MOODY'S
INVESTORS SERVICE

RATING METHODOLOGY

US Housing Finance Agency Multifamily Methodology

Table of Contents:

SUMMARY	1
OVERVIEW	2
SCORECARD	2
HOW TO APPLY THE SCORECARD	13
DISCUSSION OF RATING OUTLIERS FOR SCORECARD MAPPING	14
APPENDICES	15
MOODY'S RELATED PUBLICATIONS	32

Analyst Contacts:

NEW YORK +1.212.553.1653

David A. Parsons +1.212.553.4537
Assistant Vice President - Analyst
david.parsons@moodys.com

Florence Zeman +1.212.553.4836
Associate Managing Director
florence.zeman@moodys.com

Kendra M. Smith +1.212.553.4807
Managing Director - Public Finance
kendra.smith@moodys.com

MOODY'S CLIENT SERVICES:
London: +44.20.7772.5454
New York: +1.212.553.1653

This rating methodology replaces the *US Housing Finance Agency Multifamily Methodology* published in November 2016. We have removed outdated references in Appendix C. We have also made editorial changes to Appendix C to enhance readability.

Summary

This methodology explains our approach to assigning ratings to bond programs issued by US housing finance agencies (HFAs) that are secured by portfolios of multifamily loans. Our analysis for this sector covers credit factors that are common across all public finance sectors such as financial strength and governance, as well as housing sector specific factors such as multifamily mortgage loan portfolio characteristics and performance.

Our multifamily bond ratings are forward-looking assessments of the relative credit worthiness of the bonds supported by multifamily portfolios, based on our analysis of four broad credit factors:

- Financial Position
- Loan Portfolio
- Bond Program Structure
- Management and Governance

We use a scorecard (Appendix A: Scorecard) which creates quantitative ranges for several key factors and assigns a weight to each of those factors. The scorecard does not provide an exhaustive treatment of all factors that we consider in arriving at a rating, but it is designed to assist the reader in understanding the qualitative and quantitative considerations that are usually most significant, as well as providing weights which represent an approximation of the typical importance of respective factors for rating decisions.

Overview

Multifamily bond programs ("programs") denote multiple series of bonds issued under a set of legal documents, known as open or parity indentures, that allow for cross-collateralization for multiple series of bonds that are issued over time and carry the same security pledge. All assets, including the mortgage loans purchased under each series of bonds, are pledged to the program and are the primary source of repayment for all of the bonds issued under the program. HFAs manage their new multifamily lending as part of a broad program, rather than as fully discrete standalone or closed financings.

Bond proceeds are used primarily to finance multifamily mortgage loans and fund bond reserves. The loans may be uninsured, federally insured or securitized into mortgage-backed securities (MBS) guaranteed by Ginnie Mae, Fannie Mae or Freddie Mac, and the projects may receive federal rental subsidies or initial equity through federal and/or state low-income housing tax credits.

The multifamily bond program ratings are separate and distinct from the ratings maintained on other HFA debt which are not the subject of this publication, such as bonds that finance single family mortgages, HFA issuer ratings and ratings on bond programs where the primary security is the general obligation pledge of the HFA.

HFAs are agencies established by state or local law to provide financing for affordable housing. HFAs sell tax-exempt and taxable housing bonds and use the proceeds to finance single-family mortgage loans for low- and moderate-income, first-time homebuyers, or for the construction, acquisition and/or rehabilitation of multifamily rental apartments targeted to tenants with incomes below certain thresholds established by government regulations. They are generally self-supporting, primarily paying bond debt service and expenses from revenue generated by the loans they finance. Some HFAs have also been involved in other activities, such as issuing bonds for economic development, infrastructure, or privatized military housing which are also not subject to this methodology.

Scorecard

Our ratings result from an assessment of quantitative and qualitative credit factors. No quantitative model alone can fully capture the complex set of factors that determine the future performance of the programs, especially in light of active HFA management of loans. However, there are certain program attributes that provide important benchmarks for our analysis and will be important rating drivers. This methodology includes four measurable key credit factors: Financial Position, Loan Portfolio, Bond Program Structure, and Management & Governance. We have created a scorecard in order to present these credit factors in a useable format. An additional credit factor - Legal Framework and Covenants - is not incorporated into the weighted scorecard-indicated outcome, but rather describes the standards which, if not met, can result in an outcome that differs from what would have otherwise been achieved.

Multifamily Housing Bond Scorecard

Broad Scorecard Factors	Factor Weighting	Sub-Factors	Sub-factor Weighting
Financial Position	45%	Balance Sheet Strength	20%
		Cash Flow Projections	15%
		Historical Financial Performance	10%
Loan Portfolio	25%	Portfolio Performance	10%
		Portfolio Characteristics	5%
		Mortgage Type	5%
		State and Local Real Estate Conditions	5%

Multifamily Housing Bond Scorecard

Broad Scorecard Factors	Factor Weighting	Sub-Factors	Sub-factor Weighting
Bond Program Structure	15%	Debt Structure	10%
		Counterparties	5%
Management & Governance	15%		15%
Total	100%	Total	100%

Source: Moody's Investors Service

Factor 1: Financial Position (45%)

Why It Matters

This factor assesses the financial strength of the program based on its balance sheet strength, future cash flow projections, and historical financial performance. Our ratings incorporate our expectations of future financial and operating performance, and both historical and projected financial results are assessed in the rating process. Historical operating results help us understand the pattern of the program's performance and how it compares to the performance of its peers. They also assist us in evaluating whether projected financial results are realistic. A strong financial position affords a program flexibility in generating revenues that can mitigate risks that may arise from unforeseen economic and financial conditions, including periods of elevated losses due to multifamily mortgage loan delinquencies and foreclosures, as well as stresses to periodic cash flows arising from debt structure and counterparty exposure. Cash flow projections provide a basis for assessing the future ability of a program to pay debt service and maintain balance sheet strength under a variety of scenarios. The following describes the financial position sub-factors we include in the scorecard and their relative weights.

How We Measure Balance Sheet Strength (20%)

One of the most important metrics used to assess the financial position of a multifamily program is the program's net assets as expressed in the program's asset-to-debt ratio (PADR).

The degree to which a bond program is over-collateralized by loans and other assets, such as cash and investments, is one important measure of the program's ability to withstand unanticipated financial stress from outside forces. Stress can arise from a number of factors including loan delinquencies, construction/lease-up risk, cash flow stress from non-level debt structures, and stresses associated with variable rate debt.

PADR is calculated by dividing the program assets by the total amount of bonds outstanding plus accrued interest. This calculation is performed after making certain adjustments to the financial statements to eliminate all intangible accounting entries such as deferred costs, loan loss reserves and bond and loan discounts (see Appendix D: HFA Financial Statement Analysis).

In order to maintain a score on this factor consistent with an investment grade rating, programs are expected to have at least a 1.00 PADR.

For programs scoring at levels equivalent to Aa or higher for this factor, the following PADR levels, which incorporates a benchmarked loan valuation, will be maintained.

- 1.10 for Aaa
- 1.04 - 1.10 for Aa1
- 1.02 - 1.04 for Aa2
- 1.00 - 1.02 for Aa3

For MBS programs, Aaa (based on the current rating of the US government and may be adjusted if rating changes) ratings can be achieved on this factor by maintaining a 1.00 PADR since our analysis relies on the assessment of the MBS guarantor and not the underlying mortgage portfolio.

In assessing the balance sheet strength of a program, we review both the current financial position as well as the projected strength as demonstrated in the cash flows.

Financial Position (45%)

	Aaa	Aa	A	Baa	Ba	B and Below
Balance Sheet Strength (20%) (Debt)	Program Net Assets are highly over-collateralized to support loan valuations benchmarked at the most stressful levels and maintain a net Program Asset to Debt Ratio (PADR) of 1.10x. PADR of 1.00x for Mortgage Backed Securities (MBS) programs, FHA, FHA- risk share *	Program Net Assets are sufficient to support loan valuations benchmarked at very stressful levels and maintain a net PADR of 1.10- 1.04 (Aa1); 1.04- 1.02 (Aa2); 1.02 - 1.00x (Aa3).	Program Net Assets are sufficient to support loan valuations benchmarked at stressful levels and maintain a net PADR above 1.00x.	Program Net Assets are sufficient to support loan valuations benchmarked at moderate levels and maintain a net PADR at 1.00x.	Program Net Assets are only positive before incorporating loan valuation	Program Net Assets are below 1.00x; cash flows demonstrate that only a portion of loan losses can be covered

*Based upon current US Government rating of Aaa
Source: Moody's Investors Service

Multifamily Mortgage Loans Benchmarking

In order to assess the risk to bondholders of loan defaults and losses within the program's portfolio, we "benchmark" each loan type (unsubsidized, subsidized and enhanced) to an internally established sector-wide debt service coverage ratio (DSCR) for each rating level. The loan portfolio characteristics used for benchmarking are built from data for each property from the project's financial statement and include the annual net operating income and mortgage loan debt service, the type of loan, and level of insurance. With this data, we calculate the DSCR for each property and compare the DSCR to our established benchmark for the loan type and program rating level. Loans are then assessed full or partial valuations based on this comparison. Any adjustment to the loan balances are applied as a capital charge to the balance sheet. We may also request that any adjustment be applied in the cash flows. (See Appendix B: Multifamily Mortgage Loans Benchmarking.)

How We Measure Cash Flow Projections (15%)

Review of consolidated cash flow projections is a critical part of our analysis. Consolidated cash flow projections should reflect updated loan, bond, and fund balances, with opening balances tied to the most recent audited financial statements.

