

FORM NRSRO

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APPLICATION FOR REGISTRATION AS A NATIONALLY RECOGNIZED STATISTICAL RATING ORGANIZATION (NRSRO)

SEC 1541 (1-15)

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**APPLICATION FOR REGISTRATION AS A
NATIONALLY RECOGNIZED
STATISTICAL RATING ORGANIZATION (NRSRO)**

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| <input type="checkbox"/> INITIAL APPLICATION

<input type="checkbox"/> APPLICATION TO ADD CLASS OF CREDIT RATINGS

<input type="checkbox"/> APPLICATION SUPPLEMENT
Items and/or Exhibits Supplemented:
_____ | <input type="checkbox"/> ANNUAL CERTIFICATION

<input checked="" type="checkbox"/> UPDATE OF REGISTRATION
Items and/or Exhibits Amended:
<u>Item 9, Exhibit 2</u>

<input type="checkbox"/> WITHDRAWAL FROM REGISTRATION |
|--|---|

Important: Refer to Form NRSRO Instructions for General Instructions, Item-by-Item Instructions, an Explanation of Terms, and the Disclosure Reporting Page (NRSRO). “You” and “your” mean the person filing or furnishing, as applicable, this Form NRSRO. “Applicant” and “NRSRO” mean the person filing or furnishing, as applicable, this Form NRSRO and any credit rating affiliate identified in Item 3.

1. A. Your full name:

HR Ratings de Mexico, S.A. de C.V.

B. (i) Name under which your credit rating business is primarily conducted, if different from Item 1A:

HR Ratings

(ii) Any other name under which your credit rating business is conducted and where it is used (other than the name of a credit rating affiliate identified in Item 3):

N/A

C. Address of your principal office (do not use a P.O. Box):

Av. Prol.Paseo de la Reforma 1015 Torre A piso 3 Col. Santa Fe	Mexico	City	01210
<small>(Number and Street)</small>	<small>(City)</small>	<small>(State/Country)</small>	<small>(Zip/Postal Code)</small>

D. Mailing address, if different:

N/A

E. Contact person (See Instructions):

Rafael Colado Ibarreche	Acting Head Compliance Officer		
<small>(Name and Title)</small>			
Av. Prol.Paseo de la Reforma 1015 Torre A piso 3 Col. Santa Fe	Mexico	City	01210
<small>(Number and Street)</small>	<small>(City)</small>	<small>(State/Country)</small>	<small>(Zip/Postal Code)</small>

CERTIFICATION:

The undersigned has executed this Form NRSRO on behalf of, and on the authority of, the Applicant/NRSRO. The undersigned, on behalf of the Applicant/NRSRO, represents that the information and statements contained in this Form, including Exhibits and attachments, all of which are part of this Form, are accurate in all significant respects. If

this is an ANNUAL CERTIFICATION, the undersigned, on behalf of the NRSRO, represents that the NRSRO's application on Form NRSRO, as amended, is accurate in all significant respects.

7/24/2019

(Date)

HR Ratings de Mexico, S.A. de C.V.

(Name of the Applicant/NRSRO)

By: /s/ José Fernando Montes de Oca Gatica

(Signature)

José Fernando Montes de Oca Gatica, Chief Executive Officer

(Print Name and Title)

2. A. Your legal status:

Corporation Limited Liability Company Partnership Other (specify) _____

B. Month and day of your fiscal year end: 12/31

C. Place and date of your formation (i.e., state or country where you were incorporated, where your partnership agreement was filed, or where you otherwise were formed):

State/Country of formation: Mexico

Date of formation: 6/22/07

3. Your credit rating affiliates (See Instructions):

HR Ratings, LLC

(Name)

United States, One World Trade Center, Suite 8500, New York, New York, Zip Code 10007, tel +1(212)2205735

(Address)

(Name)

(Address)

(Name)

(Address)

(Name)

(Address)

(Name)

(Address)

4. The designated compliance officer of the Applicant/NRSRO (See Instructions):

Rafael Colado Ibarreche

Acting Head Compliance Officer

(Name and Title)

Av. Prol. Paseo de la Reforma 1015
Torre A piso 3 Col. Santa Fe

Mexico

City

01210

(Number and Street)

(City)

(State/Country)

(Postal Code)

5. Describe in detail how this Form NRSRO and Exhibits 1 through 9 to this Form NRSRO will be made publicly and freely available on an easily accessible portion of the corporate Internet website of the Applicant/NRSRO (See Instructions):

Form NRSRO and Exhibits 1 through 9 will be made publicly and freely available at <http://www.hrratings.com/en/formnrsro>

6. **COMPLETE ITEM 6 ONLY IF THIS IS AN INITIAL APPLICATION, APPLICATION SUPPLEMENT, OR APPLICATION TO ADD A CLASS OF CREDIT RATINGS.**

A. Indicate below the classes of credit ratings for which the Applicant/NRSRO is applying to be registered. For each class, indicate the approximate number of obligors, securities, and money market instruments in that class as of the date of this application for which the Applicant/NRSRO has an outstanding credit rating and the approximate date the Applicant/NRSRO began issuing credit ratings as a "credit rating agency" in that class on a continuous basis through the present (See Instructions):

Class of credit ratings	Applying for registration	Approximate number currently outstanding	Approximate date issuance commenced
financial institutions as that term is defined in section 3(a)(46) of the Exchange Act (15 U.S.C. 78c(a)(46)), brokers as that term is defined in section 3(a)(4) of the Exchange Act (15 U.S.C. 78c(a)(4)), and dealers as that term is defined in section 3(a)(5) of the Exchange Act (15 U.S.C. 78c(a)(5))	<input type="checkbox"/>		
insurance companies as that term is defined in section 3(a)(19) of the Exchange Act (15 U.S.C. 78c(a)(19))	<input type="checkbox"/>		
corporate issuers	<input type="checkbox"/>		
issuers of asset-backed securities as that term is defined in 17 CFR 229.1101(c)	<input type="checkbox"/>		
issuers of government securities as that term is defined in section 3(a)(42) of the Exchange Act (15 U.S.C. 78c(a)(42)), municipal securities as that term is defined in section 3(a)(29) of the Exchange Act (15 U.S.C. 78c(a)(29)), and foreign government securities	<input type="checkbox"/>		

B. Briefly describe how the Applicant/NRSRO makes the credit ratings in the classes indicated in Item 6A readily accessible for free or for a reasonable fee (See Instructions):

C. Check the applicable box and attach certifications from qualified institutional buyers, if required (See Instructions):

- The Applicant/NRSRO is attaching _____certifications from qualified institutional buyers to this application. Each is marked "Certification from Qualified Institutional Buyer."
- The Applicant/NRSRO is exempt from the requirement to file certifications from qualified institutional buyers pursuant to section 15E(a)(1)(D) of the Exchange Act.

Note: You are not required to make a Certification from a Qualified Institutional Buyer filed with this Form NRSRO publicly available on your corporate Internet website pursuant to Exchange Act Rule 17g-1(i). You may request that the Commission keep these certifications confidential by marking each page "Confidential Treatment" and complying with Commission rules governing confidential treatment. The Commission will keep the certifications confidential upon request to the extent permitted by law.

