement, substitution of investments within the parameters allowed by the escrow agreement, removal of the escrow trustee, or any other changes to material contractual obligations outlined in the escrow agreement.

BANKRUPTCY RISKS AND MITIGANTS:

For a pre-refunded transaction, we consider that automatic stay risk is sufficiently mitigated where the transaction includes a well-reasoned opinion of counsel that the transaction is defeased; i.e., that transaction creditors do not have recourse to the original issuer. In these cases, we believe that there is very low likelihood that the escrowed funds would be considered part of the issuer's estate if the issuer were to file for bankruptcy. We consider that preference risk for a pre-refunded transaction is sufficiently mitigated where the issuer has a rating of Baa3 or higher at the time the escrow is established and the debt is defeased, because the likelihood of an issuer rated Baa3 filing for bankruptcy during the preference period is low. If an issuer is rated below Baa3 or is unrated, we consider the transaction to be sufficiently insulated from bankruptcy risk where there is a well-reasoned bankruptcy opinion prepared by an experienced, reputable bankruptcy law firm that identifies substantive mitigants to bankruptcy risk associated with the issuer.

For an escrow-backed transaction, we typically consider the automatic stay and preference risks of a municipal conduit issuer to be sufficiently mitigated without consideration of the issuer's credit quality, because bankruptcy remoteness of municipal conduits is typically a settled issue in the marketplace. However, we rate the transaction under the appropriate sector methodology if we considered that (i) the issuer's organizational structure, (ii) its separateness from the related state or municipality and (iii) the effectiveness of the segregation of funds do not sufficiently mitigate bankruptcy risk.

We consider the automatic stay and preference risks associated with the additional parties to an escrow-backed transaction to be sufficiently mitigated where there is a well-reasoned bankruptcy opinion prepared by an experienced, reputable bankruptcy law firm that identifies substantive mitigants to bankruptcy risk associated with these parties. We may also consider their credit ratings, where available.

For pre-refunded transactions, where we consider the bankruptcy risk of the issuer to be insufficiently mitigated, we rate the transaction under the sector methodology relevant to the issuer.

For escrow-backed transactions, there is no recourse to the municipal conduit issuer. Where the bankruptcy risk of the parties to the transaction is insufficiently mitigated, this introduces risk scenarios to the transaction that are difficult to predict. To be rated under this methodology, the bankruptcy risk of the parties to the transaction must be sufficiently mitigated.

Factor: Escrow Sufficiency

Why It Matters

Escrow sufficiency provides important indications of whether the cash flows from the escrow investments are sufficient to cover debt service in full and on time.

How We Assess It

For a pre-refunded transaction, we review an escrow verification report prepared by a third-party certified public accountant, which is typically required for pre-refunded transactions. We consider whether the report demonstrates the sufficiency of escrow securities and cash to pay full and timely debt service on the bonds, without reliance on external support. We also consider whether the escrow investments are consistent with the parameters defined in escrow agreement.

Where the escrow verification report does not demonstrate sufficiency to pay debt service, we rate the transaction under the sector methodology appropriate to the issuer of the refunded transaction.

Escrow-backed transactions do not typically include a third-party verification report. For these types of transactions, we assess the sufficiency of cash flows based on the (i) current yield and maturity schedule of the escrow investments; (ii) the projected interest rates and maturity schedule of the transaction debt; and (iii) the timing of cash flows received on the investments relative to the timing of required payments. Because these transactions are generally undertaken only if the investment inflows meet or exceed the debt service outflows, it is unusual for escrow cash flows to not demonstrate sufficiency to pay debt service. Where the escrow cash flows do not demonstrate sufficiency to pay debt service in full and on time, the rating would reflect our expectation of default and our assessment of the severity of loss upon default.

Other Considerations

Ratings may include additional factors, usually because the factor's credit importance varies widely among the issuers in the sector or because the factor may be important only under certain circumstances or for a subset of issuers. Such factors include financial controls and the quality of financial reporting;; assessments of governance as well as environmental and social considerations; and possible government interference from other levels of government. Regulatory, litigation and liquidity risk also affect ratings.

Following are some examples of additional considerations that may be reflected in our ratings.

Changes in Typical Deal Structure

While pre-refunded and escrow-backed transactions have typically been structured in a relatively similar way in recent years, transactions could include different structural features or a combination of features that would affect our analysis and ratings. Structures may also change in response to changes in regulations and tax laws. In assessing the impact that different structural features may have on default probabilities and loss given default, typical considerations would likely include the way that the structures allocate risk, their impact on the rights and obligations of transaction parties, and our confidence level in how such structures would fare in stress and distress scenarios, which may be informed by opinions of counsel or other third-party opinions or assurances.

Changes in Regulations and Tax Laws

Pre-refunded and escrow-backed transactions are subject to varying degrees of regulatory oversight, as are their counterparties, and changes in regulations, tax law or tax enforcement, particularly if sudden, could have a material impact on the workability and effectiveness of these structures. For instance, a change in federal law regarding the treatment of advance refunding of municipal securities or the transferability of housing tax credits could influence our assessment of the structural framework of a transaction.

Environmental, Social and Governance Considerations

Environmental, social and governance (ESG) considerations may affect the ratings of pre-refunded and escrow-backed transactions. For information about our approach to assessing ESG issues, please see our methodology that describes our general principles for assessing these risks.[3]

Financial Controls

We rely on the accuracy of financial and other information provided by trustees, escrow agents and other third parties related to the transaction in assigning and monitoring ratings in this sector. The quality of this information may be influenced by internal controls, including consistency in reporting policies and procedures.

