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U.S. Local Government General Obligations Methodology

In this document HR Ratings details our methodology for the evaluation of US local government general obligation bonds. Our methodology is primarily based on the issuer's historic, current and projected financial statements. HR Ratings' credit risk analysis reflects our view of the issuer's ability and willingness to make interest and principal payments promptly and in full. Our ratings do not reflect expected recoveries in the event of default, nor do they incorporate views about non-credit factors that may impact the trading price of the issuer's bonds such as their liquidity or tax treatment.

- A characteristic of General Obligation debt is that the payment of interest and principal is not tied to any specific revenue stream, nor does its servicing have any legal priority (other than possibly vs other debt obligations) over other uses to which an entity's inflows may be utilized.
- The rating process begins with a Quantitative Model that evaluates a series of metrics based on both historical data as well as multi-year forecasts of income, revenues, debt amortizations and financing.
- The metrics are based on three general concepts: a) Surplus/Deficit to Revenues, b) Net Debt and Obligations to Revenues and c) Debt Service Coverage.
- The quantitative model delivers an initial quantitative-based rating which is then subject to multi-notch movements upward or downwards based on the consideration of other factors. These factors include the following:
- Liquidity, General Fund vs. Governmental Fund balances, reliance on short-term borrowing, expenditure and revenue flexibility, pension liabilities, timeliness and quality of financial reporting, state regulation and support, business type activities and socioeconomic variables.
- In the case of pension liabilities, their impact is also incorporated into the quantitative model through their impact on required cash outlays and on net debt and obligations metrics.
- The combination of the initial quantitative rating and the notch adjustments given in the qualitative component produce the Initial Rating.
- The Initial Rating is then subject to consideration factors. First, extraordinary adjustments and second, issue-related adjustments.
- Extraordinary adjustments of a notch should be rare and are included when there are entity related factors that cannot be adequately incorporated in the methodology's qualitative component.
- Issue-related factors refer to characteristics of a specific general obligation bond or credit that distinguishes its credit quality from the entity's overall general obligation creditworthiness.

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Basic Concepts and Definitions

Scope and Limitations

In this document HR Ratings details our methodology for the evaluation of US local government general obligation bonds. Our methodology is primarily based on the issuer's historic, current and projected financial statements. HR Ratings' credit risk analysis reflects our view of the issuer's ability and willingness to make interest and principal payments promptly and in full. Our ratings do not reflect expected recoveries in the event of default, nor do they incorporate views about non-credit factors that may impact the trading price of the issuer's bonds such as their liquidity or tax treatment.

This methodology applies to counties, cities, towns, townships, villages, school districts, special taxing districts and other comparable local government units.

A characteristic of General Obligation debt is that the payment of interest and principal is not tied to any specific revenue stream, nor does its servicing have any legal priority (other than vs. other debt obligations) over other uses to which an entity's inflows can be utilized.

For example, *Single Tax-Supported Debt* and *Specific Revenue Source-Supported Debt* will be covered in a different methodology, which evaluates the cash flows generated by a particular asset.

For its part, General Obligation debt can be divided into two different types: "Unlimited General Obligation Bonds" are usually payable from the issuer's overall revenue stream and are backed by its full faith and credit, and "Limited Tax General Obligation Bonds" which constrain the types and amounts of tax revenue available to service the bond. The absence of a full faith and credit commitment implies that the entity is under no obligation to increase taxes or fees in order to service this form of debt. This distinction will be incorporated in the later stages of the methodology addressing their implication concerning credit quality.

The major revenue sources for US local government issuers are property taxes, sales taxes, fees and intergovernmental payments. Property tax revenues have stabilized and rebounded since the housing market bottomed out earlier in the decade. Sales tax revenues have also improved with the economy. While we are unaware of any secular trends regarding fee revenue, intergovernmental revenue has been a cause for concern. Due to austerity measures in Washington, federal support to state and local governments has been under pressure in recent years. Cities and counties typically receive more aid from their respective states as opposed to the federal government; prospects for future state aid thus vary according to the economic and political conditions in each state.