7. DO NOT COMPLETE ITEM 7 IF THIS IS AN INITIAL APPLICATION.

A. Indicate below the classes of credit ratings for which the NRSRO is currently registered. For each class, indicate the approximate number of obligors, securities, and money market instruments in that class for which the NRSRO had an outstanding credit rating as of the most recent calendar year end and the approximate date the NRSRO began issuing credit ratings as a “credit rating agency” in that class on a continuous basis through the present (See Instructions):

Class of credit rating	Currently registered	Approximate number outstanding as of the most recent calendar year end	Approximate date issuance commenced
financial institutions as that term is defined in section 3(a)(46) of the Exchange Act (15 U.S.C. 78c(a)(46)), brokers as that term is defined in section 3(a)(4) of the Exchange Act (15 U.S.C. 78c(a)(4)), and dealers as that term is defined in section 3(a)(5) of the Exchange Act (15 U.S.C. 78c(a)(5))	<input checked="" type="checkbox"/>	604	2009
insurance companies as that term is defined in section 3(a)(19) of the Exchange Act (15 U.S.C. 78c(a)(19))	<input type="checkbox"/>		
corporate issuers	<input checked="" type="checkbox"/>	278	2010
issuers of asset-backed securities as that term is defined in 17 CFR 229.1101(c)	<input type="checkbox"/>		
issuers of government securities as that term is defined in section 3(a)(42) of the Act (15 U.S.C. 78c(a)(42)), municipal securities as that term is defined in section 3(a)(29) of the Exchange Act (15 U.S.C. 78c(a)(29)), and foreign government securities	<input checked="" type="checkbox"/>	361	2008

B. Briefly describe how the NRSRO makes the credit ratings in the classes indicated in Item 7A readily accessible for free or for a reasonable fee (See Instructions):

Credit ratings in the classes indicated in item 7A are readily accessible for free at http://www.hrratings.com

<p>8. Answer each question. Provide information that relates to a “Yes” answer on a Disclosure Reporting Page (NRSRO) and submit the Disclosure Reporting Page with this Form NRSRO (See Instructions). You are not required to make any disclosure reporting pages submitted with this Form publicly available on your corporate Internet website pursuant to Exchange Act Rule 17g-1(i). You may request that the Commission keep any disclosure reporting pages confidential by marking each page “Confidential Treatment” and complying with Commission rules governing confidential treatment. The Commission will keep the disclosure reporting pages confidential upon request to the extent permitted by law.</p>	
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	YES	NO
A. Has the Applicant/NRSRO or any person within the Applicant/NRSRO committed or omitted any act, or been subject to an order or finding, enumerated in subparagraphs (A), (D), (E), (G), or (H) of section 15(b)(4) of the Securities Exchange Act of 1934, been convicted of any offense specified in section 15(b)(4)(B) of the Securities Exchange Act of 1934, or been enjoined from any action, conduct, or practice specified in section 15(b)(4)(C) of the Securities Exchange Act of 1934 in the ten years preceding the date of the initial application of the Applicant/NRSRO for registration as an NRSRO or at any time thereafter?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B. Has the Applicant/NRSRO or any person within the Applicant/NRSRO been convicted of any crime that is punishable by imprisonment for 1 or more years, and that is not described in section 15(b)(4) of the Securities Exchange Act of 1934, or been convicted of a substantially equivalent crime by a foreign court of competent jurisdiction in the ten years preceding the date of the initial application of the Applicant/NRSRO for registration as an NRSRO or at any time thereafter?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
C. Is any person within the Applicant/NRSRO subject to any order of the Commission barring or suspending the right of the person to be associated with an NRSRO?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

9. Exhibits (See Instructions).

<p>Exhibit 1. Credit ratings performance measurement statistics.</p> <p><input type="checkbox"/> Exhibit 1 is attached and made a part of this Form NRSRO.</p>
<p>Exhibit 2. A description of the procedures and methodologies used in determining credit ratings.</p> <p><input checked="" type="checkbox"/> Exhibit 2 is attached and made a part of Form NRSRO.</p>
<p>Exhibit 3. Policies or procedures adopted and implemented to prevent the misuse of material, nonpublic information.</p> <p><input type="checkbox"/> Exhibit 3 is attached and made a part of this Form NRSRO.</p>
<p>Exhibit 4. Organizational structure.</p> <p><input type="checkbox"/> Exhibit 4 is attached to and made a part of this Form NRSRO.</p>
<p>Exhibit 5. The code of ethics or a statement of the reasons why a code of ethics is not in effect.</p> <p><input type="checkbox"/> Exhibit 5 is attached to and made a part of this Form NRSRO.</p>
<p>Exhibit 6. Identification of conflicts of interests relating to the issuance of credit ratings.</p> <p><input type="checkbox"/> Exhibit 6 is attached to and made a part of this Form NRSRO.</p>
<p>Exhibit 7. Policies and procedures to address and manage conflicts of interest.</p> <p><input type="checkbox"/> Exhibit 7 is attached to and made a part of this Form NRSRO.</p>

Exhibit 8. Certain information regarding the credit rating agency's credit analysts and credit analyst supervisors.

Exhibit 8 is attached to and made a part of this Form NRSRO.

Exhibit 9. Certain information regarding the credit rating agency's designated compliance officer.

Exhibit 9 is attached to and made a part of this Form NRSRO.

Exhibit 10. A list of the largest users of credit rating services by the amount of net revenue earned from the user during the fiscal year ending immediately before the date of the initial application.

Exhibit 10 is attached to and made a part of this Form NRSRO.

Note: You are not required to make this Exhibit publicly available on your corporate Internet website pursuant to Exchange Act Rule 17g-1(i). You may request that the Commission keep this Exhibit confidential by marking each page "Confidential Treatment" and complying with Commission rules governing confidential treatment. The Commission will keep the information and documents in the Exhibit confidential upon request to the extent permitted by law.

Exhibit 11. Audited financial statements for each of the three fiscal or calendar years ending immediately before the date of the initial application.

Exhibit 11 is attached to and made a part of this Form NRSRO.

Note: You are not required to make this Exhibit publicly available on your corporate Internet website pursuant to Exchange Act Rule 17g-1(i). You may request that the Commission keep this Exhibit confidential by marking each page "Confidential Treatment" and complying with Commission rules governing confidential treatment. The Commission will keep the information and documents in the Exhibit confidential upon request to the extent permitted by law.

Exhibit 12. Information regarding revenues for the fiscal or calendar year ending immediately before the date of the initial application.

Exhibit 12 is attached to and made a part of this Form NRSRO.

Note: You are not required to make this Exhibit publicly available on your corporate Internet website pursuant to Exchange Act Rule 17g-1(i). You may request that the Commission keep this Exhibit confidential by marking each page "Confidential Treatment" and complying with Commission rules governing confidential treatment. The Commission will keep the information and documents in the Exhibit confidential upon request to the extent permitted by law.

Exhibit 13. The total and median annual compensation of credit analysts.

Exhibit 13 is attached and made a part of this Form NRSRO.

Note: You are not required to make this Exhibit publicly available on your corporate Internet website pursuant to Exchange Act Rule 17g-1(i). You may request that the Commission keep this Exhibit confidential by marking each page "Confidential Treatment" and complying with Commission rules governing confidential treatment. The Commission will keep the information and documents in the Exhibit confidential upon request to the extent permitted by law.