Liquidity

Liquidity is an important rating consideration for all transactions in this sector. Under the Structural Framework and the Escrow Verification factors, we discuss the quality of permitted investments and the sufficiency and timeliness of cash flow to pay debt service, all of which can affect liquidity. More generally, liquidity issues can arise when there are meaningful mismatches in the timing of cash

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[3] A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

receipts and cash outlays. We form an opinion on the propensity of the transaction to introduce liquidity shortfalls as well as likely near-term liquidity requirements from the perspective of both sources and uses of cash. Ratings can be heavily affected by extremely weak liquidity.[4]

Event Risk

We also recognize the possibility that an unexpected event could cause a sudden and sharp decline in the fundamental creditworthiness of the transaction. Event risks — which are varied and can include natural disasters, legal judgments, pandemics, significant cybercrime events, and abrupt changes in state or federal policy — can overwhelm even a stable pre-refunded or escrow-backed transaction.

4 A link to a list of our cross-sector methodologies can be found in the "Moody's Related Publications" section of this report.

Assigning Instrument-level Ratings

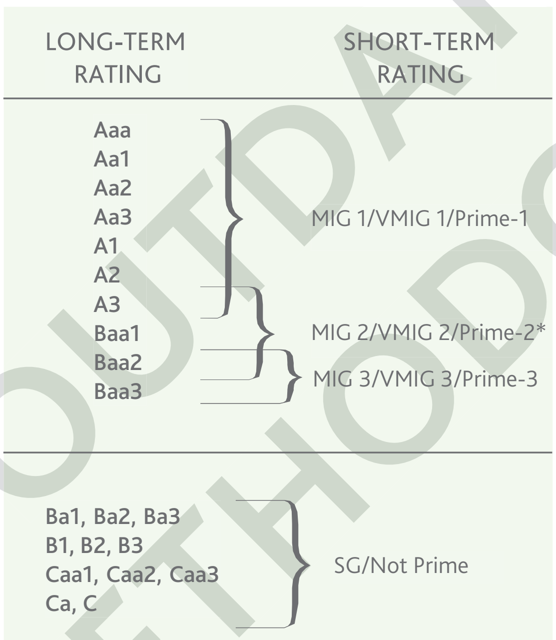
After considering the rating factors, other rating considerations and relevant cross-sector methodologies, we typically assign one or more instrument-level ratings.

For a transaction that matures within three years, we may assign a short-term rating.[5] The standard linkages between long-term and short-term ratings shown in Exhibit 2 below (also see *Rating Symbols and Definitions*) represents the highest possible short-term rating that may be assigned to a pre-refunded or escrow-backed transaction based on its long-term rating. We also consider whether the transaction's liquidity is commensurate with the short-term rating indicated by the standard correspondence.

We typically append a hash sign (#) to the ratings of debt secured by escrow investments that are US government obligations (also see *Rating Symbols and Definitions*).

EXHIBIT 2

Mapping to the Short-term Rating from the Long-term Rating[6]



*While the mapping illustrated above includes some overlap in the short-term rating that can be assigned from a given long-term rating, issuers with long-term ratings between A3 and Baa2 typically map to MIG 2/VMIG 2/Prime-2.

5 Please see our sector methodology that discusses municipal short-term ratings and see *Rating Symbols and Definitions.* A link to a list of our sector and cross-sector methodologies and to *Rating Symbols and Definitions* can be found in the "Moody's Related Publications" section.

6 Please also see our cross-sector methodology that discusses short-term ratings and *Rating Symbols and Definitions*. A link to a list of our sector and cross-sector methodologies and a link to *Rating Symbols and Definitions* can be found in the "Moody's Related Publications" section.

Key Rating Assumptions

For information about key rating assumptions that apply to methodologies generally, please see *Rating Symbols and Definitions*.[7]

Limitations

In the preceding sections, we have discussed the factors, many of the other rating considerations that may be important in assigning ratings. In this section, we discuss limitations that pertain to the overall rating methodology.

General Limitations of the Methodology

This methodology document does not include an exhaustive description of all factors that we may consider in assigning ratings in this sector. Transactions in the sector may face new risks or new combinations of risks, and they may develop new strategies to mitigate risk. We seek to incorporate all material credit considerations in ratings and to take the most forward-looking perspective that visibility into these risks and mitigants permits.

Ratings reflect our expectations for the future performance of an issuer or transaction; however, as the forward horizon lengthens, uncertainty increases and the utility of precise estimates, as factor inputs or in other rating considerations, typically diminishes. Our forward-looking opinions are based on assumptions that may prove, in hindsight, to have been incorrect. Reasons for this could include unanticipated changes in any of the following: the macroeconomic environment, general financial market conditions, industry competition, disruptive technology, or regulatory and legal actions. In any case, predicting the future is subject to substantial uncertainty.

[7] A link to *Rating Symbols and Definitions* can be found in the "Moody's Related Publications" section.

Moody's Related Publications

Credit ratings are primarily determined through the application of sector credit rating methodologies. Certain broad methodological considerations (described in one or more cross-sector rating methodologies) may also be relevant to the determination of credit ratings of issuers and instruments. A list of sector and cross-sector credit rating methodologies can be found here.

For data summarizing the historical robustness and predictive power of credit ratings, please click here.

For further information, please refer to *Rating Symbols and Definitions*, which is available here.

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