Fund Accounting

Unlike private entities, local governments separate their financial resources into distinct accounting structures called funds. Each fund has its own

revenue sources and purposes for which these revenue streams can be utilized. Each fund may have its own balance sheet equivalent accounts. These accounts can be used to determine the financial health of the fund (and consequently the credit quality of the related governmental entity) by measuring its liquidity requirements, as well as net debt and net asset levels. A major element in our analysis of an entity's credit quality is the ability and requirement to divert cash flows across different funds.

There are three different types of funds. These can be distinguished in terms of the functions that they resource and the types of obligations that they serve. These are: 1) Governmental Funds, 2) Proprietary Funds, and 3) Fiduciary Funds.

Governmental Funds are subdivided into the following categories:

- a) *General Fund*: This fund is generally the largest and most comprehensive and is usually the best indicator of an entity's credit quality. At the local level it contains the widest range of revenue sources such as property tax and payroll tax receipts. These resources are available for any type of expenditure the entity is legally authorized to pursue, including debt servicing.
- b) *Capital Project Funds*: The resources allocated to these funds are intended to finance the purchase of capital equipment and the construction of capital projects.
- c) *Debt Service Fund*: Is the vehicle for the payment of interest and principal on General Obligation long-term debt. It is usually resourced by the *General Fund*.
- d) *Special Revenue funds*: These are funded by specific revenue sources and are used for specific purposes.
- e) *Permanent Funds*: The funds are used to support the payment of some financial obligation.

Generally, the Governmental Fund is the accounting structure that generates the financial statements HR Ratings uses to determine the quantitative component of this methodology.

The ***Proprietary Funds*** accounting structure is utilized for business type activities in which the entity is engaged (e.g., an airport). These are usually subdivided into *Enterprise Funds* and *Internal Service Funds*. The operations of these funds generally are not incorporated in the quantitative component of our rating process. Rather, they will be considered in the qualitative stage of our methodology.

Fiduciary Funds are dedicated to third parties such as *Pension Funds*, *Private Purposes Funds*, *Investment Trust Funds* and *Agency Funds*. As in the case of the Proprietary Funds, Fiduciary Funds will be incorporated as part of a later qualitative analysis.

General Fund Restrictions

The resources found in some funds balances might not be available for debt service due to illiquidity or laws that dedicate the assets to other purposes. These kinds of restrictions may impact upon General Obligation credit quality. US Government Accounting Standards classifies fund balances into the following categories:

- a) Non-spendable - includes resources that are either: 1) not in spendable form, or 2) legally or contractually required to be maintained intact. Inventories, prepaid items and certain advances to other funds are classified as non-spendable fund balances.
- b) Restricted - includes amounts constrained for specific purposes such as those that are: 1) externally imposed by creditors, grantors, contributors, or laws or regulations of other governments, or 2) imposed by law through enabling legislation.
- c) Committed - includes resources that can be used for specific purposes with constraints imposed by formal action at the highest level of the entity's decision-making authority. The authorizations specifying the purposes for which committed funds can be used require the consent of both the legislative and executive branches of government.
- d) Assigned - includes amounts that are intended to be used for specific purposes, but are neither restricted nor committed. The authorization for the expenditure of these funds is not required to come from the entity's highest decision-making authority. Furthermore, the constraints imposed on the use of assigned resources are more easily removed or modified than those imposed on committed fund balances.
- e) Unassigned - includes resources that are not assigned to other funds and do not meet the criteria for classification as restricted, committed, or assigned. Fund balances that can be utilized for economic stabilization, emergencies and contingencies that do not qualify as restricted or committed are reported as unassigned.