The cash flow projections measure the ability of the program to meet its debt service obligations and maintain asset-to-debt levels under a variety of potentially stressful interest rate and loan default scenarios. We will assess the ability of the programs to demonstrate sufficient revenues to pay debt service and program expenses in these stressful scenarios, while accurately reflecting the program's legal structure as set out in the indenture. Cash flows for programs scoring Aaa and Aa in this factor demonstrate a robust and solid ability to absorb future financial stresses by meeting stress tests under all scenarios. These programs would exhibit a growing PADR that does not drop below applicable thresholds with loan valuations benchmarked. If cash flows fail to meet one or more stress tests, the program would receive a lower score on this factor. Please see Appendix C for our Approach to State HFA Cash Flow Projections.

Financial Position (45%)

	Aaa	Aa	A	Baa	Ba	B and Below
Cash Flow Projections (15%)	Robust ability to absorb future financial stresses under all scenarios in the cash flows	Solid ability to absorb future financial stresses under all scenarios in the cash flows	Moderate ability to absorb future financial stresses under all scenarios except for the most stressful scenarios. Any projected shortfalls are small and occur in the later years of the program (i.e. more than 10 years)	Limited ability to absorb future financial stresses. The extent of the shortfall, speed of the recovery and under which stress scenario it occurs will be considered	Very limited ability to absorb future financial stresses and cash flows demonstrate that the program is able to cover debt service only under cash flow runs with limited stress tests	No ability to absorb financial stress and cash flow scenarios demonstrate that revenues do not cover debt service

Source: Moody's Investors Service

How We Measure Historical Financial Performance (10%)

As detailed in Appendix D: HFA Financial Statement Analysis, we analyze historical financial performance based on an HFA's audited financial statements to gauge a multifamily program's intrinsic strength and the relative strength of different programs. We monitor the trend of historical financial performance by assessing a program's average net asset ratio (adjusted net assets as a percentage of outstanding bonds) as well as its average profitability (net operating revenue as a percentage of total operating revenue) over five years in order to understand the comparative performance of the programs through economic cycles.

In addition, we consider the HFA's available resources outside of the rated multifamily program. Unforeseen stresses resulting from financial turmoil and difficult times can substantially erode assets and impair a multifamily program's creditworthiness. Therefore, the level of resources an HFA has available to support its various programs and its willingness to utilize these resources become important considerations in evaluating a multifamily program's strength.

Financial Position (45%)

	Aaa	Aa	A	Baa	Ba	B and Below
Historical Financial Performance (10%)	Program demonstrates high and growing net asset ratios (e.g. above 15% combined fund balance as % of bonds outstanding on average over 3 years)	Program contains moderate but growing net asset ratios (e.g. 8% - 15% combined fund balance as % of bonds outstanding on average)	Program contains adequate net asset ratios (e.g. 3% - 8% combined fund balance as % of bonds outstanding on average) - Minimal Growth	Program may exhibit stable to declining net asset ratios but remains above 1% combined fund balance as % of bonds outstanding on average	Program has exhibited modest declines in net asset ratio but net assets exceed liabilities	Program has exhibited declines and liabilities exceed net assets
	Consistently high profitability (e.g. 15% on average)	Consistent profitability over the long term (e.g. 10% - 15% on average)	Consistent profitability over the long term (e.g. 3% - 10% on average)	Profitability may average 1-3% or show periods of loss, but losses are offset by net assets and not expected to continue	Consistent losses but net assets are expected to cover such losses over the medium term	Net assets are unable to cover losses
	Strong levels of resources for maintaining the creditworthiness of the program under stressful circumstances	Ample resources for maintaining the creditworthiness of the program under stressful circumstances	Satisfactory levels of resources for maintaining the creditworthiness under standard circumstances	Sufficient resources for maintaining the creditworthiness under standard circumstances	Limited resources for maintaining the creditworthiness under standard circumstances	Insufficient resources for maintaining the creditworthiness under standard circumstances

Source: Moody's Investors Service

Factor 2: Loan Portfolio (25%)

Why It Matters

Loans in a program's portfolio are typically the primary assets backing the bonds. We review a number of factors to assess how the portfolio will perform over the life of the bonds, including levels of delinquencies and foreclosures, characteristics of the portfolio, local real estate market conditions, and asset management. The following describes the loan portfolio sub-factors we include in the scorecard and their relative weights.

How We Measure Portfolio Performance (10%)

We measure the performance of the loan portfolio in order to assess how the portfolio may perform in the future. We review data on each of the multifamily mortgage loans such as loan type, subsidy or insurance, occupancy, debt service coverage and physical condition. These data points serve as indicators of the likely relative performance of the loans in the portfolio. HFA multifamily defaults have been rare, and delinquencies are usually due to pockets of soft real estate markets, competitive forces, or steeply-escalating property operating expenses.

Programs scoring at the Aaa or Aa level for this factor would have portfolios with low (less than 2%) "Seriously Delinquent" loan levels (loans that are 90 or more days delinquent or in foreclosure) and weighted average occupancy levels at or above 95%.

Loan Portfolio (25%)

	Aaa	Aa	A	Baa	Ba	B and Below
Portfolio Performance (10%)	Seriously delinquent* and foreclosure rates are very low (i.e. less than 1%); delinquency trends have been favorable Weighted average occupancy 97%+ Federal MBS or FHA- risk share programs**	Seriously delinquent* and foreclosure rates are very low (i.e. less than 2%); delinquency trends have been favorable Weighted average occupancy 95%+	Seriously delinquent* and foreclosure rates are low (i.e. 2% - 5%); trends have been favorable Weighted average occupancy 93%-95%	Seriously delinquent* and foreclosure rates are moderate to high (i.e. 5% - 8%); trends display modest weakness Weighted average occupancy 92%-88%	Seriously delinquent* and foreclosure rates are high (i.e. 8% - 12%); trends reveal increasing weaknesses in the portfolio Weighted average occupancy 80%-85%	Seriously delinquent* and foreclosure rates are very high (i.e. 12-20%) Weighted average occupancy 80%-84%

* Seriously delinquent means loans that are 90+ days delinquent or in foreclosure
** Based upon current US Government rating of Aaa
Source: Moody's Investors Service

How We Measure Portfolio Characteristics (5%)

We focus on several characteristics of an HFA's multifamily mortgage loan portfolio in our analysis: i) portfolio diversification or concentration, (ii) credit enhancement or subsidy type, (iii) type and depth of insurance coverage for the loans, and iv) distribution of loan vintages contained in the portfolio. These factors are described in more detail in the sections below.

Portfolio diversification or concentration: When assessing this factor, we focus on the geographic distribution of the loan portfolio within the state or the HFA's service area, the loan type and the property type. Well-diversified portfolios are more likely to survive cyclical business and real estate downturns with fewer losses to the portfolio to the degree that only a portion of the properties is subject to weaker markets. Generally, a portfolio with statewide diversity better mitigates the risks of exposure to weak local economies and will consequently be viewed more favorably. On the other hand, we do note that HFAs with concentrations in availability-constrained or expensive markets have likely benefited from the tightness in these real estate markets despite this concentration risk. Diversification can reflect the factor of time as well; portfolios with concentrations of loans under construction or in lease-up phase present a higher risk profile than stabilized multifamily housing loans and will be viewed unfavorably given the higher likelihood of default.

Credit enhancement and subsidy type: The level and characteristics of any loan insurance, guaranty, or credit enhancement; the subsidy on the project; and the level of underlying equity investment help us determine the levels of protection that the project has in the event of deteriorating real estate conditions and losses from defaults. The depth and quality of enhancement, as well as the ability to meet the payment obligations over the life of the loan, are key considerations. HFA loan portfolios typically benefit from the strong security provided by insurance through traditional FHA insurance and/or FHA Risk Share, or rental subsidies provided by HUD's Section 8 program.

Loan vintage and property type: We expect that most of the properties in the portfolio will be multifamily affordable rental properties with tenant income restrictions for compliance with tax rules. Properties which differ from these, such as assisted living facilities with more limited market appeal, change the risk profile of the portfolio. We review the type and age of the properties to determine the likely demand for the units, the physical condition and loan seasoning. In general, seasoning is a credit strength, as seasoned properties are more likely to be financially stable. However, property condition tends to deteriorate with age, causing maintenance and repair costs to escalate, which is mitigated by the ability of management to maintain and prudently draw upon capital reserves to fund improvements.

Loan portfolio size: Generally, the larger the portfolio, the better the portfolio performs, as the benefits of the portfolio structure can mitigate the losses from individual loans on the portfolio. It is anticipated that the greater the number of loans that make up a portfolio, the more diversification that is provided to the financing and the less likely that a default will occur on the outstanding debt. Additionally, although portfolio size typically reduces the likelihood that a portion of the loan portfolio would experience a default, it is also beneficial that the portfolio consists of a diverse group of developers with consistent individual loan sizes. This type of diversification spreads the risk of loss and ensures that the problems of any one developer should not cause a portfolio to fail.

Loan Portfolio (25%)

	Aaa	Aa	A	Baa	Ba	B and Below
Portfolio Characteristics (5%)	Diverse mix of properties with over 15,000 units under management More than 75% of loans carry highest quality mortgage insurance or low Loan-to-Values (LTVs) Less than 5% of properties are in construction Federal MBS or FHA- risk share programs**	Diverse mix of properties with 5,000 - 10,000 units under management More than 65% of loans carry highest quality mortgage insurance or low LTVs 5% -10% of properties are in construction	Diverse mix of properties with under 5,000 units under management More than 50% of loans carry highest quality mortgage insurance or low LTVs 10% -15% of properties are in construction	Property mix is concentrated amongst three or more sectors with under 1,000 units under management Less than 50% of loans carry highest quality mortgage insurance or low LTVs 15% -25% of properties are in construction	Property mix is concentrated amongst two or more sectors with under 1,000 units under management High LTVs and low quality mortgage insurance More than 25% of properties are in construction	Highly concentrated property mix and under 1,000 units under management High LTVs and a substantial portion of the portfolio does not have mortgage insurance More than 35% of properties are in construction

** Based upon current US Government rating of Aaa
Source: Moody's Investors Service

How We Measure Mortgage Type (5%)

The majority of multifamily mortgage loans that comprise the HFA loan portfolios are whole loans with fixed-coupon and level-payment that amortize fully over a period of 30 to 40 years. The full amortization loan type eliminates the risk that a property would not be able to refinance a bullet maturity. There is also less volatility associated with fixed rate loans since there are no unexpected increases in mortgage payments. Additionally, first lien loans have a stronger profile than second or lower lien loans and, in addition to a lower likelihood of non-payment, would also generate a higher recovery. Accordingly, programs comprised of 75% or more of these first lien fixed rate loans would score at the Aa level or higher for this factor.