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This Methodology is the exclusive property of HR Ratings.

Methodology for the evaluation of the credit quality of Water Operating Agencies

This document details the methodology that HR Ratings uses for the credit evaluation of Water Operating Agencies (WOA). The analysis of HR Ratings reflects its opinion regarding the ability and willingness of an organization comply with their debt's interest and principal payment obligations in a timely and appropriate manner. The methodology details the steps for assigning the rating: the first step refers to a quantitative analysis that evaluates financial metrics and operational indicators, while the second step refers to considerations subject to the relationship that may exist between a WOA with its Relevant Subnational Agency and qualitative factors that cannot be incorporated into the quantitative analysis.

The first step of the quantitative analysis of HR Ratings analyzes historical financial information of the WOA and elaborates projections for four metrics in a baseline scenario and in a stress scenario. HR Ratings' financial metrics are based primarily on Free Cash Flow (FCF), a variable that reflects an agency's available cash flow over a period to meet its debt obligations after meeting its operating and maintenance needs. The financial metrics that HR Ratings evaluates are: (i) FCF on debt service, (ii) FCF plus cash available on debt service, (iii) net debt on the FCF (known as years of payment), and (iv) the non-financial obligations on EBITDA.

The second step of the quantitative analysis assesses the status of three operational indicators: (i) physical efficiency, (ii) commercial efficiency, and (iii) cost-to-tariff ratio. These concepts detail the WOA's ability to provide services, capture revenue and generate cash flow.

To assign the WOA rating, HR Ratings will incorporate two types of considerations. The first type refers to the case in which a WOA obtains a rating lower than that of the Relevant Subnational Agency in the quantitative analysis. In this situation the agency's rating will be like that of the Relevant Subnational Agency. This is due to the great political and social importance that the organization would have for the Relevant Subnational Agency. The second consideration that HR Ratings may incorporate refers to qualitative factors, which due to their nature cannot be incorporated in the quantitative analysis, among which the following stand out: off-balance sheet liabilities, political risk due to the change of administration of the Relevant Subnational Agency, the quality of the information, among others.

For those agencies operating under a concession, the extent to which their operation and/or administration is affected by the Subnational Agency delivering the concession will be determined.

Introduction

The Water Operating Agencies (WOA) are responsible for water supply, sewerage, sanitation and wastewater disposal. These entities belong to the municipalities and are constituted by means of a decree signed by the corresponding municipality with state authorities as witnesses. WOA are decentralized bodies that, in addition to planning and programming the provision of services, carry out, operate and maintain hydraulic infrastructure works; with the capacity to adopt the necessary measures to guarantee their financial self-sufficiency. However, water service is a fundamental right and financial independence could be relegated for providing a complete service to the population.

From the legal standpoint, Article 27 of the Constitution establishes that waters within the territory are the property of the nation, and their use, development and exploitation can be left in the hands of states and municipalities through allocations. The National Waters Law establishes the relevant guidelines for the exploitation, use or utilization, preservation, distribution and control of waters in national territory, as well as the chain of entities in charge, and establishes the National Water Commission (CONAGUA) as the highest authority in relation with the provisions of this law. However, this law does not establish national standards for the operation or structuring of water operators. Each federative entity establishes its own drinking water and sewerage law with which it determines the way these services will be provided, by following the guidelines, and by considering the needs and characteristics of each region.

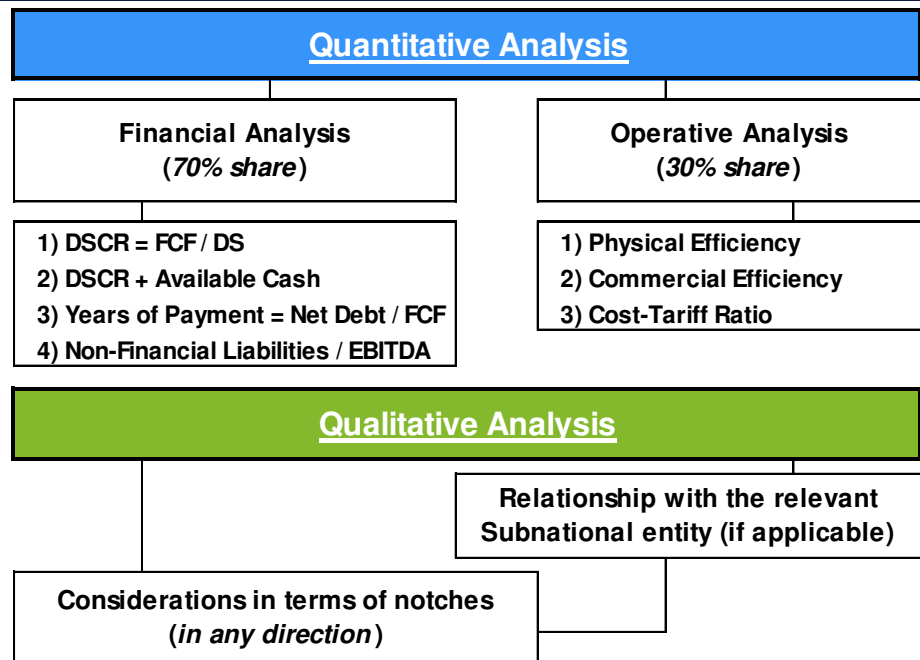
Compliance with the guidelines established at the national and regional levels depends on a coordinated effort between the municipal and state authorities and the commissions present in each federative entity. Through article 115 of the Constitution, municipalities acquire full responsibility for providing public services of drinking water, drainage, sewerage, wastewater treatment and disposal. In Mexico, the administration scheme to which the WOA adhere is at municipalities' discretion. However, there is the possibility that the WOA has an intermunicipal scope and, therefore, the responsibility for the structuring and administration of the agency lies with the federative entity. The most common administrative schemes are decentralized bodies, intermunicipal bodies and concessions to private parties. The analysis team will study the situation of each water operating agency to identify their legal status and determine how they will meet their debt obligations.

A WOA is typically the only provider of water and sewerage services within a certain region. The legal aspect has already been detailed; and as far as the economic aspect is concerned, these agencies are treated as a natural monopoly, not only because of their strategic importance, but also because of the high marginal production costs. Rates must be flexible to allow WOA to cover their operation, and if possible, maintenance costs and infrastructure investment. The monopoly structure also makes it possible to discriminate tariffs based on the type of customer: residential, commercial, public and industrial customers. However, the tariff structure may depend on the political agenda of the administration.

HR Ratings Rating Process

The rating process of HR Ratings, shown in Table 1, starts with a quantitative analysis that considers two aspects: a financial analysis and an operational one. The first one considers metrics that measure the cash flow capacity to meet the WOA's payment obligations, in a baseline scenario and in a stress scenario. The second one considers the main operational metrics, those that refer to the agency's ability to capture revenue.

Table 1: HR Rating's rating process



Source: HR Ratings.