The last three of these categories – Committed, Assigned and Unassigned – are referred to as *Unrestricted Fund Balances*. These balances can be readily devoted to any purpose – as long as elected officials approve. Such restrictions, or the absence thereof, hold great importance in HR Ratings credit quality analysis.

Considerations on Default

In accordance with HR Ratings Sovereign Debt Methodology, we consider “default” not only a formal failure to abide by debt payment obligations but also a forced restructuring of these obligations caused by a situation of stress and/or limited willingness to pay.

Since 1940, defaults on U.S. local government general obligation bonds have been quite rare. Despite highly publicized bankruptcy filings in a

number of cities in recent years, the default rate for this asset class remains very low.

A number of commentators have suggested that unsustainable public sector pension and retiree healthcare costs could place strong pressures on local government finances and reduce resources available for other uses. On the other hand, strong US equity performance between 2009 and 2013 has resulted in high returns for most public employee pension funds. Furthermore, as Munnell (2012) points out, state and local government pension plans were severely underfunded during the 1970s, yet there were very few municipal defaults or bankruptcies. Finally, with respect to retiree health benefits, we note that these rarely have legal protection, and thus can generally be assumed to be subordinate to debt service and pensions.

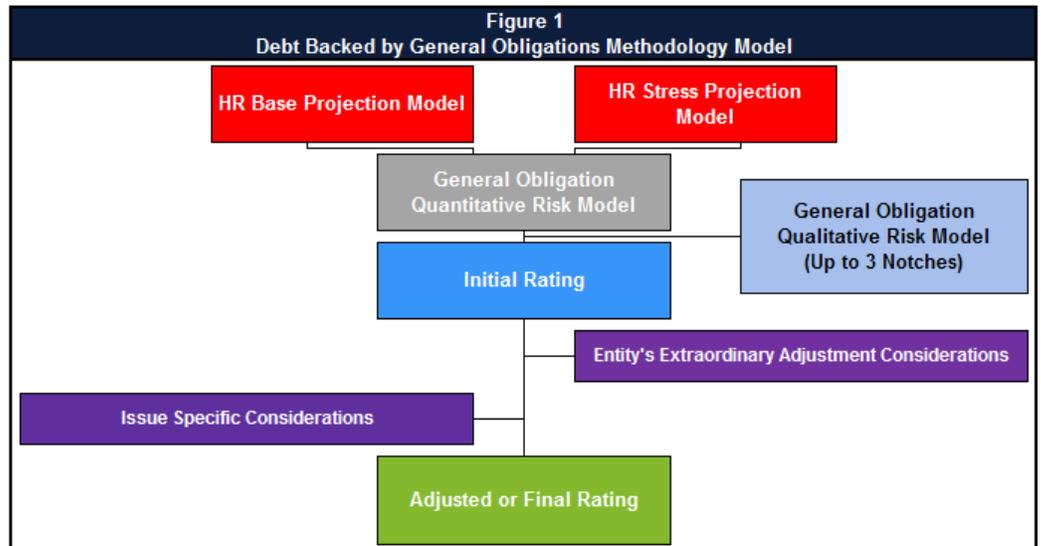
Overview of the Rating Process

As previously stated, HR Ratings methodology is primarily based on the issuer's historic, current and projected financial condition as reflected in historic and forecast metrics. These metrics are evaluated in the General Obligation Quantitative Risk Model (GO-Qn). This model, in turn, generates metrics under both base and stress case scenarios. The GO-Qn model determines an initial quantitative rating (QnR).

We then incorporate the consideration of a broad array of quantitative and qualitative factors, in a qualitative fashion, in the General Obligation Qualitative Risk Module (GO-QI). The qualitative component can add or detract from the QnR a net total of up to three notches as contained in the QIR.

From the interaction of these two components we derive a preliminary or "Initial Rating" (IR). Our methodology then incorporates the possibility making further adjustments to the rating in terms of notches (AR). These adjustments will fall into two broad categories: Extraordinary Adjustments (EA) and Issue Related Adjustments (IRA). As the name suggests the first is to be rarely used and has the purpose of incorporating factors that for whatever reason were not eligible for inclusion in the QIR or factors that are so powerfully negative or positive need to have an impact that goes beyond the three net-notch limitation incorporated into the QIR.