Programs that are comprised of loans securitized by Ginnie Mae, Fannie Mae or Freddie Mac or credit enhanced with FHA Risk Sharing currently score at the Aaa (based on the current rating of the US government) level for this factor.

Loan Portfolio (25%)

	Aaa	Aa	A	Baa	Ba	B and Below
Mortgage Type (5%)	More than 90% of loan types are fixed- rate, first lien, level- payment Federal MBS or FHA- risk share programs**	75%-90% of loan types are fixed-rate, first lien, level- payment	60%-75% of loan types are fixed-rate, first lien, level- payment	50%-60% of loan types are fixed-rate, first lien, level- payment	40%-50% of loan types are fixed-rate, first lien, level- payment	Less than 40% of loan types are fixed-rate, first lien, level- payment

** Based upon current US Government rating of Aaa
Source: Moody's Investors Service

How We Measure State and Local Real Estate Conditions (5%)

We review economic data affecting the local housing markets across a state, as well as data for a state, in order to include a forward-looking measure of trends in multifamily mortgage loan performance. Multifamily vacancies and housing affordability is indicative of the relative demand for multifamily housing. Employment and other indicators of stability in the housing markets are also analyzed.

Loan Portfolio (25%)

	Aaa	Aa	A	Baa	Ba	B and Below
State Real Estate Conditions (5%)	State multifamily housing vacancy rates are less than 5% and are projected to remain stable within the next 12 months Employment and other economic indicators support stability in local housing market Federal MBS or FHA- risk share programs**	State multifamily housing vacancy rates at or above 5% but are projected to stabilize around 5% within the next 12 months Employment and other economic indicators support stability in local housing market	State multifamily housing vacancy rates are between 10% -5% and are projected to remain at those levels within the next 12 months Employment and other economic indicators show some weakness in the local housing market	State multifamily housing vacancy rates are over 10% and are projected to remain at these elevated levels over the next 12 months Employment and other economic indicators lead to concern about local housing market	State multifamily housing vacancy rates are over 15% and are projected to remain at these elevated levels over the next 12 months) Employment and other economic indicators are substantially inferior to national average	State multifamily housing vacancy rates are over 20% and are projected to remain at these elevated levels over the next 12 months) Employment and other economic indicators are far inferior to national average

Source: Moody's Investors Service

Factor 3: Bond Program Structure (15%)

Why It Matters

Two factors relating to the bond program's structure are included in the scorecard: (i) debt structure and (ii) counterparty strength. Each of these factors can add additional credit risks, as discussed below.

How We Measure Debt Structure (10%)

HFAs employ a variety of debt structures in their programs in order to achieve the most cost-effective financings. Although we review all debt structures as part of the rating process, we focus specifically on variable rate debt which adds a level of complexity to a multifamily program. Variable rate debt exposes the programs to a number of risks, including acceleration of bond principal, increased liquidity or credit facility fees, inability to rollover expiring liquidity facilities and rising interest rates if swaps are terminated prior to the bonds' maturity. While some of the effects of variable rate debt are, in part, captured in the cash flow projections, as discussed previously under Factor 1, there are additional risks that could add volatility to a program. Therefore, we evaluate the presence of variable rate debt as a separate factor.

While limited in HFA multifamily programs, some HFAs issued variable rate debt instead of fixed-rate bonds. This can have several benefits: it reduces the program's overall costs of funds, produces mortgages with interest rates that are competitive with conventional market mortgage rates, and simultaneously achieves the full spread allowable between bond yields and mortgage yields allowed by federal tax law.

The majority of the variable rate bonds are variable rate demand bonds (VRDBs) which introduce liquidity risk to the programs. Liquidity risk arises when a variable rate bond has a demand feature that allows bondholders to tender their bonds back to the issuers at various times, or if the bonds have bullet maturities that require refinancing. HFAs generally obtain external liquidity facilities in the form of standby bond purchase agreements (SBPAs) from banks or other financial institutions to deal with these risks. We give strong consideration to the risks of bondholder tenders resulting in unremarketed bonds being purchased by the liquidity provider (bank bonds). Bank bonds carry higher interest rates and require repayment of principal on an accelerated basis (often three to five years). Bonds that remain bank bonds for prolonged periods therefore impose additional stress on the program over time. The liquidity facilities also expose the program to rollover risk. Replacement may be at increased cost, and the VRDBs will become bank bonds if the liquidity facility expires and cannot be renewed or replaced, also requiring accelerated repayment at higher interest rates.

Use of variable rate debt can produce interest rate risk for the program because the rate on the bonds can fluctuate while the funds for bond repayment are derived primarily from fixed-rate mortgage loans. Most variable rate bonds are combined with interest rate swaps that serve to hedge the interest rate risk. The program makes fixed-rate payments to a swap counterparty in exchange for periodic variable rate payments. However, a swap does not fully insulate the program from interest rate risk as there is often a spread between the cost of the bonds and the variable rate payments received from the counterparty.

Bond Program Structure (15%)

	Aaa	Aa	A	Baa	Ba	B and Below
Debt Structure (10%)	Variable rate debt as a percent of program bonds outstanding is 0% - 10% and unhedged variable rate debt is no more than 5% of bonds outstanding or primarily hedged with variable rate investments Program resources amply cover contingent liabilities (e.g. swaps)	Variable rate debt as a percent of program bonds outstanding is 10% - 25% and unhedged variable rate debt is no more than 10% of bonds outstanding or primarily hedged with variable rate investments Program resources are sufficient to cover contingent liabilities (e.g. swaps)	Variable rate debt as a percent of program bonds outstanding is 25% - 45% and unhedged variable rate debt is no more than 15% of bonds outstanding or substantially hedged with variable rate investments Program resources are substantial to cover contingent liabilities (e.g. swaps)	Variable rate debt as a percent of program bonds outstanding is 45% - 70% and unhedged variable rate debt is no more than 20% of bonds outstanding with a portion hedged with variable rate investments Program resources are adequate to cover contingent liabilities (e.g. swaps)	More than 70% of program debt is variable rate debt and more than 25% of bonds outstanding is unhedged Program resources are not sufficient to cover contingent liabilities (e.g. swaps)	More than 70% of program debt is variable rate debt and more than 50% of bonds outstanding is unhedged Program resources are not sufficient to cover contingent liabilities (e.g. swaps)

Source: Moody's Investors Service

How We Measure Counterparties (5%)

Most multifamily bond programs rely on financial support from outside counterparties in one way or another, including mortgage insurance, rental subsidies, swaps, or investment contracts. We assess the consequent counterparty risk by gauging the effect upon program cash flow, where the performance of counterparties with lower ratings may be haircut (see Appendix C for more information). In addition, we assess the financial strength of the counterparties as measured by their ratings; the exposure of the program to these counterparties; and the diversification of the counterparties within the program, which gauges the likelihood that non-performance by any one counterparty will be significant. Counterparties include mortgage insurers, providers of rental subsidies, letters of credit banks, investment providers, liquidity providers, SBPA providers, and swap providers.

Bond Program Structure (15%)

	Aaa	Aa	A	Baa	Ba	B and Below
Counterparties (5%)	Majority of counterparties rated at or above A1/P-1 (Aa3 if no short-term rating) Program financial resources can mitigate funds invested with providers at lower rating levels Counterparty exposure is well distributed or not material to the credit	Majority of counterparties rated at or above A2/P-1 Program financial resources can mitigate funds invested with providers at lower rating levels Counterparty exposure is moderately distributed and is expected to have minimal impact	Majority of counterparties rated at or above A3 Program financial resources can mitigate funds invested with providers at lower rating levels Counterparty exposure is significant and may be material to the credit	Majority of counterparties rated at or above Baa3 Program financial resources may be able to mitigate funds invested with lower rated providers under most circumstances Substantial counterparty concentration	Majority of counterparties are rated in the Ba category Program financial resources are unable to mitigate funds invested at lower levels	Majority of counterparties rated below the Ba3 category

Source: Moody's Investors Service

Factor 4: Management and Governance (15%)

Why It Matters

Given the dynamic nature of most multifamily programs and the benefit of program oversight by the HFA, the management and governance of an HFA is a key rating driver for these programs.

How We Measure Management and Governance

We assess the HFA's management ability to administer their loan portfolio and the overall financial performance of their programs, to implement strategies that minimize losses from delinquencies and defaults, and to maintain credit strength of their loan portfolios over the long term. A management team that has demonstrated the ability to reduce risks or plan for challenges is likely to increase bondholder security.

As part of our ongoing analysis of HFA program risks, we assess the depth and breadth of the HFA management by considering its tenure and expertise, the depth of staff experience, succession planning, and "key person risk." In general, we ascertain the depth and variety of the HFA's risk management practices used to anticipate and reduce risks of their lending programs. We analyze various factors including the issuer's loan underwriting process, asset management procedures, portfolio monitoring practices, and their understanding of the bond programs' strengths, challenges, and future direction and the risks that are being undertaken under various structures. Management's knowledge of and compliance with federal and state regulations and the implications of non-compliance is also an important factor. While we recognize that HFAs often use third parties to assist them in these tasks, we look at the level of management involvement in these activities as well as their oversight of the third parties and understanding of products provided to them from outside sources.

In addition, both the financial resources of the HFA and management's decisions about when to deploy these resources are credit factors, as an issuer with more financial resources will have more flexibility and tools to address the challenges that they may face. Management's record of ability and willingness to apply resources to support its bond programs may also be a factor. This could include depositing funds to a bond program facing difficulties, providing grants to mortgagors, maintaining staff levels to monitor programs even if revenue or activity from these programs has declined, or increasing staff to work out challenges.