For HR Ratings to be able to assign a credit rating to the WOA, it may incorporate two types of additional considerations. The first one refers to the case in which after a quantitative analysis, a WOA obtains a rating lower than that of the Relevant Subnational Agency. In this situation, the agency's rating will be matched with that of the Relevant Subnational Agency. This is because drinking water and sanitation are fundamental human rights, so the WOA has great political and social importance for the Relevant Subnational Agency.

The second consideration that HR Ratings may incorporate, after the quantitative analysis and the adjustment detailed in the previous paragraph, is of a qualitative nature and is due to factors that by their nature cannot be incorporated into the quantitative analysis.

In the cases in which HR Ratings applies a qualitative adjustment based on the support from the relevant Subnational, the rating assigned to the WOA will not surpass the rating of the relevant Subnational.

Quantitative Analysis of WOA

The quantitative analysis of HR Ratings focuses on two aspects: the first one refers to the financial analysis that considers four metrics that evaluate the solvency and liquidity of the WOA. The second part relates to an operational analysis that focuses on the Agency's ability to deliver the service and capture revenue. The financial analysis has a value of 70% over the quantitative analysis, while the remaining 30% corresponds to the analysis of operational metrics.

Financial Evaluation of the WOA

The financial analysis developed by the HR Ratings analysis team uses the WOA's financial statements to develop projections in a baseline scenario and in a stress scenario. The first one reflects the development that the HR Ratings analysis team considers the most probable one, and the second one incorporates stress factors on sales volume, tariffs, operating costs, interest rates, etc.

Historical values are also considered when determining the rating, not just the projections of both scenarios. In general, HR Ratings will use the WOA's financial information for at least the last three years, and with respect to the periods that will receive value in the financial analysis, the last historical year, the current year and at least the projections for the following three years will be considered. The current year receives the greatest weight in the analysis, while the value of the projection decreases as it moves further away from the present.

It is important to point out that the weightings that each metric receives, as well as its value with respect to the period it represents, will be identical for the WOA rated by HR Ratings. This will also apply to the weight of the baseline and stress scenarios.

The main steps in financial analysis are described below:

1. The analysis team, with historical information, elaborates the projections of the baseline scenario and the stress scenario, which are weighted 70% and 30% respectively.
2. A weighted average of each metric is calculated considering its value in different years. The current period receives the largest weighting and the weight decreases as the value moves away from this period. Weights must be equivalent between scenarios. To determine the current year, HR Ratings must have information for at least three quarters of the year.
3. Each metric is assigned a score according to its strength.
4. The score for each metric is weighted and the weighted average for each scenario is calculated. Weights must be equivalent between scenarios.
5. A weighted average is applied to the results for each scenario.

The four metrics that HR Ratings weighs in its financial analysis, which seek to capture both the liquidity and solvency of the organization, are detailed below:

a) *Debt Service Coverage Ratio (DSCR)* (25.0% of financial analysis)

This metric measures WOA's ability to pay its debt obligations in each period through the cash flow available to meet payment obligations. For an agency to maintain an income flow they need to have an efficient operation, and in the opinion of HR Ratings, they need to maintain the productivity of physical capital, so the flow available for debt service must be net of maintenance Capex¹. In addition, a WOA might receive some transfer from the Subnational agency assigned to several investment projects; this flow must also be considered when calculating the flow available for debt service. With respect to debt service, payments of interest for the period and mandatory amortizations in the same period must be considered. This metric is described as:

$$DSCR = \frac{FCF}{DS}$$

Where: *free cash flow* is represented by "FCF" and *debt service* by "DS". The calculation of these variables is detailed below:

a.1) Free Cash Flow

HR Ratings defines FCF as a measure of operational activities and, therefore, it is different from financial and investment activities. The FCF incorporates the concept of the company as a viable entity (*going concern*) by including the concept of investment costs for maintenance (maintenance Capex)².

A WOA usually has a clear purpose: to maintain operational continuity to guarantee the quality and reach of their service. This purpose implies covering the maintenance Capex adequately to maintain stability in their productive capacity. In general, HR Ratings expects that the investment related to the improvement or extension of the water system should be covered by extraordinary revenues of the agency or directly by the Subnational Agency. However, WOAs that generate a considerable FCF and that maintain a DSCR above one and with enough margin will be able to use their current revenues to finance infrastructure investment. The FCF is typically determined as:

$$FCF = EBITDA + Working Capital + Maintenance Capex$$

Where EBITDA maintains its standard definition (earnings before payment of interest, taxes, depreciation and amortization), *working capital* refers to the change of non-interest-bearing assets and liabilities that allow for identifying cash movements, and *maintenance Capex* refers to the maintenance of the physical capital necessary to sustain the operation of the agency. In addition, HR Ratings should identify whether there is cash assigned to cover investment projects, or other objectives, since this restricted cash must be subtracted from the FCF.

¹ Maintenance Capex estimated by HR Ratings considers plant and equipment depreciation.

² In general, the FCF is generated by operating activities, minus a maintenance Capex estimation, and it may include dividends received from related companies. As far as operating activities are concerned, HR Ratings can make a distinction between basic working capital (accounts receivable from customers, change in inventories and accounts payable to suppliers) and other activities.

In calculating the FCF, the analysis team will be able to identify trends that are potentially harmful to the agency. One of the most relevant examples relates to the accumulation of accounts receivable. Due to the strategic and social importance of water services, the agency might face significant political and social challenges to collect late fees. When estimating working capital, the accumulation of accounts receivable will generate a significant FCF contraction. Another relevant example refers to the accumulation of liabilities without financial cost. Accumulating liabilities with suppliers or with certain institutions increases FCF, although it might eventually result in flow contraction.

a.2) Debt Service

Debt service (DS) includes mandatory principal payments and interest payments. In accordance with the "Corporate Debt Credit Risk Evaluation Methodology", published on May 14, 2014, the cost of derivatives used to cover the debt may be included. Also, if the agency has a short-term debt that has been refinanced multiple times throughout the year, the amortization component within the *DS* metric will consider the total value of the short-term debt at the end of the previous fiscal year and will not consider non-compulsory advance payments. Short-term debt carries a significant refinancing risk, especially for an agency that would otherwise have a weak credit profile.

There are cases in which accrued and paid interest normally charged to net profit are capitalized instead to an assets account. In these cases, the methodology assumes that these payments are part of the debt service.

b) *DSCR with Cash* (20.0% of financial analysis)

To include the *DSCR + Available Cash* metric, the methodology will consider the cash on hand at the end of the relevant fiscal year or quarter. These assets include any funds that can be used for debt service; however, the analysis team must identify when an asset, which is cash, is restricted to a use other than debt service. Additionally, cash value is limited by the fact that cash can only be used once until operating cash flow enables accumulation of new reserves. The formal expression is as follows:

$$DSCR + Available Cash = \frac{FCF \text{ with Available Cash}}{DS}$$

DSCR metrics can vary considerably according to the term on the debt or to the type of amortization, whether targeted or mandatory amortization. For example, in cases where there is some targeted, non-mandatory amortization with some grace period, projected coverage metrics might be high up to the year in which such amortization is incorporated and coverage falls significantly.