Issue Related Adjustments (IRAs) are more likely to be used in regard to ratings for a specific credit or bond whose particularities (such as subordination or additional credit enhancements to a specific debt obligation) require that it not have the same overall credit quality rating given to the entity for which it represents a debt obligation. The Final Rating therefore is the result of a multi-stage process that incorporates the QnR, the QIR, EA and IRA. Figure 1 below shows the complete structure of our methodological process.



Source: HR Ratings

The Initial Rating

General Obligation Quantitative Risk Model

The metrics generated for this model are derived from historical data and our annual forecasts for several years into the future. These forecasts are performed on the basis of one Base and one Stress scenario. As the name suggests, the Base Scenario incorporates what we assume to be the most probable outcome based on past information and the trends that we see developing. The Base Case Scenario may incorporate aspects of the entity's own forecast assumptions. In the Stress Scenario, we incorporate more restrictive assumptions and evaluate how the entity can assimilate conditions of stress.

HR Projection Model

Both Base and Stress scenarios generate a series of metrics, each having its own individual weight. These metric weights are then given sub-weights for the year in which they were observed or are forecast to appear in our projections.

The metrics can be grouped into three general categories: 1) Surplus/Deficit to Revenue, 2) Net Debt to Revenue and 3) Debt Service Coverage Ratio (DSCR). Each general category of metrics may have different forms of measurement. For example, the Surplus/Deficit category is subdivided into the Primary and Financial variations. The Primary variation measures the Surplus/Deficit excluding financial costs. The Financial variation includes financial costs in calculating the surplus/deficit. Depending upon the accounting and legal structures of each entity, including different forms of debt, it also might be necessary to calculate revenues on the basis of different criteria. For example, particular revenue sources might be available only for the payment of certain categories of debt. These same structural

issues might necessitate different variations of the Net Debt to Revenue metric category, with similar implications for the DSCR metrics. In order to incorporate non-debt obligations we may also elaborate metrics designed to evaluate the implications of a wider array of obligations (e.g., suppliers, pension obligations). Because we consider several years of data, our ratio analysis incorporates fiscal patterns such as persistent deficits.

With the above considerations in mind, below we detail some of the specific metric formulations that are incorporated into our GO-Qn model.

1) Surplus or Deficit to Total Revenue

This measures the government's ability to maintain fiscal sustainability. We define *Total Revenue* as the sum of all tax receipts, fees, fines, forfeitures and intergovernmental aid received during the fiscal year.

2) Surplus or Deficit Excluding Interest Costs to Total Revenue

Similar to the first ratio, but this considers the government's "primary balance". By excluding interest payments it more closely measures current policy rather than the consequences of previous policy that produced the debt on which interest is currently being paid.

3) Net General Obligation Debt to Unrestricted Revenue

This ratio reflects the cumulative impact of previous deficits and is a measure of the entity's solvency. *General Obligation Debt* is the principal outstanding on all general obligation bonds or credits.

Since a government's liquid assets may be available to repay debt, we consider the effect of netting these resources out of the issuer's overall debt. Specifically, *Net GO and Net Debt* refer to obligations less Current Assets, where current assets include cash, short-term investments and any other asset that can be reliably liquidated within one year and does not fall under the restricted or non-spendable definition.

Unrestricted Revenue. We use unrestricted revenue as revenue streams consolidated into the entity's financial statements may not be available to service GO debt, or might be prioritized to first service non-GO debt.