Since the board's role is also an important part of the management and governance assessment, their makeup and the level of their involvement in the policies and activities of the HFA will be considered. Aspects of board oversight to be evaluated may include: the process of board selection and frequency of meetings, procedures for reporting and approving key decisions at the board level, experience level of board members, use of an internal audit function, and board-approved policies on investments, debt management and liquidity.

Management and Governance (15%)

	Aaa	Aa	A	Baa	Ba	B and Below
Management and Governance (15%)	Highly effective management with substantial financial and personnel resources available to maintain and grow the financial position of the program Deep understanding of program's strengths, challenges, and future direction Proactive in swiftly and appropriately addressing challenges Superior governance with highly experienced and involved board members providing oversight	Very strong management with significant financial and personnel resources available to maintain the program Very Strong understanding of program's strengths, challenges, and future direction Swift ability and willingness to appropriately address challenges Strong governance with very experienced and involved board members providing oversight	Solid management with significant financial and personnel resources to maintain the program Solid understanding of program's strengths, challenges, and future direction Prompt responsiveness to addressing challenges Capable governance with experienced and involved board members providing oversight	Adequate management with sufficient financial and personnel resources to maintain the program Understands financial strengths and challenges, but may be dependent on financial advisors/professionals Timely willingness to address challenges Capable governance with experienced involved board members providing oversight	Limited management or oversight of the program by the Issuer, program is generally governed by the trustee following the terms of the legal documents Minimal board involvement	Poor management or oversight of the program

Source: Moody's Investors Service

Factor 5: Legal Framework and Covenants

Why It Matters

The legal framework and structure of the bond program is analyzed to determine the level of revenue and assets that will be available to cover bond debt service, redemption obligations, and expenses when due.

How We Measure Legal Framework and Covenants

This factor is not scored quantitatively in the scorecard, but rather is assessed separately according to standards which, if not met, can result in an outcome that differs from what would have otherwise been achieved.

Our review of the program's legal framework and covenants will incorporate but are not limited to the following aspects:

TYPE OF PLEDGE

The security for the bonds is generally clearly defined, including a statement of assets and revenues pledged to repayment of the bonds, the terms of the pledge, and whether the bonds are special limited obligations or general obligations of the HFA. Generally, the mortgages or MBS financed under the program and/or the revenues from the mortgages/MBS are subject to the lien of the indenture. If mortgages or MBS are not pledged, our evaluation will include a determination of the security for the program.

FLOW OF FUNDS

We review the flow of funds to assess the timing and priority of payment to bond holders relative to the payment of fees. In general, flow of funds which rank bond holder payments higher are viewed as credit positives.

Another area within the flow of funds that is a credit consideration is the ability of an HFA to remove excess funds above and beyond pre-determined expenses from a program. HFA programs generally use one of two flow of funds structures – closed or open loops. A closed-loop flow of funds retains excess revenues or uses excess revenue to redeem bonds which tends to grow program fund balances over time. However, an open-loop flow of funds allows revenues to be transferred out of the program, often, but not always, after an asset or cash flow sufficiency test as defined in the indenture has been met. The ability to remove funds is considered in the context of management's stated goals and plans for the program as well as their demonstrated actions in this regard.

REDEMPTION PROVISIONS

We review the redemption provisions of a bond program to assess whether the program's cash flow projections are consistent with the provisions of the trust indenture. We also assess whether these provisions can add potential stress to the bond program. Some issues that will be considered include the redemption priority, the source of funds used for a redemption and ensuring that there are sufficient funds available to cover mandatory redemptions for events such as a determination of taxability.

RESERVE FUNDS

Reserve funds provide protection to bondholders if cash flow is temporarily disrupted. They are held for the benefit of bondholders in the event of a disruption in the receipt of mortgage loan payments. We have seen reserve fund requirements range from 3% of loans outstanding to maximum annual debt service. The sufficiency of the reserve requirements will be assessed based on the characteristics and the rating level of the program.

PERMITTED INVESTMENTS

The investment strategies and the types of investments permitted to be held in program funds are assessed as part of the legal review of the program. Investments generally conform to federal arbitrage and state statutory requirements and are commonly Treasury and agency securities or guaranteed investment contracts. We assess the quality and liquidity of a program's investments taking a comprehensive view of the program's portfolio to determine whether funds are invested in a way that is consistent with the program's rating.

FACTORS ASSOCIATED WITH VARIABLE RATE DEBT

We review key legal documents associated with the issuance of variable rate debt. The rating of the providers of SBPAs which are entered into to provide external liquidity is one of the drivers of short-term ratings assigned to VRDBs.[1] The terms of the SBPA or other documents pertaining to a variable rate structure are reviewed in light of the overall security provided to bondholders, as reflected in the long-term rating on the bonds. Furthermore, the priority of principal and interest payments in the event of bank bonds as set forth in the SBPA and bond documents is an important factor for bank bond ratings.

Many programs with variable rate debt rely on interest rate swaps to manage the debt service paid on variable rate debt. While swaps can serve a useful function for certain programs, swaps also expose bond programs to risks that can be mitigated by the proper legal documentation. We review swap documents in order to understand the program's rights and responsibilities. The swap documents reviewed will likely include the ISDA Master Agreement, the Schedule to the ISDA Master Agreement, the Confirmation, the Credit Support Annex, and the Guarantee if applicable. Particular attention is paid to termination events, collateral-posting triggers, and rating level triggers that reference the rating of the program, HFA, insurer, swap counterparty, or other parties to the transaction.

CASH FLOW CERTIFICATES

We review the provision that requires the HFA or bond trustee to provide cash flow certificates on material events such as new bond issuance or unscheduled withdrawals of funds from the indentures. We consider whether cash flow certificates address the maintenance of certain asset-to-debt levels and the maintenance of sufficient revenues to pay debt service at each debt service payment date until final bond maturity.

[1] For more information, see our methodology that describes our general approach for assessing variable rate instruments supported by conditional liquidity facilities. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

EVENTS OF DEFAULT

We review the events of default, including the rights of the HFA or bond trustee to cure covenant defaults, and bondholder rights to direct exercise of remedies or acceleration.

Other Credit Considerations

In addition to the factors listed above, we incorporate program-specific considerations into our analysis that may not otherwise be captured and that considerably can amplify credit strengths or weaknesses. These factors are assessed in combination with the scorecard and can result in a higher or lower rating for a particular program. These risks include, but are not limited to, the following:[2]

» Very high or low risk adjusted net assets

» Liquidity stress

» Trend analysis indicating that the program financial position is likely to weaken or strengthen in the near term

» Short-term or bullet loans

» High concentration of riskier loan types

» Issuer flexibility in terms of management and financial capability

» Unique real estate market characteristics or economic conditions

How to Apply the Scorecard

As discussed in the beginning of this methodology, our scorecard (see Appendix A) generates a scorecard-indicated outcome. The scorecard provides guidance on the factors that are generally most important in assigning ratings in this sector. It is a summary that does not include every rating consideration. The weights shown for each factor in the scorecard represent an approximation of their typical importance for rating decisions, but actual importance may vary significantly. Moreover, our ratings incorporate expectations for future performance, while the financial information that is used for purposes of calculating a scorecard measure is mainly historical. In some cases, our expectations for future performance may be informed by confidential information that we cannot disclose. In other cases, we estimate future results based upon past performance, regional and sectoral trends, or other factors. Accordingly, we do not expect the scorecard-indicated outcome to match the actual rating in every case.

The scorecard contains ten indicators with values mapped to a broad rating category based on the distribution of values in our portfolio. The weighted average of the sub-factor scores produces a scorecard-indicated outcome for each factor. We convert each of the sub-factors into numeric values based on the scale below.

EXHIBIT 1
Scale Converting Sub-factors into Numeric Values

Aaa	Aa	A	Baa	Ba	B and Below
1	2	3	4	5	6

Source: Moody's Investors Service

[2] For more information, see our methodology that describes our general approach for assessing variable rate instruments supported by conditional liquidity facilities. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

Further, we use a forward-looking view when applying the concepts embedded in the scorecard, and our analysis and rating assignment is aided by comparative assessments across HFAs based on our extensive market coverage of the sector.

Discussion of Rating Outliers for Scorecard Mapping

The scorecard is not a substitute for the rating committee; it cannot anticipate every factor that may be important to a particular rating, nor the relative weights that will be assigned in every case. The rating ultimately will be based on the outcome of the committee deliberations which could result in the positioning of some ratings outside the range suggested by the scorecard. Such "rating outliers," or ratings which are more than two notches away from the scorecard-indicated outcome, are typically the result of unusual attributes of a particular HFA that are not captured by the main rating factors.