Water Operating Agencies

Debt Evaluation Methodology for Mexican Entities

July 2019

c) Years of Payment Ratio: Debt Service and Amortization Schedule (35.0% of financial analysis)

The "years of payment" metric is measured as the amount of net debt over the *FCFLTM*. A high value for this metric suggests that the viability of the water operating agency, in the long term, may be at risk even though it currently faces low amortization payments. This metric is defined as:

$$\text{Years of Payment} = \frac{\text{Net Debt}}{\text{FCF}}$$

Net debt must consider the total amount of gross debt, as well as the assets available to meet these liabilities. However, HR Ratings must identify cash that is restricted for non-debt service activities to exclude it from the amount of available assets.

The coverage metrics detailed earlier in this section analyze the liquidity of the WOA; in contrast, the *years of payment* metrics capture solvency by measuring how many years it would take the FCF to cover total debt obligations. For example, in the coming years, an agency might face high debt service coverage due to certain amortization curves in long-term issuances or structures. If the debt profile of the agency is such that debt service is declining, coverage metrics may not reflect that pressure on cash flow, which will eventually fall.

This metric will also make it possible to show the opposite case, when debt obligations in the coming years maintain a limited pressure on the FCF, but which, due to the debt profile, might grow considerably later.

The Financial Discipline Law and the projection of new debt disposal

In the HR Ratings projection of gross debt, the estimation of new debt disposal must be considered. This will be limited according to the value of the metrics set forth in Article 44 of the "Law of Financial Discipline of Federal Entities and Municipalities":

- 1) Public debt and unrestricted income obligations.
- 2) Debt service and free disposal of income obligations.
- 3) Short-term obligations and suppliers and contractors, minus amounts of cash, banks and temporary investments, over total income.

In accordance with Article 45, the entity's indebtedness will be evaluated as: "sustainable", "under observation" or "high". And according to Article 46 the first case will have a debt ceiling of up to 15% of the free disposable income (FDI), the second case will have a ceiling of up to 5% of the FDI and the third case will not be able to acquire any more debts.

The FDI is that which considers any source of income, minus the one that has been allocated to a specific activity or which has been affected to cover the debt service of any structured issuance.

d) Non-interest-bearing liabilities on EBITDA (20.0% of financial analysis)

The fourth metric measures the weight that non-interest-bearing liabilities have on the agency. This indicator considers any form of liability that does not generate a financial cost, such as liabilities with suppliers, contractors and other government entities, such as CONAGUA (National Water Commission) and CFE (Federal Electricity Commission). It also measures, if identified, contingent liabilities, such as pensions, litigation and legal obligations with employees, customers, etc. The metric is expressed as:

$$NIBL = \frac{\text{Non-interest-bearing Liabilities}}{EBITDA}$$

EBITDA is used as the denominator in this metric. Coverage estimated by HR Ratings, detailed in this section, has the role of measuring the cash flow available for debt service by giving priority to keeping the operation of the WOA stable. This metric measures the weight of liabilities that do not generate financial costs, but the flow available to meet the liabilities is that which corresponds to the operational result, since any movement on the liabilities will influence the calculation of working capital.

Operational Evaluation of the WOA

For HR Ratings, operational metrics must be valued beyond their impact on the WOA's ability to generate income. The indicators used by HR Ratings are: (i) physical efficiency, (ii) commercial efficiency, and (iii) cost-to-tariff ratio. To determine the strength of an organization, HR Ratings compares the indicator to the rest of the WOAs. The indicators chosen are described below:

The steps described, as well as the weightings of each factor in both scenarios, apply to all WOAs rated by HR Ratings.

The main steps in the operational analysis are described below:

1. Assign a score to each operational indicator according to its strength. The most recent value of each indicator is considered.
2. A weight is assigned to the score of each indicator and the weighted average is calculated. Weights must be equivalent for all entities rated by HR Ratings.

The three metrics that HR Ratings weighs in its operational analysis, which seek to reflect the agency's ability to capture revenue, are detailed below:

a) Physical Efficiency (40.0% of operational analysis)

The physical efficiency *metric* " E_{FIS} " (Spanish acronym) measures the ratio between the volume of water billed and the volume of water produced. Reduced levels often suggest that the WOA requires higher operating expenses to meet demand, which might compromise the flow available for debt service. The indicator is presented as:

$$E_{FIS} = \frac{V_{AF}}{V_{APP}} * 100$$

Where the volume of water billed is presented as “ V_{AF} ” (Spanish acronym) and the annual volume of drinking water produced as “ V_{APP} ” (Spanish acronym), both expressed in cubic meters (m^3). By reducing physical leaks, it is reasonable to conclude that the volumes of water saved would serve to reduce the depletion of the aquifer and the cost of water distribution. The relevance of this metric increases in arid zones where the availability of the resource decreases and, consequently, the expenses necessary for the agency to meet the demand of the population it serves, increase. Under an economies of scale scheme, solving the first losses represents a lower cost.

b) Commercial Efficiency
(40.0% of operational analysis)

The *commercial efficiency* metric assesses the relationship between service billing and payment. To measure this metric, the following formula is used:

$$E_{COM} = \frac{V_{AP}}{V_{AF}} * 100$$

Where the *volume of water paid for* is represented by “ V_{AP} ” (Spanish acronym) and the *volume of water billed* by “ V_{AF} ” (Spanish acronym), both expressed in cubic meters (m^3). The commercial inefficiencies are constituted by loss accounts (users with uncollectible accounts), lack of timely billing, inadequate classification of users, undue payment exemptions, lack of collection and service cut-off to users with delinquent accounts. It is usually much more profitable and easier to deal with commercial inefficiencies than with physical inefficiencies, among others. A high level of commercial efficiency is indicative of a well-managed agency with clear and effective processes for charging for their services.

c) Cost-to-tariff ratio
(20.0% of operational analysis)

The *cost-to-tariff ratio* metric “ R_{CT} ” (Spanish acronym) measures the relationship between the production cost of the water service and the tariff applied. The WOA must maintain healthy finances through the establishment of a tariff that allows for the operation of the systems to continue. The tariff established is the operating agency's main instrument to ensure service quality and coverage. This indicator is presented as:

$$R_{CT} = \frac{T_{MD}}{C_{VP}}$$

Where the *cost per volume produced* is represented by “ CVP ” and the *average home tariff* by “ TM ” (Spanish acronym).

The tariff implemented must serve different purposes, such as accumulating funds for new programs and covering the entire target population, by considering a monopoly structure. However, the average income of the areas supplied, and service coverage must be considered, since access to these is a fundamental right.

Rating Assignment

HR Ratings' quantitative analysis is the basis for assigning the WOA's rating. The next step incorporates concepts that will enable HR Ratings to assign the rating. The first of these concepts refers to the relationship between the WOA and the Relevant Subnational Agency. The second one corresponds to qualitative adjustments that will make it possible to consider factors that, by their nature, cannot be incorporated into the quantitative analysis.

Relationship with the Relevant Subnational Agency

The first consideration that HR Ratings may incorporate refers to the case in which a WOA, after the quantitative analysis, obtains a rating lower than that of the Relevant Subnational Agency. In this situation the agency's rating will be matched with that of the Relevant Subnational Agency. This is because clean drinking water and sanitation are fundamental human rights, so the WOA has great political and social importance for the Relevant Subnational Agency. In the opinion of HR Ratings, this implies that there will be support for these agencies to maintain the productive capacity necessary to supply the target population. Subnational Agency's support can take many forms, from regular transfers to maintain operational activities, transfers allocated to investment projects, extraordinary transfers in situations of financial stress, etc.