4) Net Debt to Total Revenue

Debt refers to all Bonds and Loans Outstanding in the issuer's Governmental funds and is a broader measure of solvency and reflects possible pressures on GO debt

5) General Obligation Debt Service Costs to Unrestricted Revenue

General Obligation Debt Service is the principal and interest due on these bonds. It is a liquidity related metric and is comparable to the Debt to Revenue metrics but incorporates the timing and cost of servicing these obligations. A large debt to revenue metric may be ameliorated by debt with

long amortization profiles. Debt to Revenue metrics are insensitive to the cost (i.e., interest rate) of the debt, while debt service ratios are not. We exclude any revenue allocated to purposes other than General Obligation debt service.

6) Total Debt Service Costs to Total Revenue

Debt Service Costs include interest and principal repayment on general obligation and other bonds and loans recorded in the governmental funds balance sheet. If debt servicing costs crowd out other spending priorities, political leaders may have an incentive to default. This ratio captures this effect. This metric corrects for weaknesses in the Net Debt to revenue metric as it incorporates the cost of the debt and the amortization schedule.

In our discussion of pension liabilities below we make reference to how they will be incorporated into the quantitative stage of the rating process.

These metrics show the capacity of a local government to generate revenues, its overall debt service burden and the resources available to meet the rated obligation.

We obtain historical data for calculating these ratios from the issuer's audited financial statements. Our focus is on Total Governmental Funds, which includes the General Fund plus other funds that support governmental activities. Revenues, debt and balances from business type activities such as airports and power facilities are not included in the quantitative model, but may be considered later in the ratings process as stated in previous sections.

Since local government budgets usually have a different reporting scope than those of audited financials, current year and projected budgets may have to be restated before being entered into our model. Normally, we would expect to work with the issuer's financial staff to gather model inputs for years in which audited financials have not been published. We discuss the importance of multi-year budget forecasting in later sections.

Because we rely upon ratios that involve outstanding debt and debt servicing costs, we need to forecast future bond issuance. We assume two types of future issuance: new bonds to finance infrastructure and new borrowings to finance operations. New infrastructure financing is based on the issuer's capital plan, or if this is not available, an analyst assumption based on previous issuance and discussions with the issuer. We only assume new borrowing to finance operations if total governmental fund balances are expected to be in deficit in a future year. HR Ratings analysts make interest rate and maturity profile assumptions for new issues after discussion with the issuer.

HR Ratings Forecast Scenarios

The Base scenario incorporates our assumptions as to the most likely evolution of key variables, based in part on the entity's own forecasts, and the impact these will have on the metrics previously discussed.

In this stress scenario we use relatively standardized sets of assumptions to stress variables producing lower revenue growth, higher spending, higher interest rates and/or greater debt issuance. These assumptions will be equally applied to entities graded by HR Ratings. Once the forecasts have been adjusted, we perform the same calculations described above.

General Obligation Qualitative Risk Model

The Qualitative component of our methodology incorporates a series factors, some highly measurable, others less so, that are considered apart from the metrics in the quantitative component and done so in a qualitative manner. These factors, in their totality, may result in total adjustments to QnR rating of up three notches.

Liquidity Analysis

Perhaps the most important short-term factor that can impact the quantitative rating is our analysis of the entity's liquidity. For this analysis we review the issuer's current ratio (current assets to current liabilities) and quick ratio (cash and marketable securities to current liabilities) to determine whether it has adequate liquidity to meet both debt service and other near term obligations. If one or both of these ratios are well below medians for comparable governments, we may reduce our QnR by a full notch. This analysis considers the percentage of total cash and assets that may be restricted or form a part of non-spendable funds.

General Fund Balance

Although our GO-Qn Model considers all governmental funds, some recent municipal bankruptcies and defaults have been linked specifically to exhaustion of the General Fund balance.

The historical evidence suggests that low or negative general fund balances constitute a risk factor regardless of the status of other governmental funds. Thus, we will also evaluate the status of the issuer's general fund. If this balance as a percentage of the issuer's general fund expenditure is substantially below national medians, we may lower the initial quantitative rating. In a sense, this analysis is a logical extension to the evaluation of an entity's liquidity.