Appendices

Appendix A: Scorecard

Financial Position (45%)

	Aaa	Aa	A	Baa	Ba	B and Below
Balance Sheet Strength (20%) (Debt)	Program Net Assets are highly over-collateralized to support loan valuations benchmarked at the most stressful levels and maintain a net Program Asset to Debt Ratio (PADR) of 1.10x. PADR of 1.00x for Mortgage Backed Securities (MBS) programs, FHA, FHA- risk share *	Program Net Assets are sufficient to support loan valuations benchmarked at very stressful levels and maintain a net PADR of 1.10- 1.04 (Aa1); 1.04- 1.02 (Aa2); 1.02 - 1.00x (Aa3).	Program Net Assets are sufficient to support loan valuations benchmarked at stressful levels and maintain a net PADR above 1.00x.	Program Net Assets are sufficient to support loan valuations benchmarked at moderate levels and maintain a net PADR at 1.00x.	Program Net Assets are only positive before incorporating loan valuation	Program Net Assets are below 1.00x; cash flows demonstrate that only a portion of loan losses can be covered
Cash Flow Projections (15%)	Robust ability to absorb future financial stresses under all scenarios in the cash flows	Solid ability to absorb future financial stresses under all scenarios in the cash flows	Moderate ability to absorb future financial stresses under all scenarios except for the most stressful scenarios. Any projected shortfalls are small and occur in the later years of the program (i.e. more than 10 years)	Limited ability to absorb future financial stresses. The extent of the shortfall, speed of the recovery and under which stress scenario it occurs will be considered	Very limited ability to absorb future financial stresses and cash flows demonstrate that the program is able to cover debt service only under cash flow runs with limited stress tests	No ability to absorb financial stress and cash flow scenarios demonstrate that revenues do not cover debt service
Historical Financial Performance (10%)	Program demonstrates high and growing net asset ratios (e.g. above 15% combined fund balance as % of bonds outstanding on average over 3 years) Consistently high profitability (e.g. 15% on average) Strong levels of resources for maintaining the creditworthiness of the program under stressful circumstances	Program contains moderate but growing net asset ratios (e.g. 8% - 15% combined fund balance as % of bonds outstanding on average) Consistent profitability over the long term (e.g. 10% - 15% on average) Ample resources for maintaining the creditworthiness of the program under stressful circumstances	Program contains adequate net asset ratios (e.g. 3% - 8% combined fund balance as % of bonds outstanding on average) - Minimal Growth Consistent profitability over the long term (e.g. 3% - 10% on average) Satisfactory levels of resources for maintaining the creditworthiness under standard circumstances	Program may exhibit stable to declining net asset ratios but remains above 1% combined fund balance as % of bonds outstanding on average Profitability may average 1-3% or show periods of loss, but losses are offset by net assets and not expected to continue Sufficient resources for maintaining the creditworthiness under standard circumstances	Program has exhibited modest declines in net asset ratio but net assets exceed liabilities Consistent losses but net assets are expected to cover such losses over the medium term Limited resources for maintaining the creditworthiness under standard circumstances	Program has exhibited declines and liabilities exceed net assets Net assets are unable to cover losses Insufficient resources for maintaining the creditworthiness under standard circumstances

*Based upon current US Government rating of Aaa
Source: Moody's Investors Service

Loan Portfolio (25%)

	Aaa	Aa	A	Baa	Ba	B and Below
Portfolio Performance (10%)	Seriously delinquent* and foreclosure rates are very low (i.e. less than 1%); delinquency trends have been favorable Weighted average occupancy 97%+ Federal MBS or FHA- risk share programs**	Seriously delinquent* and foreclosure rates are very low (i.e. less than 2%); delinquency trends have been favorable Weighted average occupancy 95%+	Seriously delinquent* and foreclosure rates are low (i.e. 2% - 5%); trends have been favorable Weighted average occupancy 93%-95%	Seriously delinquent* and foreclosure rates are moderate to high (i.e. 5% - 8%); trends display modest weakness Weighted average occupancy 92%-88%	Seriously delinquent* and foreclosure rates are high (i.e. 8% - 12%); trends reveal increasing weaknesses in the portfolio Weighted average occupancy 80%-85%	Seriously delinquent* and foreclosure rates are very high (i.e. 12- 20%) Weighted average occupancy 80%-84%
Portfolio Characteristics (5%)	Diverse mix of properties with over 15,000 units under management More than 75% of loans carry highest quality mortgage insurance or low Loan-to-Values (LTVs) Less than 5% of properties are in construction Federal MBS or FHA- risk share programs**	Diverse mix of properties with 5,000 - 10,000 units under management More than 65% of loans carry highest quality mortgage insurance or low LTVs 5% -10% of properties are in construction	Diverse mix of properties with under 5,000 units under management More than 50% of loans carry highest quality mortgage insurance or low LTVs 10% -15% of properties are in construction	Property mix is concentrated amongst three or more sectors with under 1,000 units under management Less than 50% of loans carry highest quality mortgage insurance or low LTVs 15% -25% of properties are in construction	Property mix is concentrated amongst two or more sectors with under 1,000 units under management High LTVs and low quality mortgage insurance More than 25% of properties are in construction	Highly concentrated property mix and under 1,000 units under management High LTVs and a substantial portion of the portfolio does not have mortgage insurance More than 35% of properties are in construction
Mortgage Type (5%)	More than 90% of loan types are fixed- rate, first lien, level- payment Federal MBS or FHA- risk share programs**	75%-90% of loan types are fixed-rate, first lien, level- payment	60%-75% of loan types are fixed-rate, first lien, level- payment	50%-60% of loan types are fixed-rate, first lien, level- payment	40%-50% of loan types are fixed-rate, first lien, level- payment	Less than 40% of loan types are fixed-rate, first lien, level- payment
State Real Estate Conditions (5%)	State multifamily housing vacancy rates are less than 5% and are projected to remain stable within the next 12 months Employment and other economic indicators support stability in local housing market Federal MBS or FHA- risk share programs**	State multifamily housing vacancy rates at or above 5% but are projected to stabilize around 5% within the next 12 months Employment and other economic indicators support stability in local housing market	State multifamily housing vacancy rates are between 10% -5% and are projected to remain at those levels within the next 12 months Employment and other economic indicators show some weakness in the local housing market	State multifamily housing vacancy rates are over 10% and are projected to remain at these elevated levels over the next 12 months Employment and other economic indicators lead to concern about local housing market	State multifamily housing vacancy rates are over 15% and are projected to remain at these elevated levels over the next 12 months) Employment and other economic indicators are substantially inferior to national average	State multifamily housing vacancy rates are over 20% and are projected to remain at these elevated levels over the next 12 months) Employment and other economic indicators are far inferior to national average

* Seriously delinquent means loans that are 90+ days delinquent and in foreclosure
** Based upon current US Government rating of Aaa
Source: Moody's Investors Service

Bond Program Structure (15%)

	Aaa	Aa	A	Baa	Ba	B and Below
Debt Structure (10%)	Variable rate debt as a percent of program bonds outstanding is 0% - 10% and unhedged variable rate debt is no more than 5% of bonds outstanding or primarily hedged with variable rate investments Program resources amply cover contingent liabilities (e.g. swaps)	Variable rate debt as a percent of program bonds outstanding is 10% - 25% and unhedged variable rate debt is no more than 10% of bonds outstanding or primarily hedged with variable rate investments Program resources are sufficient to cover contingent liabilities (e.g. swaps)	Variable rate debt as a percent of program bonds outstanding is 25% - 45% and unhedged variable rate debt is no more than 15% of bonds outstanding or substantially hedged with variable rate investments Program resources are substantial to cover contingent liabilities (e.g. swaps)	Variable rate debt as a percent of program bonds outstanding is 45% - 70% and unhedged variable rate debt is no more than 20% of bonds outstanding with a portion hedged with variable rate investments Program resources are adequate to cover contingent liabilities (e.g. swaps)	More than 70% of program debt is variable rate debt and more than 25% of bonds outstanding is unhedged Program resources are not sufficient to cover contingent liabilities (e.g. swaps)	More than 70% of program debt is variable rate debt and more than 50% of bonds outstanding is unhedged Program resources are not sufficient to cover contingent liabilities (e.g. swaps)
Counterparties (5%)	Majority of counterparties rated at or above A1/P-1 (Aa3 if no short-term rating) Program financial resources can mitigate funds invested with providers at lower rating levels Counterparty exposure is well distributed or not material to the credit	Majority of counterparties rated at or above A2/P-1 Program financial resources can mitigate funds invested with providers at lower rating levels Counterparty exposure is moderately distributed and is expected to have minimal impact	Majority of counterparties rated at or above A3 Program financial resources can mitigate funds invested with providers at lower rating levels Counterparty exposure is significant and may be material to the credit	Majority of counterparties rated at or above Baa3 Program financial resources may be able to mitigate funds invested with lower rated providers under most circumstances Substantial counterparty concentration	Majority of counterparties are rated in the Ba category Program financial resources are unable to mitigate funds invested at lower levels	Majority of counterparties rated below the Ba3 category

Management and Governance (15%)

	Aaa	Aa	A	Baa	Ba	B and Below
Management and Governance (15%)	Highly effective management with substantial financial and personnel resources available to maintain and grow the financial position of the program Deep understanding of program's strengths, challenges, and future direction Proactive in swiftly and appropriately addressing challenges Superior governance with highly experienced and involved board members providing oversight	Very strong management with significant financial and personnel resources available to maintain the program Very Strong understanding of program's strengths, challenges, and future direction Swift ability and willingness to appropriately address challenges Strong governance with very experienced and involved board members providing oversight	Solid management with significant financial and personnel resources to maintain the program Solid understanding of program's strengths, challenges, and future direction Prompt responsiveness to addressing challenges Capable governance with experienced and involved board members providing oversight	Adequate management with sufficient financial and personnel resources to maintain the program Understands financial strengths and challenges, but may be dependent on financial advisors/professionals Timely willingness to address challenges Capable governance with experienced involved board members providing oversight	Limited management or oversight of the program by the Issuer, program is generally governed by the trustee following the terms of the legal documents Minimal board involvement	Poor management or oversight of the program

Source: Moody's Investors Service

Appendix B: Multifamily Mortgage Loans Benchmarking

To assess the relative value of an HFA's multifamily mortgage loan portfolio, we calculate potential loss on each mortgage loan using a process called "benchmarking" that establishes sector-wide DSCR benchmark levels for the specific loan type, enhancement and rating level, and applies the difference, if any, to the principal of the loan. Benchmarking works as follows:

» We calculate the DSCR of each property by dividing the annual net operating income, total revenue less operating expenses, by the annual mortgage loan debt service.

» We compare the DSCR of each property to our established benchmark for the loan type and program rating level.

» Properties in the portfolio with a DSCR at or above the benchmark will be assessed a full value of the loan (i.e., the adjusted loan balance equals the outstanding loan balance).

» Properties in the portfolio that have a DSCR below the benchmark will be assessed less than full value.