In the cases in which HR Ratings decide to apply these adjustments, the rating of the WOA will not surpass the rating of the relevant Subnational.

For this consideration, the Relevant Subnational Agency must be determined; sometimes it will refer to the municipality, but in certain circumstances WOA cover multiple municipalities or even an entire federative entity. In its report and in its analysis committee minutes, HR Ratings will detail which entity fulfills this role and will justify its decision.

Qualitative Adjustments

The second consideration that HR Ratings may incorporate, after the quantitative analysis and the adjustment detailed in the previous section, is of a qualitative nature and is due to factors that, due to their nature, cannot be incorporated into the quantitative analysis. This consideration will apply in any direction in terms of *notches*.

Some of the factors that may be considered are listed below:

- 1) Non-measurable or off-balance-sheet contingent liabilities, such as labor disputes or awards, unrecognized debts, etc.;
- 2) Political Risk associated with any change in the administration of the Relevant Subnational Agency;
- 3) Quality of the information provided to HR Ratings. This factor considers whether the financial statements are audited.

The considerations incorporated will be proposed by the analysis team or by the committee itself, and they will be detailed in the analysis report and/or in the minutes corresponding to the analysis committee.

Appendix: Ranges for Ratings by Metric

Table 2 shows the values that HR Ratings typically observes in entities rated at the indicated level.

Table 2: Ranges for assigning a rating per metric.					
Financial Metrics	AAA	AA	A	BBB	BB
$\frac{\text{Free Cash Flow (FCF)}}{\text{Debt Service}}$	Above 2.0x	Above 1.5x	Above 1.0x	Above 0.6x	Above 0.4x
$\frac{\text{FCF} + \text{Available Cash}}{\text{Debt Service}}$	Above 3.8x	Above 2.7x	Above 1.8x	Above 1.1x	Above 0.6x
$\frac{\text{Net Debt}}{\text{Free Cash Flow (FCF)}}$	Below 2.4x	Below 6.3x	Below 11.5x	Below 15.0x	Below 17.8x
$\frac{\text{Non-interest-bearing Liabilities}}{\text{EBITDA}}$	Below 1.25x	Below 1.50x	Below 3.25x	Below 5.85x	Below 9.70x
Operating Metrics	AAA	AA	A	BBB	BB
Physical Efficiency	Above 65.0%	Above 60.1%	Above 58.3%	Above 53.3%	Above 43.6%
Commercial Efficiency	Above 77.5%	Above 76.2%	Above 72.6%	Above 66.0%	Above 53.3%
Cost-to-Tariff Ratio	Above 1.8x	Above 1.7x	Above 1.5x	Above 1.2x	Above 0.8x

Source: HR Ratings.

Bibliography

Staff, I. (2014). *Guía para la creación de organismos metropolitanos de agua potable y saneamiento en México*. [PDF] Mexico City: Instituto Mexicano para la Competitividad A.C. Available at: <https://imco.org.mx/wp-content/uploads/2014/03/AguaPotable.pdf> [Accessed Dec. 13, 2018]

Reglamento de la Ley de Aguas Nacionales. (1994). [PDF] Mexico City: CÁMARA DE DIPUTADOS DEL H. CONGRESO DE LA UNIÓN. Available at: http://www.diputados.gob.mx/LeyesBiblio/regley/Reg_LAN_250814.pdf [Accessed Dec. 13, 2018].

Ley de Disciplina Financiera [January 30, 2018]: Dof.gob.mx. (2019). *SCHP_270416*. [online] Available at http://www.diputados.gob.mx/LeyesBiblio/pdf/LDFEFM_300118.pdf [Accessed Feb. 27, 2019].

Gutiérrez Mercadillo, M., de Regules Ruiz-Funes, J. and Noria Sánchez, G. (2009). *Guía para Organismos Operadores*. [PDF] Mexico City: Fondo para la Comunicación y la Educación Ambiental A.C. Available at: https://agua.org.mx/wp-content/uploads/2010/09/Guia_Organismos_Operadores.pdf [Accessed Dec. 13, 2018].

Pigoo.gob.mx. (2017). PIGOO. [online]. Available at: <http://www.pigoo.gob.mx/> [Accessed Dec.13, 2018].

HR Ratings (2014). *Credit Risk Assessment of Corporate Debt*. [PDF] Mexico City: HR Ratings. Available at: <https://www.hrratings.com/docs/metodologia/Evaluacion%20de%20Riesgo%20Crediticio%20de%20Deuda%20Corporativa%201.pdf> [Accessed Dec. 13, 2018].

HR Ratings (2014). *Methodology for Unsecured Ratings of Public Finances of Mexican States*. [PDF] Mexico City: HR Ratings. Available at: <https://www.hrratings.com/docs/metodologia/Calificacion%20Quirografaria%20de%20Estados%20Mexicanos.pdf> [Accessed Dec.13, 2018].

HR Ratings (2015). *Methodology for Unsecured Ratings of Public Finances of Mexican Municipalities. Methodology Addendum*. [PDF] Mexico City: HR Ratings. Available at: <https://www.hrratings.com/docs/metodologia/Adenda%20Deuda%20Quirografaria%20Municipios%20Español.pdf> [Accessed Dec. 13, 2018].



Water Operating Agencies

Debt Evaluation Methodology for Mexican Entities

July 2019

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HR Ratings de México, S.A. de C.V. (HR Ratings), is a securities rating institution authorized by the National Banking and Securities Commission (CNBV), registered with the Securities and Exchange Commission (SEC) as a Nationally Recognized Statistical Rating Organization (NRSRO) for public finance, corporate and financial institution assets, as described in clause (v) of Section 3(a)(6)(2)(A) of the U.S. Securities Exchange Act of 1934 and certified as a Credit Rating Agency (CRA) by the European Securities and Markets Authority (ESMA).