Reliance on Short-Term Debt Financing and Market Presence

An additional issue related to the evaluation of liquidity is an entity's dependence on short-term borrowing which can make it especially vulnerable to short-term market crises as well as to its own structural weaknesses. We also consider the existence of reliable lines of credit, as these can reduce the pressures normally derived from a dependence on short-term financing.

New York City's historic 1975 fiscal crisis demonstrated the risks of over-reliance on short-term financing. As the city found, short-term financing costs can be volatile, and, in extreme cases, markets may not allow an issuer to

roll over its debt. We also note that during the 2008 financial crisis, Bear Stearns was laid low by an inability to roll over its commercial paper, while the market for municipal auction rate securities (which were also short-term) froze.

Many local governments use Revenue Anticipation Notes (RANs) to smooth out cash flows. This may be a necessity when a city or county is heavily dependent on property tax collections, which may only occur twice annually. On the other hand, a government with strong reserve balances should be able to accommodate seasonal revenue volatility without accessing the capital markets.

To the extent that RANs and other forms of short-term financing become a means of financing operating deficits or their balances become excessive relative to a government's annual revenue, we may reduce our FR.

An entity that is active in the debt markets can be a positive factor as it reflects investor familiarity that would facilitate the raising of additional resources especially within a relatively short time frame.

Expenditure Flexibility

During times of fiscal distress, cities and counties risk default unless they can manage expenditures. Since labor costs account for most of a local government's expenses, controlling human resource costs is especially critical.

In this respect, local governments that have a large percentage of non-unionized employees and/or a large proportion of staff that have defined contribution as opposed to defined benefit retirement schemes may receive a higher rating.

Cities and counties that use binding arbitration to resolve labor disputes have forfeited their ability to reduce unit labor costs, leaving them with only the politically unpopular option of reducing workforce size as a way of containing human resource expenditures. Consequently, local governments with binding arbitration requirements may be subject to a rating reduction. A similar reduction may also be imposed if there are serious procedural impediments to reducing headcount.

Revenue Flexibility

In the short term, it is often easier for a local government to reduce spending than increase revenue. Proceeds from new or increased taxes may become available on a delayed basis. For example, property tax increases are rarely possible within a given fiscal year.

That said, the ability to increase taxes and fees gives cities and counties a tool to balance their revenues and expenditures over the medium and long term. Restrictions on a local government's ability to increase taxes, such as those imposed by California Proposition 13, can result in a rating reduction.

Pension Liabilities

In the same way that an absence of liquidity can be one of the greatest threats to an entity's creditworthiness, large pension liabilities can be one of the greatest threats to its long-term solvency. Of course, for many entities the long-term threat is becoming an imminent one.

In October 2012, Milliman reported that the nation's largest 100 pension plans had an average funding ratio of 67.8%. This finding is consistent with widespread concerns that underfunded pension plans will result in government financial distress and ultimately defaults and bankruptcies. Further, the reported ratio uses discount rates provided by each retirement system. Usually, US pension plans discount their liabilities by a rate based on historic returns – typically 7% or more. Critics such as Novy-Marx and Rauh (2011) argue that much lower rates should be used. If their recommendations were implemented, funding ratios would be significantly lower than the Milliman estimate.

We should note that the pension issue is not only incorporated in the qualitative stage of our rating process; it forms part of the quantitative model as well. Our forecasts will necessarily make assumptions as to pension outlays that may show especially strong rates of growth over the next few years. These outlays will cause larger deficits or smaller surpluses with a negative impact on net debt levels. Our forecasts will also include cash outlays to resource pension plans to bring them to appropriate levels, either as a result of legal requirements or to what the analyst considers as being minimally acceptable degrees of funding. The analyst may also include a portion of the unfunded liability as part of General Obligation debt.