  – We divide the DSCR by the benchmark to determine the loan valuation ratio.

  – We multiply the valuation ratio by the outstanding loan principal balance to arrive at an adjusted loan principal balance.

  – We total the difference between the adjusted and the outstanding loan principal balance for each of the properties.

  – We apply the outcome as a capital charge to the balance sheet in Factor 1 of the scorecard and potentially in the cash flows if there are defaulted loans.

The following additional criteria apply:

» Loans that are insured or guaranteed will be assigned a value that depends on the type and level of insurance, the rating of the insurer, and the rating of the HFA. For example, a loan that is fully guaranteed by Ginnie Mae would be assigned a full value regardless of the relationship of the property's DSCR to the benchmark.

Loans that do not report a DSCR because the secured property is either in construction or in lease-up phase will be assigned a valuation that reflects those risks. Loans may be assigned a valuation as low as zero, depending on the loan size, property location, and historical loan performance, if current DSCR is not reported because of insufficient or unavailable data.

Appendix C: Cash Flow Inputs and Projection Scenarios

This appendix provides information about our approach to the inputs and scenarios incorporated into the cash flow projections that inform our assessment of a multifamily housing bond program's financial position.

Because the bonds are repaid primarily with mortgage and investment revenues, cash flow projections incorporate stress scenarios for mortgage originations and investment earnings. Cash flow projections also incorporate stress scenarios for expenses, such as changes in interest rates and remarketing spreads, as well as for the repayment terms for bank bonds. Based on the terms and conditions of an individual bond program, we may modify the inputs or consider additional cash flow scenarios in our assessments.

Cash Flow Inputs

We use inputs as described in the bond documents, including the mortgage rates and terms, reinvestment rates and program expenses in cash flow projections. In this section, we discuss the inputs to the cash flow projections for a multifamily housing bond program. Not all inputs are relevant to an individual transaction.

Mortgage Loan Rates and Terms

Cash flow projections typically reflect the revenue generated by the outstanding mortgage loans pledged to the bond program. For new loans, which will typically be made from proceeds of new bond sales, cash flow projections include expected lending rates, typically informed by prevailing interest rates and the program's costs, based on bond rates and any expected subsidies the program will receive.

Many HFAs modify their mortgage rates on a periodic basis in response to market conditions. While these modifications do not generally result in a substantial change in the characteristics of the future mortgage origination assumed in the cash flow projections, where there is a material change in the mortgage characteristics, we analyze updated cash flows that incorporate these changes.

Loan losses upon foreclosure are generally covered by primary mortgage insurance (including insurance provided by the U.S. government through the Federal Housing Administration). Where we consider these enhancements adequate, our cash flow projections generally assume no loan losses, but we may consider scenarios incorporating loan loss in certain cases, such as programs where the insurance does not provide full or timely coverage on the loans or in programs with delinquency rates that are higher than the average.

Mortgage Payment Lag

The duration between when a borrower makes a monthly payment and when the trustee receives the funds is known as the lag. For loans converted into mortgage backed securities (MBS) that are backed by an enhancement provider, e.g., Ginnie Mae, Fannie Mae or Freddie Mac, the lag in our base-case cash-flow projections reflects the credit enhancement payment provisions, as established by the enhancement provider, plus an additional five calendar days for the receipt of payment to reflect potential administrative delays (e.g., a minor delay in the receipt of payment from the credit enhancer or servicer, including the effect of weekends or holidays). For example, if the typical payment due date for a provider were the 25th of the month, the input would be the 30th of the month.

Since Ginnie Mae, Fannie Mae and Freddie Mac payments are made in the month following MBS issuance, MBS base case cash flow projections use an additional payment lag input of one month.

As an example, a Ginnie Mae I security is issued on September 1. If the security's first payment would be due on October 15, the five-day lag referred to above for guaranteed payment in the event of a missed mortgage payment would be reflected in the cash flows as an MBS payment date of October 20.

Bond Redemption

Cash flows include bond redemption inputs that reflect the provisions established in the bond documents for each bond series, including the priority of maturities and the frequency and limits of the redemption. If these provisions are not specified in the bond documents, the cash flow projections reflect actual practices and strategies of the HFA. We may also consider how the strategy could evolve, for example in response to the effect of changing market conditions on variable-rate debt. Our bond redemption inputs also reflect federal tax law requirements.

Program Expenses

Program expense inputs reflect all program expenses defined in the transaction documents or based on HFA practices, including any minimum or maximum fees. Expenses include the following payments, if applicable:

» Mortgage servicing fees.

» Trustee fees.

» Mortgage insurance fees.

» Credit enhancement or bond insurance fees.

» Remarketing or auction agent fees.

» Liquidity facility fees.

» Broker-dealer fees.

» Rebate analyst fees.

» Issuer fees.

» Arbitrage rebates, yield reduction payments and other payments related to federal tax law.

Bond Interest Rates

For fixed rate transactions, cash flow inputs incorporate the actual interest rates on the bonds or the anticipated interest rates when the cash flows are generated before bond pricing. For variable rate transactions, cash flow inputs reflect both a low interest rate scenario and a high interest rate scenario.

Low Interest-Rate Scenario

In this scenario, the prevailing taxable short-term rate in the US starts at 0.25% and gradually increases to 2.0% over 10 years (see Exhibit 2).

Interest rates for many multifamily housing variable-rate bonds are based on the Securities Industry and Financial Markets Association's (SIFMA) municipal swap index, which comprises tax-exempt variable-rate demand obligations (VRDOs). Since the SIFMA rate does not have a forward curve, we derive the SIFMA rate input for the cash flow projections based on a percentage of the prevailing taxable short-term index in the US. VRDOs are assumed to pay interest at the SIFMA rate (with additional trading spreads outlined in Exhibit 3). Correspondingly, we incorporate a higher ratio of the SIFMA rate/prevailing short-term index to reflect compression between tax-exempt and taxable rates when interest rates are low. For bond programs that use swaps based on 1-month taxable short-term rates, the SIFMA rate/1-month taxable short-term index rate ratio stays at 105% for the initial five years and decreases to 95% thereafter.

For bond programs that use swaps based on 3-month taxable short-term index rates, we assume a SIFMA rate/3-month taxable short-term index rate ratio of 80% for the life of the VRDOs.

High Interest-Rate Scenario

In the standard high interest-rate scenario, the prevailing taxable short-term index rate starts at the current level, increases to 10.5% over five years, remains at 10.5% for an additional five years and decreases to a holding rate of 8.25% thereafter.[3]

EXHIBIT 2
Interest Rate Assumptions for Programs with Variable-Rate Debt

		Low Interest-Rate Environment		High Interest-Rate Environment	
Prevailing Taxable Short-term Index Rates	Curve	Year 1-3	0.25%	Year 1-5	Ramp up from current to 10.5%
		Year 4-6	0.75%	Year 6-10	Hold at 10.5%
		Year 7-10	1.50%	Year 11-17	Wind down to 8.25%
		Thereafter	2.00%	Thereafter	Hold at 8.25%
SIFMA / Taxable Short-term Index Rate Ratio	1-month taxable short-term index rate	Year 1-6	105% of 1-month taxable short-term index rate	75% of 1-month taxable short-term index rate	
		Thereafter	95% of 1-month taxable short-term index rate		
	3-month taxable short-term index rate	80% of 3-month taxable short-term index rate		75% of 3-month taxable short-term index rate	

Source: Moody's Investors Service

VRDO Spread Levels

The VRDO interest rate assumptions for variable-rate debt are based on historical taxable short-term index rate data. We assume that tax-exempt bonds pay a rate equal to the SIFMA rate plus a spread, where the SIFMA rate is equal to certain percentages of the taxable short-term index rate, as shown in Exhibit 2. The trading spreads are described below.

Our spread assumptions for VRDOs not subject to the alternative minimum tax (AMT) is five basis points. For AMT and taxable VRDOs, our spread assumptions are 15 basis points and 40 basis points, respectively. We consider using different assumptions if an HFA provides historical evidence of narrower spreads by tax status on its VRDOs.

In addition, for the initial year, an additional 30-basis-point spread is assumed for VRDOs supported by the largest private-sector liquidity provider (see Exhibit 3) to reflect a stress scenario due to a weak credit market.

EXHIBIT 3
VRDO Spreads for Programs with Variable-Rate Debt

Tax Status	Time Period	Largest Private Sector Standby Bond Purchase Agreement Provider	Remaining Providers
Non-AMT	First Year	35 bps	5 bps
	Thereafter	5 bps	5 bps
AMT	First Year	45 bps	15 bps
	Thereafter	15 bps	15 bps
Taxable	First Year	70 bps	40 bps
	Thereafter	40 bps	40 bps

Source: Moody's Investors Service

3 We would vary these assumptions in a high interest-rate environment, and the assumed taxable rate would in all cases be at least as high as the 10-year US Treasury yield plus 3%.

Liquidity Facilities Renewal Expense

For bond program cash flows, we assume that the cost of maintaining a liquidity facility for an HFA that has issued VRDOs increases at the first stated expiration date of the facility to the greater of (i) our estimate of current market rates for such facilities; (ii) an all-in cost of 100 basis points per year; or (iii) 20% above the current annual cost of the existing facility.

Net Effect of Swaps

Bond program cash flows reflect the effect of interest rate swaps. HFAs typically use interest rate swaps to hedge their variable-rate debt. There are three different relevant payment streams:

- The HFA's variable-rate debt service payments.
- The HFA's fixed payments to the swap counterparty based on the rate in the swap documents (or the expected rate, in the case of pre-pricing cash flows).
- The counterparty's variable-rate payments to the HFA based on the terms of the swap and the high and low interest-rate scenarios.

Cash flows may reflect the three separate payment streams or one net payment stream, but the net effect remains the same in either scenario, as long as it is clear how all three payments are incorporated. Depending on the interest rate environment, the net effect of an interest rate swap could be an outflow or an inflow to the HFA issuer.