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METHODOLOGIES

Current versions of previously sent methodologies

1	Methodology for the Evaluation of Charter School Debt (<i>Long Term and Short Term Global Rating Scales</i>).	https://www.hrratings.com/docs/metodologia/New%20Charter%20Schools%20Methodology%20R.pdf
2	General Methodological Criteria.	https://www.hrratings.com/docs/metodologia/General%20Methodology%20Criteria%20Nov%2017.pdf
3	Methodology for Public Finances: Unsecured Debt Ratings for Mexican Municipalities Methodology Addendum (<i>Long Term and Short Term Local Rating Scales</i>).	https://www.hrratings.com/docs/metodologia/Addenda_Deuda_Quirografia_Municipios%20English%20Final.pdf
4	HR Ratings' Corporate Debt Credit Risk Evaluation (<i>Long Term and Short Term Local Rating Scales</i>)	https://www.hrratings.com/docs/metodologia/Corporate%20Debt%20Credit%20Risk%20Evaluation%20Final.pdf
5	Public Finance Methodology Unsecured Rating for Mexican States (<i>Long Term and Short Term Local Rating Scales</i>).	https://www.hrratings.com/docs/metodologia/Unsecured%20Rating%20for%20Mexican%20States.pdf
6	U.S. State Government General Obligations Methodology Addendum (<i>Long Term and Short Term Global Rating Scales</i>).	https://www.hrratings.com/docs/metodologia/General%20Obligation%20States%20Methodology%20March%202014_final.pdf
7	Revenue Sharing Obligations for Mexican States and Municipalities: Debt Backed by Sub-National Entities Own Revenues (<i>Structured Finance Rating Scale</i>).	https://www.hrratings.com/docs/metodologia/Debt%20backed%20by%20Sub-National%20Entities%20Own%20Revenues%20(Certified%20Translation).pdf
8	Debt backed by Federal Transfers to the States (<i>Structured Finance Rating Scale</i>).	https://www.hrratings.com/docs/metodologia/Debt%20backed%20by%20Federal%20Transfers%20to%20the%20States%20(Certified%20Translation).pdf
9	Debt backed by Federal Transfers to the Municipalities Addendum (<i>Structured Finance Rating Scale</i>).	https://www.hrratings.com/docs/metodologia/Debt%20backed%20by%20Federal%20Transfers%20to%20the%20Municipalities%20(Certified%20Translation).pdf
10	Sovereign Debt Methodology (<i>Long Term and Short Term Global Rating Scales</i>).	https://www.hrratings.com/docs/metodologia/0Sovereign%20Debt%20Methodology.pdf
11	U.S Local Government General Obligations Methodology (<i>Long Term and Short Term Global Rating Scales</i>).	https://www.hrratings.com/docs/metodologia/General%20Obligation%20Methodology%20Nov2013_final.pdf
12	Methodology for Infrastructure (<i>Structured Finance Rating Scale</i>).	https://www.hrratings.com/docs/metodologia/0Metodologia%20para%20Infraestructura%20(english)%20limpio1.pdf
13	Rating Methodology for Banks (<i>Long Term and Short Term Local Rating Scales</i>).	https://www.hrratings.com/docs/metodologia/3.2.1.%20Banks.pdf
14	Addendum - Rating Methodology for Subordinated Debt (<i>Long Term and Short Term Local Rating Scales</i>).	https://www.hrratings.com/docs/metodologia/3.2.2.%20Rating%20Methodology%20for%20Subordinated%20Debt.pdf

15	Rating Methodology for Non-Bank Financial Institutions (<i>Long Term and Short Term Local Rating Scales</i>).	https://www.hrratings.com/docs/metodologia/3.2.3.%20Non%20Bank.pdf
16	Addendum - Rating Methodology for Credit Unions (<i>Long Term and Short Term Local Rating Scales</i>).	https://www.hrratings.com/docs/metodologia/3.2.4.%20Rating%20Methodology%20for%20Credit%20Unions.pdf
17	Addendum - Rating Methodology for Leasing Agents (<i>Long Term and Short Term Local Rating Scales</i>).	https://www.hrratings.com/docs/metodologia/3.2.5.%20Leasing%20Agents.pdf
18	Rating Methodology for Brokerage Firms (<i>Long Term and Short Term Local Rating Scales</i>).	https://www.hrratings.com/docs/metodologia/3.2.6.%20Brokerage%20Firms.pdf
19	Investment Funds Methodology (<i>Long-Term and Short-Term Local Rating Scales; Market Risk Rating Scale</i>).	https://www.hrratings.com/docs/metodologia/Investment%20Funds%20Methodology%202019.pdf
20	Addendum – Rating Methodology for Bonded Warehouses (<i>Long Term and Short Term Local Rating Scales</i>)	https://www.hrratings.com/docs/metodologia/HR290816NP%208.%20Adendum%20AGD3%200(eng).pdf

NEW

21	Water Operating Agencies: Debt Evaluation Methodology for Mexican Entities	https://www.hrratings.com/docs/metodologia/Mexican%20Water%20Operating%20Agencies%20Methodology.pdf
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MODELS

Current versions of qualitative and quantitative Models

a) Banks / SOFIPOS / SOCAPS Model

Version: 2

File Name: Banco_ModeloBlanco

Approved (Model): March 14, 2018.

Methodology: Methodology for Rating Banks, May 2009.

Approved (Methodology): March 14, 2018.

Developed by: HR

Description: The model identifies the principal risk indicators within each category of credit risk affecting the entity evaluated; both those that are inherit to the entity and those arising from external factors. Regarding the ability to pay, the principal sources of risk are identified that could cause delay and even default on the settlement of any liability.

b) IFNBs / Credit Unions / Leasing Companies Model

Version: 2

File Names: IFNB_ModeloBlanco, UC_Modelo Blanco

Approved (Model): March 14, 2018.

Methodology: Rating Methodology for Non-Bank Financial Institutions, May 2009. Rating Methodology for Financial Leasing Agents and Pure Leasing Agents, January 2010. Rating Methodology for Bonded Warehouses, March 2010. Rating Methodology for Credit Unions, August 2011.

Approved by HR: March 14, 2018.

Developed by: HR

Description: The model explains the principal risk factors present in these entities. Starting from the business model. Its purpose is to justify and give a different weighting to the qualitative and quantitative risk factors for the assignment of the rating by HR Ratings. Among the most important quantitative factors to consider are the historic and projected financial statements and the analysis of the operating efficiency

c) Brokerage Firms Model

Version: 2

File Name: Casa de Bolsa_ModeloBlanco

Approved (Model): March 14, 2018.

Methodology: Rating Methodology for Brokerage Firms, June 2009.

Approved (Methodology): March 14, 2018.

Developed by: HR

Description: The model identifies the principal risk indicators within each category of credit risk affecting the firm evaluated; both those that are inherit to the entity and those arising from external factors. Regarding the ability to pay, the principal sources of risk are identified that could cause delay and even default on the settlement of any liability.

d) Mutual Funds Model – SIID.

Version: 2

File Name: Calculadora de Fondos de Inversión_2.0
Approved (Model): Feb 2019.
Methodology: Investment Funds Methodology, May 2019.
Approved (Methodology): Feb 2019.
Developed by: HR

Description: This model has two principal aspects: Credit Risk and Market Risk. Credit Risk is based on the credit quality of the assets that form the portfolio of the mutual fund, while Market Risk measures movements in the valuation of the fund because of changes in market interest rates and other variables, such as the exchange rate, inflation, and market volatility. The methodology incorporates a secondary aspect, the evaluation of the Management Quality of the fund for both ratings.

e) Pure Leasing Companies Model

Version: 2
File Name: Arrendadoras Puras_ModeloBlanco
Approved (Model): March 14, 2018.
Methodology: Rating Methodology for Financial Leasing Agents and Pure Leasing Agents, January 2010.
Approved (Methodology): March 14,2018.
Developed by: HR

Description: The model is based upon quantitative and qualitative factors that evaluates credit risks such as the possibility that the entity will be unable to collect future rents or leasing contracts and the lessor will not be able to recover the asset in a timely manner. So, it analyses the tools and processes used to collect the financial income earned and recover the leased product.

f) Models used for Sovereign Debt

Version: 2
File Name: HR_Country_Year
Approved (Model): March 14, 2018.
Methodology: Sovereign Debt Methodology, May 19, 2017.
Approved (Methodology): March 14,2018.
Developed by: HR

Description: The model is based upon the interaction of four analytic dimensions that represent economic growth, fiscal accounts, monetary policy and external accounts. The model also accounts for metrics that evaluate the institutional quality of the sovereign. The model uses HR Ratings forecasts for both a base and a stress model. It also incorporates data from the IMF, the World Bank and the UN.

g) Models used for Mexican General Obligation ratings

• **States**

Version: 2
File Name: Plantilla Rating Forecast Estados Final
Approved (Model): March 14, 2018.
Methodology: Rating Methodology for Unsecured Risk for Mexican States, July 31, 2014.
Approved (Methodology): March 14,2018.