Additionally, at this qualitative stage of our analysis we review data for the pension plans used by the local government issuer. In many cases these plans are operated by multi-employer systems. If the pension plans in question have substantial underfunding and/or overly optimistic discount rate assumptions, we may reduce our preliminary quantitative based rating. Further, failing to make employer contributions to the pension plan equal to the Actuarially Required Contribution (ARC) can also have a negative impact.

However, we will also consider pension underfunding in relation to the issuer's benefit costs and overall budgetary situation. Governments can and have operated retirement systems with no prefunding – on a pay-as-you-go basis – without suffering a fiscal crisis. If retiree benefit costs are low relative to government revenue, and are expected to remain so during the forecast period, underfunding is not a significant threat to issuer solvency and no adjustment is warranted.

Recent events in certain municipalities have shown that some local government pension funds are vulnerable to mismanagement. Plans that have dishonest or unprofessional management processes are likely to achieve asset returns below those of their peers. Consequently, if we see evidence of poor practices in a city's pension fund, we may make downward adjustment to our preliminary rating.

In addition to pensions, substantial attention has focused on Other Post-Employment Benefits (OPEBs). Most local governments have not pre-funded their OPEB expenses and thus cover them on a pay-as-you-go basis. Generally, OPEBs lack the constitutional protections of pension benefits, and, in at least one case – that of Stockton - OPEB benefits were suspended at the time of a bankruptcy filing. OPEBs affect future expenditures and fund balances; they thus have an impact on our ratings at the quantitative stage of analysis. For this reason, we do not generally consider OPEBs as an additional factor when adjusting the initial rating.

Timeliness and Quality of Financial Reporting

The ability to publish reliable audited financial statements in a timely fashion is suggestive of sound fiscal management. One or more of the following may cause us to reduce an issuer's rating, or, in the extreme, to withdraw our rating entirely:

- The late release of financial disclosures
- Financial disclosures containing qualified audit opinions
- Financial disclosures that include material prior period adjustments

Generally, we expect audited financials to appear within six months after the end of the issuer's fiscal year. While we find Comprehensive Annual Financial Reports (CAFRs) preferable because they contain more information than basic audited financial statements, we understand that publishing a CAFR requires extra expenses that may be beyond the reach of smaller governments. Consequently, we will not penalize an issuer for releasing audited financials that do not contain all schedules required to meet GFOA and GASB standards for a CAFR. The minimally acceptable set of statements will include the opinion of a CPA, statements of net assets and activities for all major funds and footnote disclosure of all long-term obligations including pension and OPEB expenses. We also require at least three years of historical accounts unless the issuer is newly incorporated.

Aside from audited financials, we also review budgets. Normally, we expect government bond issuers to operate under an approved budget. Failure to approve a budget that meets state requirements within 60 days of the beginning of the fiscal year could result in a rating reduction.

Governments can demonstrate greater command of their fiscal condition by effectively implementing one or more of the following:

- Budgets whose scope includes all governmental funds and which may be readily reconciled to governmental fund reporting in the audited financials. Budgets limited to the general fund are less useful.
- Multi-year revenue and expenditure projections. Ideally, we would like to see projections that include stress scenarios, e.g. situations in which economic growth or property price appreciation does not meet expectations.

- Interim reporting and forecasting. Ideally, these reports should have the same objects as governmental fund reporting in the audited financial statements. Interim reports and projections that just involve one revenue source or one fund are less useful.

Effective implementation of financial reporting includes ensuring that figures reconcile within the report and to other financial reports. Major revenue and expenditure sources should not be forecast by simply applying a historical growth rate to recent data; for these projections to be useful, more analysis is required. If the effectiveness criteria are met, these enhanced forms of reporting can result in a higher AR.