Investment Rates

Cash flows typically reflect actual investments in the program. We assume assets are valued at par, because HFAs often hold investments to maturity.

A commonly used long-term investment agreement in this sector is a guaranteed investment contract (GIC). GICs are fixed-rate investment agreements with financial institutions, such as banks or insurance companies, that provide a predetermined rate of return on funds that are invested over the life of the contract. GICs may be used for the transaction acquisition, float and debt service reserve funds. Where the terms of the GICs are available, cash flow projections reflect contracted interest rates, maturity, restrictions on deposits and withdrawals, and minimum and maximum balances.

For balances in excess of amounts permitted by the GIC and all invested funds that do not have any guaranteed rate of return, the reinvestment rate assumption is based on whether they are fixed-rate programs or variable-rate programs.

For fixed-rate programs with active management, we use a reinvestment rate assumption that starts at 0% and increases in three steps to 1.5% over 11 years, as shown in Exhibit 4. Reinvestment rate assumptions for fixed-rate programs without active management that use closed indentures remain at 0% for the life of the bonds.

For variable rate programs, our assumed reinvestment rate is 70% of the prevailing taxable short-term index rate through the life of the transaction.

EXHIBIT 4
Reinvestment Rate Assumptions for Investments Without Any Guaranteed Rate of Return
(Years Reflect Time Elapsed in Cash Flow Projections, Not Investment Terms)

	With Active Management		Without Active Management
	Fixed-Rate Programs	Variable-Rate Programs	Fixed-Rate Programs
Years	Rate	Rate	Rate
1 – 3	0%		0%
4 – 6	0.5%		0%
7 – 10	1%	70% of 1-month taxable short-term index rate	0%
11 – maturity	1.5%		0%

Source: Moody's Investors Service

Counterparties

HFA multifamily housing bond programs rely on performance from outside counterparties, including GIC and other investment providers, liquidity providers and swap providers.

We incorporate risks related to counterparty performance in our cash flow inputs by haircutting the amounts held in a GIC or other investment vehicles and by haircutting the net interest rate swap payments. The haircuts are based on the rating of the counterparty and the rating of the associated HFA multifamily bond program (see Exhibit 5). When the GIC provider is an insurance company, we use the Insurance Financial Strength Rating as the counterparty rating. When the GIC provider is a bank, we use the bank's long-term deposit rating as the counterparty rating. For interest rate swaps, we use the provider's Counterparty Risk (CR) Assessment as the counterparty rating.

EXHIBIT 5
GIC and Swap Haircuts, by Rating Level

Provider Rating	Aaa Program	Aa Program	A Program	Baa Program
A1 or higher	0%	0%	0%	0%
A2	35%	0%	0%	0%
A3	45%	35%	0%	0%
Baa1	55%	45%	35%	0%
Baa2	65%	55%	45%	35%
Baa3	85%	65%	55%	45%
Below Baa3	100%	100%	100%	100%

Source: Moody's Investors Service

We use an additional stress case for pool programs that may otherwise be eligible for a rating of Aaa, when these programs have limited diversification and rely on investment earnings or swap payments to meet debt service. In these cases, if a provider is rated below A1, we run a projections scenario assuming that the provider will no longer meet its payment obligations to the program. For programs that may otherwise be eligible for a rating of Aa1-Aa3, we run a similar scenario assuming that any provider rated below A2 will no longer meet its payment obligations to the pool.

Cash flows reflect the GIC haircuts in the following ways:

» Amounts in the debt service reserve funds and acquisition funds are reduced by the appropriate discount. For debt service reserve or float funds, the one-time upfront principal reduction is equal to the highest projected six-month fund balance, which typically varies with the prepayment assumptions.

» The investment return for the debt service reserve and acquisition funds and the reinvestment rate for the float fund is calculated by applying the applicable investment rate to the discounted principal.

When a GIC is terminated after a rating downgrade of the provider and the investment balance is returned to the pool, we do not haircut the principal amounts in the GIC, but cash flow projections reflect the reinvestment rate assumptions for investments without any guaranteed rate of return (see Exhibit 4).

Cash flows reflect the swap haircuts in the following ways:

» Under the high interest-rate-scenarios (where net swap payments are typically in the issuer's favor), cash flows reflect full fixed-rate swap payments by the HFA in exchange for full variable-rate receipts from the swap counterparty in the initial three years, followed by discounted fixed-rate swap payments in exchange for discounted variable-rate receipts through the life of the bond.

» Under the low interest-rate scenario, HFAs continue to make full fixed-rate swap payments in exchange for full variable-rate receipts.

In cases where a program's rating has been downgraded to a level at which the provider can terminate the swap, we analyze cash flows using an assumption that the HFA pays any swap termination amounts and that the variable-rate debt related to the swap is unhedged. However, when swaps are novated following a downgrade, cash flow projections reflect terms of the novated swaps and incorporate expenses payable by the indenture or HFA, if any.

Many investment agreements provide for the posting of collateral by an investment provider if its rating falls below a specified level. We typically do not consider that such provisions enhance the likelihood of payment of the earnings or repayment of the principal investment because the collateral posting may be subject to the automatic stay or disgorgement provisions in the event the investment provider files for bankruptcy.

Cash Flow Projection Scenarios

In this section, we describe cash flow projections that inform our assessments of a multifamily housing bond program's financial position.

Depending on the specifics of the bond program, we generally assess cash flow projections based on various mortgage origination scenarios. For variable rate demand bonds, we also include a high and low interest-rate environment overlay for each scenario.

Exhibit 6 lists the cash flow scenarios we typically assess, each of which is discussed below:

EXHIBIT 6
Cash Flow Projection Scenarios

Program Structure/Interest Rate Environment	Scenario
Variable-Rate/High Interest-Rate Environment	
	Full non-origination
	Full origination
	Partial origination
	Mortgage default
	Bank bonds
Variable-Rate/Low Interest-Rate Environment	
	Full non-origination
	Full origination
	Partial origination
	Mortgage default
	Bank bonds
Fixed Rate	
	Full non-origination
	Full origination
	Partial origination
	Mortgage default

Source: Moody's Investors Service

Full Non-Origination

We review a non-origination scenario for transactions where no mortgages have been funded prior to or upon bond closing. In this scenario, no mortgages are originated, and bonds are not redeemed until the last allowable day in accordance with the transaction agreements. In this scenario, investment earnings on unexpended bond proceeds, in combination with other funds in the transaction such as capitalized interest reserves, generally provide the only funds available to meet bond debt service payments and transaction expenses until the bonds are called for full redemption.

Full Origination

A full origination scenario assumes bond proceeds are fully used to acquire mortgage loans or MBS. For most multifamily housing bond programs, bond proceeds are placed in an acquisition fund, which is used to purchase the mortgage loans or MBS that secure the transaction within a specified period. If the rate on the mortgage loans (net of any expenses) is higher than the investment rate on the acquisition fund, cash flow projections assume that all loans are originated on the last day of the expected loan origination period. Any extension to this period would require new cash flows. However, if the rate on the loans is lower than the acquisition fund rate, cash flow projections assume that all loans are originated on the first day of the origination period if the net mortgage rate is lower than the investment rate of the acquisition fund.

Full Origination

The same full origination as in the prior scenario is used in this scenario.

Partial Origination

We review a partial origination scenario for bond programs where some mortgages have been funded prior to or upon bond closing. In this scenario, no other mortgages are funded.

Mortgage Default

Multifamily MBS and Standby CEI

A certain number of the largest mortgage loans default on the date of the lowest asset-to-debt ratio. As a result, the entire mortgage balance and any accrued interest is due via the credit enhancement wrapping the bonds, and the bond program experiences negative arbitrage incurred during the maximum notice period prior to redemption.

FHA Standard Cash Pay Insurance

A certain number of the largest mortgage loans default on the date of the lowest asset-to-debt ratio. As a result, the FHA insurance is called upon to cover the insured amount of mortgage principal and interest, and the bond program incurs negative arbitrage throughout the maximum notice period prior to redemption. Uncertainty as to the timing of FHA claims payments is reflected appropriately.

FHA Risk-Share Insurance

The risk-share default scenario is similar to that of the standard cash pay insurance except one full insurance payment is received 90 days from the declared default date.

Bank Bonds

For bond programs with VRDOs using external liquidity facilities, cash flow projections include additional scenarios to test the ability of the bond program to meet its debt service obligations if a failed remarketing were to result in bank bonds, which typically have accelerated repayment schedules and high interest rates. The cash flow projections include additional scenarios that test the ability of the bond program to withstand (i) a period of high interest-rate spreads on variable-rate debt (other than indexed bonds); and (ii) repayment of bank bonds for one year (before the bonds can be remarketed as VRDOs).

We review scenarios under the high and low interest rate environment assumptions described above, modified by the bank bond repayment assumptions below.

For the bank bond projection scenarios, we assume the amount of bank bonds will equal the highest of: (i) 25% of the VRDOs; (ii) the amount of bonds supported by the liquidity provider with the highest percentage of exposure in the program; or (iii) the current amount of bank bonds. Bank bond cash flow projections assume a higher amount of bank bonds where particular circumstances warrant, such as where the ratings for relevant liquidity banks are downgraded or the relevant liquidity banks are not supporting remarketings effectively. In these cases, VRDOs supported by these banks would be considered bank bonds in the cash flow projections.

Where a bond program has bank bonds that require accelerated repayment, the cash flow projections assume the schedule of bank bond interest and principal repayment based on the terms of the liquidity agreement. Where a bond program does not have any bank bonds, the cash flow projections assume that bank bond amount determined in accordance with the previous paragraph becomes bank bonds on the first day of the cash flow projections, with repayment based on the terms of the liquidity agreement. The cash flow projections assume that the HFA makes these payments for one full year (i.e., the bank bond period). At the end of the bank bond period, cash flow projections assume that the remaining balance of the bonds are remarketed and remain VRDOs supported by the same liquidity facility (subject to increased cost upon the facility's expiration).