Developed by: HR

Description: The model accounts for fiscal metrics, debt metrics and debt servicing metrics. Most of them as a percent of unrestricted revenues, that discounts transfers to the municipalities and revenue sharing obligations compromised for structured debt servicing. The methodology also accounts for qualitative factors such as contingent liabilities, credit history, liquidity and former willingness to pay.

- **Municipalities**

Version: 2

File Name: *Plantilla Rating Forecast Final para Municipios*

Approved (Model): March 14, 2018.

Methodology: Unsecured Risk Evaluation for Municipalities, July 31, 2015.

Approved (Methodology): March 14, 2018.

Developed by: HR

Description: The model accounts for fiscal metrics, debt metrics and debt servicing metrics. Most of them as a percent of unrestricted revenues, that discounts revenue sharing obligations compromised for structured debt servicing. The methodology also accounts for qualitative factors such as contingent liabilities, credit history, liquidity and former willingness to pay.

h) Models used for Mexican Structured Credit ratings.

- **States and municipalities (Federal Income)**

Version: 2

File Name: *Clave Cliente Banco Monto Año (Modelo Tipo) NUEVA TABLA Valores FIN PUB ESTRUC*

Approved (Model): March 14, 2018.

Version: 1

File Name: *Programa Especial FEFOM*

Approved (Model): March 14, 2018

Methodologies: Methodology for Revenue Sharing Obligations for Mexican States and Municipalities: Debt backed by Federal Transfers to the States, January 24, 2013, and Methodology for Revenue Sharing Obligations for Mexican States and Municipalities: Debt backed by Federal Transfers to the Municipalities (Addendum to Methodology), February 14, 2013.

Approved (Methodology): March 14, 2018.

Developed by: HR

Description: The model is based upon the relationship of the Mexican economic growth and the revenue sharing obligations ("Ramo" 28) that the Federal Government transfers to the states and municipalities. Given an estimated income from said transfers, the minimum DSCR is determined along the debt structure. The revenues will be stressed through a TOE rate that will ultimately reduce the DSCR (always above one) in a critical period in such a way that the reserve funds can be reestablished in a previously determined post-critical period.

States and municipalities (Own income)

Version: 2

File Name: *Clave Cliente Banco Monto Año (Modelo Tipo) NUEVA TABLA Valores FIN PUB ESTRUC*

Approved (Model): March 14, 2018.

Methodology: Methodology for Revenue Sharing Obligations for Mexican States and Municipalities:

Debt backed by Sub-National Entities Own Revenues (Addendum to Methodology), March 22, 2013.
Approved (Methodology): March 14,2018.
Developed by: HR

Description: The model is also based upon the TOE rate and the capacity of the revenues to reestablish the reserve funds in the post-critical period. However, in this methodology, the ability to successfully isolate the source of revenue from the entity through a trust fund is of major importance.

i) **Models used for U.S. General Obligations Ratings**

• **Local Governments**

Version: 1

File Name: GOLocal_Blank

Approved (Model): November 27, 2013.

Methodology: U.S. Local Government General Obligations Methodology, November 27, 2013.

Approved (Methodology): March 14,2018.

Developed by: HR

Description: The model is based upon the General Obligation Quantitative Risk Model which accounts for the financial balance, the primary balance, debt metrics and debt servicing metrics, all as share of total revenues or unrestricted revenues. These metrics are projected for both a base and a stress scenario. The qualitative considerations account for a liquidity analysis, a general fund analysis, pensions liabilities, state regulation and support, among others.

• **States**

Version: 1

File Name: GOStates_Blank

Approved (Model): March 28, 2014.

Methodology: U.S. State Government General Obligations Methodology (Addendum to Methodology), March 28, 2014.

Approved (Methodology): March 14,2018.

Developed by: HR

Description: The model is based upon the General Obligation Quantitative Risk Model which accounts for the financial balance, the primary balance, debt metrics and debt servicing metrics, all as share of total revenues or unrestricted revenues. These metrics are projected for both a base and a stress scenario. The qualitative considerations account for a liquidity analysis, a general fund analysis, pensions liabilities, business type activities, among others.

j) **Models used for Corporate Debt Ratings**

Version: 2

File Name: Modelo Quirografaria Blank

Effective Date: May 21, 2014.

Methodology: Corporate Debt Credit Risk Evaluation Methodology, May 21, 2014.

Approved by HR: March 14,2018.

Developed by: HR

Description: The model is based upon four metrics that are derived from the entity's financial statements. First the DSCR derived from the entity's period flows, then the same coefficient but adding the cash reserves to the numerator. The third measures the years required for the entity to serve its debt. And the last one measures the value of their marketable assets as a percent of the entity's total liabilities. Qualitative considerations are incorporated to account for industry risks.

k) Models used for Charter Schools ratings

Version: 1

File Name: Charters_Blank

Approved (Model): February 13, 2015.

Methodology: Charter Schools Credit Risk Evaluation Methodology, February 13, 2015.

Approved (Methodology): March 14, 2018.

Developed by: HR

Description: The Charter Schools quantitative model is based upon the corporate debt methodology. However, the qualitative analysis accounts for the specific states laws regarding the permissions to operate and the ADA (Average Daily Attendance) and the WADA (Weighted Average Daily Attendance) upon which the state transfers are condition.

l) Models used for Rating for Debt backed by the operation of highways, toll ways and bridges.

Version: 2

File Name: Modelo_Concesion_Peaje

Approved (Model): March 14, 2018.

Methodology: Methodology for Infrastructure, November 6, 2015.

Approved (Methodology): March 14, 2018.

Developed by: HR

Description: The model is based upon the TEA rate which accounts for the stress the revenues from users' fees can withstand without the DSCR dropping below one throughout the debt structure. The methodology also incorporates demand risks derived from economic performance of the region around the project and for diverse risks that can affect maintenance cost.

NEW MODEL

m) Models used for Water Operating Agencies for Mexican entities.

Version: 1

File Name: Plantilla OOA Blank based stress)

Approved (Model): April 9, 2019.

Methodology: Water Operating Agencies: Debt Evaluation Methodology for Mexican Entities July 2019

Approved (Methodology): April 9, 2019.

Developed by: HR

Description: The model is based on a set of financial metrics and operating metrics. The operating metrics are evaluated for the past year and considers commercial and physical efficiency, as well as the Cost-to-Tariff ratio. For the financial metrics it weights several years, including projections and past years.



These metrics captures the ability of the free cash flow to serve debt obligations, current and future, and the weight that non-financial liabilities have for the entity.