State Regulation and Support

As a July 2013 Pew Research Center study found, states have varying approaches to identifying, monitoring and troubleshooting local government fiscal distress. Nineteen states have laws that authorize intervention in the case of city or county fiscal distress. As we have seen in the case of Detroit, such intervention does not guarantee timely and full payments to municipal bondholders. Despite Michigan's robust emergency financial management program, the city has defaulted on certain bond payments and filed for Chapter IX bankruptcy protection. Nonetheless, it is reasonable to assume that holders of Michigan city and county bonds would have seen more defaults and smaller recoveries in the absence of state intervention.

Bondholders are better served by state control over municipal bond issuance as seen in North Carolina. After experiencing a severe municipal bond default wave, the state implemented a Local Government Finance law in 1931 that has buoyed the credit of its cities and counties ever since. The North Carolina Local Government Finance Commission has the ability to prevent cities and counties from borrowing if their financial management does not meet commission standards. North Carolina's control efforts are supported by a local government fiscal monitoring system. Several other states have such systems, including New York State, which recently implemented a fiscal stress system that relies on 23 separate indicators.

States also vary to the extent that some explicitly permit municipal bankruptcies, some prohibit them and others are silent. Since defaults have occurred and can occur independently from Chapter IX filings, it is not clear to us that any given state position on municipal bankruptcy is better for bondholders. Therefore this factor is not considered in our rating assessments.

In summary, we see state laws that require local government fiscal monitoring and emergency intervention as a basis for an upward adjustment to a city or county's model-implied rating; while laws that effectively restrict cities from borrowing excessively as a basis an upward adjustment of the IR.

Business Type Activities and Component Units

Although our quantitative approach focuses on governmental activities, we recognize that an issuer may cross-subsidize governmental activities with

business type activities and vice versa. Thus, if we see any negative trends in the performance of a local government's proprietary funds (which are used toward business-type activities) or separately reporting component units (subsidiary agencies whose accounts are not fully consolidated into those of the issuer), we may make a negative adjustment to the preliminary rating.

Socioeconomic Variables

Previous academic research shows a correlation between municipal bond ratings and various socioeconomic indicators such as per capita income (Palumbo and Zaporowski, 2012) and population size (Moon and Stotsky, 1993).

Although it is commonly assumed that smaller population correlates with greater credit risk, this belief is not empirically supported. Holian and Joffe (2013) found that defaults during the Great Depression were actually more likely among higher population cities. Consequently, our methodology does not consider absolute population levels. On the other hand, a city's population trend may be significant. Rapidly declining population, as was the case in Detroit, can lead to declining revenues. Thus, if we see evidence of population decline, we may lower the preliminary rating.

The Adjusted or Final Rating

The quantitative rating (QnR) combined with the notch adjustment in the qualitative rating (QIR) produced the Initial Rating (IR). From that rating we can make additional adjustments either of an extraordinary nature (EA) or to a rating adjustment linked to the characteristics of a specific issue such as subordination (IRA). The end result of these adjustments gives us the Final Rating. We expect the EA to be rare while the IRA may be more common. Normally the IRA adjustment will be one notch.

Entity's Extraordinary Adjustment Considerations

The Entity's Extraordinary Adjustment Considerations may alter the Initial Rating in one notch in any direction. These considerations focus on certain aspects of an entity that are not commonly observed across all other entities and that for whatever reason cannot be adequately incorporated either into the quantitative or qualitative components of the methodology.

Issue-Specific Considerations

In addition to factors that affect the local government's creditworthiness, HR Ratings also reviews the specific terms of each obligation we rate. Normally, we would expect a general obligation bond to be backed by the full faith and credit of the issuer, and contain no limits on the range of revenue sources or tax rates available to service the debt. If the pledge contains such constraints, like in the case of Limited Tax General Obligation Bonds, we may lower our FR.

Conclusion

HR Ratings local government general obligation debt methodology is anchored by a quantitative approach that incorporates past, current and projected financial results for the rated government. We then adjust the rating computed by our model according to a number of clearly observable factors that do not lend themselves to inclusion in the quantitative model. Finally, we consider the terms of each rated obligation to determine an issue-specific rating.

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