Bank bond cash flow projections assume the following:

» The bond program pays the full amount of the bank bond amortization in accordance with the terms of applicable conditional liquidity support for the amount of bonds assumed to become bank bonds.

» If the largest conditional liquidity provider's exposure covers less than 25% of VRDOs (and we therefore assume the amount of bank bonds is equal to 25% of the total VRDOs issued by the bond program), we use the bank bond repayment schedule associated with the liquidity provider with repayment terms that would result in the largest amount of bank bond payments during the one-year term.

» The bank bonds bear interest at the bank rate, calculated as prescribed in the HFA's liquidity support contract, including any step-ups during the first 12 months.

» Where the bank rate is based on the prime rate, our prime rate assumption is 95% of prevailing taxable short-term index rate plus 300 basis points.

Cash flows would incorporate either (i) full ongoing payments on the swaps associated with the bank bonds even after the bank bonds have been redeemed (unless par termination options are available to the HFA); or (ii) swaps terminate at market value plus associated fees.

Appendix D: HFA Financial Statement Analysis

HFA financial statements are analyzed annually as part of our assessment of the financial position of the HFA and their programs. We also review interim financial statements to the extent they are produced by an HFA. To get as true a picture as possible of the financial position of HFAs, we make certain refinements to many of the numbers found in audited financial statements. Rather than relying solely on numbers reported on a GAAP basis, we adjust certain entries to better assess the financial position of the HFAs and their programs as they relate to our credit assessment.

In general, we adjust all intangible accounting entries on both the statement of net assets (previously known as the balance sheet) and the statement of revenues, expenses and changes in net assets (previously known as the income statement), such as deferred issuance costs, amortization of bond discount, as well as custodial funds, certain assets relating to state-sponsored mortgage insurers, and public housing operations. The following includes the typical adjustments regularly made when reviewing financial statements.

Statement of Net Assets Adjustments

The statement of net assets is where most of our adjustments occur. By making all of the following adjustments to an HFA's statement of net assets, the net numbers that reflect total assets, total liabilities, and ultimately net assets (previously known as fund balance) may be very different from what is reported in the financial statements. The adjusted numbers, however, give us a much clearer picture of a HFA's true financial position as it relates to our credit analysis. The adjustments include:

Bonds Outstanding:

We use "bonds outstanding" in our calculations rather than what is generally found on the liability side of the statement of net assets - "bonds payable". While bonds payable is a standard accounting entry which nets out unamortized discount from the amount of bonds actually outstanding, we are more interested in determining the amount of debt that is truly owed. Specifically, we seek the aggregate amount of principal outstanding that bondholders would be due as of the audit date if all bonds were due and payable. Because "bonds outstanding" is often higher than the reported "bonds payable" accounting entry, the adjusted number results in a higher liability amount.

Custodial Funds:

Many state HFAs - particularly those with large multifamily portfolios - have sizable custodial funds, i.e. funds not owned by the HFA but rather held by the HFA on behalf of others. Examples of these custodial funds include monies being held on behalf of multifamily project owners for property taxes as well as for property and casualty insurance premiums.

Because property taxes and insurance are typically paid for by the owners as part of the mortgage payment, the HFA as servicer holds onto these monies until they are due to the taxing authority or the insurer. We adjust these escrow funds by subtracting them out of assets and not including them as liabilities.

Depreciation:

Unlike hospitals and universities that have significant investments in plant and equipment subject to "depreciation", state HFAs generally do not have many capital assets. Indeed, many state HFAs do not even own their own office buildings. And while HFAs have significant investments in mortgage loans, they are lenders, not owners. Hence, mortgage loans - even for multifamily projects - are not considered capital assets and therefore, are not subject to depreciation rules.

For those HFAs that do have depreciation reflected on their statement of revenues, expenses and changes in net assets and their statement of net assets, we disregard these intangible accounting entries as operating expenses as well as liabilities.

Investments:

The "investments" line item in the typical HFA's financial statements is the section of the audit with the most adjustments. We net out any unamortized discounts or premiums. In addition, we seek to undo the effects of GASB 31 (Governmental Accounting Standards Board Statement 31) - the rules implemented in 1997 that seek to establish fair value standards for investment reporting for public sector entities.

While GASB 31 is very useful for many public finance sectors, most investments held by HFAs for its bond programs are expected to be held until maturity. The annual or cumulative gain (or loss) in market or fair value, therefore, will not generally be realized. As a result, we do not include these GASB 31 gains or losses in our calculations.

Those HFAs heavily invested in U.S. Treasuries and mortgage-backed securities (MBS), including HFAs that purchase MBSs to finance their loan program, are far more affected by these GASB 31 adjustments than those HFAs with mostly guaranteed investment contracts (GICs) and investment agreements. Since most GICs and investment agreements have a fixed rate of return and are not negotiable or transferable, these investments are not affected by the GASB 31 fair value standards.

When reviewing financial statements, we specifically request data on the par amount of the investments in line with the audit date if it is not already included in the notes section.

Loans Receivable:

Another refinement affects the "loans receivable" entry. We use the par amount of loans rather than include the accounting conventions that increase or decrease the loans receivable based on premiums and/or discounts.

In cases where HFAs purchase mortgage loans at a discount, the amount reported on the asset side of the statement of net assets is lower than the actual amount of loan principal outstanding, as accounting rules generally require certain assets to be carried at the lower of cost or current value. This accounting convention often results in a reported understatement of assets. We use the actual amount of loans receivable, often resulting in a higher amount of assets than otherwise reported.

Another adjustment we make to the "loans receivable" entry is to disregard the effects of the loan loss set-aside. While some HFAs set aside certain monies they believe are uncollectible, we add back in loan loss entries since we put the portfolio through our own loan loss calculations once we have a true picture of the par amount of outstanding loans. Our loan loss calculator projects the losses to the program by making very conservative default and recovery assumptions. By using the par amount of loans rather than the amount that reflects loss assumptions by the HFA, we avoid double counting certain losses in our analysis.

Segregation of Certain Funds:

A sometimes significant refinement made to the statement of net assets data is the exclusion of entire funds from the analysis. For example, for the handful of state HFAs that have state-sponsored mortgage insurers, we segregate the insurance assets and liabilities from the analysis of the state HFA's regular bond operations. This adjustment is made because these monies generally can only be used for insurance claims and are not typically available for the purchase of mortgage loans or the payment of debt service.

Another adjustment that can add up to significant dollars is the exclusion in some cases of funds relating to public housing authority functions as well as other governmental activities. Generally, we exclude those funds labeled as "governmental funds" pursuant to GASB 34 (Governmental Accounting Standards Board Statement 34) - the rules implemented in 2002 that mandated sweeping changes to the presentation and content of government financial statements.

Specifically, if a state HFA also acts as a public housing authority (PHA), we will exclude those funds from the overall analysis of the HFA. Unlike the primary lending role of an HFA, the main functions of a PHA are to own and manage multifamily properties. Because the source of much of a PHA's revenues is the federal government's operating and capital subsidies, we generally exclude these funds as they need to be used for specific public housing purposes rather than for HFA bond-related activities. This reasoning is mirrored for certain state sponsored activities - such as grants and pass through programs - that the HFA manages on behalf of their parent government.

Derivative Instrument Adjustments:

A further adjustment to the statement of net assets relates to derivative instruments, including swaps and interest rate caps that HFAs utilize in order to hedge the risk of rising interest rates on variable-rate bonds. We exclude the reporting of the changes in the fair value of derivative instruments that are classified as effective hedging derivative instruments on the statement of net assets pursuant to GASB Statement No. 53, which became effective in 2008 and imposes the accounting and financial reporting requirements for derivative instruments.

Statement of Revenues, Expenses and Changes in Net Assets Adjustments

Our analysis of an HFA's statement of revenues, expenses and changes in net assets is to assess profitability and ultimately to determine its ability to meet its obligations, including of course, debt service. In addition, the “Statement of Cash Flows” which shows items not on the statement of revenues, expenses and changes in net assets such as principal payments made to bondholders as well as principal repayments received from mortgagors, is analyzed.

As noted previously under the statement of net assets discussion, we modify the accounting entries for depreciation, GASB 31 and other types of unrealized gains and losses, and loan loss adjustments as well as the exclusion of entire funds such as mortgage insurance vehicles, public housing activities, and certain state appropriations. These changes are made on both the statement of net assets for the cumulative effect as well as the statement of revenues, expenses and changes in net assets for the annual changes. We also exclude adjustments made in accordance with GASB Statement No. 53 for changes in the fair value of derivative instruments that are used for investment purposes or those reported as investment derivative instruments because they are deemed ineffective hedges. Other adjustments specific to the statement of revenues, expenses and changes in net assets include:

Operating vs. Non-Operating Revenues and Expenses:

In some cases, a statement of revenues, expenses and changes in net assets will include certain entries that are not regularly part of that particular issuer's revenues or expenses. Generally, the only items we consider as operating revenues are:

- mortgage loan interest;
- investment interest; and
- loan and program fees.

On the expense side, we consider the following items to be operating expenses:

- interest expense;
- administrative expenses; and
- pool policy fees.

Virtually all other revenue and expenses are classified as non-recurring or non-operating entries that are not considered part of ongoing operations. We will include these in total revenues or total expenses but will specifically place them in the non-operating revenue or expense line item.

One frequent example of non-recurring revenue is a realized gain on an investment. If an HFA happens to refund a particular series of bonds that has a high yielding U.S. Treasury as part of a reserve fund and that Treasury is sold at a premium, we would include that realized gain as part of total revenue but as non-operating revenue rather than operating revenue. This is because it is unlikely that the issuer will be able to regularly duplicate such a gain in future years. We use several ratios to assess financial position, and such an investment gain would be seen in the ratios that reflect total revenue but not those that reflect operating revenue.

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.

Report Number: 1306040

Author
Geordie Thompson

MOODY'S
INVESTORS SERVICE