



**Credit
Rating
Agency**

Procedures and Methodologies

Exhibit 2

Table of Contents

- 1. Procedures**
- 2. Rating Scales**
- 3. Methodologies**

1. PROCEDURES

Initiation of Credit Ratings

The credit rating process begins following initial contact with the client with the sending of sales materials, which include: corporate presentation and general datasheet. HR Ratings then sends an economic proposal, engagement letter or proposed contract to the client, with the list of information required.

Client is the issuer, entity to be rated, or whose offering or transaction will be subject to rating or the third party that requests a rating for an entity or issuer.

A service contract or the appropriate legal instrument is then finalized and sent to the client, together with the Code of Conduct. The issuer and the HR Ratings Director of Business Development executes the service contract or appropriate legal instrument, and the contractual legal relationship with the client is formalized.

HR Ratings may issue unsolicited ratings, for which HR Ratings will not receive any payment and may or not may sign a service contract, engagement letter or legal instrument. Where applicable, an NDA will be signed. Unsolicited ratings will be prepared according to the same methodologies as requested ratings and will follow the same rating process, accordingly. HR Ratings will surveillance unsolicited ratings and may withdraw an unsolicited rating at any time.

The Director of Business Development and client designate the individuals authorized to send and receive information throughout the course of the rating process. The initial contact information and update for client area sent to the Lead Analyst.

The HR Ratings internal control procedures determine the sufficiency of the information to be used to assign the rating. This information must be generated and provided by reliable sources for the client.

Public and private information from parties other than the issuer is also used as part of the credit rating process. Depending on the reliability of the source, HR Ratings reserves the right to evaluate third party information. Information derived from official governmental sources is presumed to be valid. HR Ratings uses all information available to it at the time of analysis, including available public information that is relevant to the specific rating, as well as non-public information, consistent with regulatory norms.

Rating Process

HR Ratings' analysis begins with the assignment of the Analysis Director by the Operations Department. The Operations Department then designates the Lead Analyst with primary responsibility for the project. The other analysts, who are secondarily responsible for the project, assist in the rating process. The Lead Analyst, together with any secondary analysts, comprise the "analysis team."

The Operations Department will consider the log of potential conflicts of interest maintained on HR Ratings' internal electronic monitoring system.

The Lead Analyst, and any secondary analysts, are responsible for conducting the entire analysis, as well as the presentation to the Analysis Committee, including preparation of all supporting documents accompanying the presentation to be reviewed with the Credit Officer, such as the: analysis report (or press release when there is no analysis report), rating letter (if applicable), technical note, legal opinion, datasheet for the influencing rating (where applicable and updated to the date of the Credit Analysis Committee session), and minutes of the previous Credit Analysis Committee regarding the entity, issuer or operation in question. These documents are referred to jointly as the Credit Analysis Committee "packet."

When the rating considers influencing ratings assigned by other rating agencies, the analysis team monitor these influencing ratings weekly. For the purposes of the above, each area of the Credit Analysis Department maintains the current datasheet

corresponding to the information for the influencing rating in question by the last business day of each week.

In the event of any questions or issues regarding the operation of the analysis team, a meeting is arranged with the Chief Credit Officer and Senior Analyst to clarify any questions before presentation of Committee Packet to the Credit Analysis Committee.

The Committee Package is then distributed to all committee members at least twelve (12) hours in advance of the Rating Committee review, and can be distributed, if necessary in a shorter period when so required by the analysis team.

The following specific methodology is followed for each rating by the assigned credit analyst(s):

1. The analyst receives the assignment to undertake the analysis process and proceeds to gather available public and private information on the issuer and/or offering;
2. The analyst sends the issuer an email request for information covering the following topics:
 - Financial information
 - Business, market and general relevant economic information
 - Institutional framework
 - Characteristics of the offering
3. The analyst schedules a visit with the people responsible for the issuer's finances to understand, together with the entity's other officers, the specific characteristics of the issuer and/or offering, as well as its investment projects, to compare these with other similar entities and specifically analyzes:
 - Budget items
 - Operations
 - Expense control
 - Planning
 - Execution and coordination

Because the aforementioned information explains only some of the items analyzed, the analyst may request further information depending on the complexity of the entity or project;

4. Based on this information, model and methodology, the analyst prepares an evaluation and analysis of the credit strengths and payment capacities of both the issuer and/or offering; and,
5. The analyst prepares the presentation for the Credit Analysis Committee including all supporting documents in the Committee Packet to be reviewed with the Credit Officer.

Credit Analysis Committee Structure and Voting Process

Quorum

The Committee will meet with a quorum of at least 4 members and two committees may meet simultaneously with different agendas.

Voting Process

Decisions are taken by an absolute majority; in other words, by the vote in the same direction of half of the Credit Analysis Committee, plus one, present at the meeting.

The Lead Analyst has a "voice." but no vote on the Analysis Committee. unless the lead analyst is a member of the Committee,

holding voice and vote.

In accordance with the HR Ratings General Operations Plan, the Credit Analysis Committee will meet whenever:

- When a rating action is required;
- When any relevant event occurs that could impact a current rating; or
- On a quarterly basis to review and discuss cases of concern that arise from the quarterly monitoring process and to make decisions deemed appropriate in each case, and which could result in a rating action.
- When an opinion is to be issued on any industry sector, the meeting of the Credit Analysis Committee will be optional, provided the Chief Credit Officer has given his approval.

The following people sit in the Analysis Committee, given in voting order:

- Analysis Manager
- Analysis Director
- Analysis Executive Director
- Chief Credit Officer (CCO)

Prior to each Credit Analysis Committee meeting, the members of the Committee will certify, through the Company's internal control and surveillance system, that they have no conflict of interest with the entity or issuer. The internal control and surveillance system will also copy the Compliance Officer if there is a conflict of interest reported on the system.

The Credit Analysis Committee reviews and discusses whether rating proposed is consistent with other HR Ratings' ratings for specific types of assets, considering the principle that the rating reflects a position of relative strength or degree of risk within the same rating scale. The above standard is not applicable for structured, servicer, or indenture trustee ratings, or for other types of assets.

Upon reaching a conclusion, the Credit Analysis Committee issues a rating and once the rating has been given, the Lead Analyst notifies the issuer of the decision reached by the Credit Analysis Committee, the same day as the rating was adopted. Under no circumstance will the client receive any prior notice as to the possible outcome of the rating process. Rather, the client will receive notification only when the Rating Committee has issued its official opinion.

If the issuer agrees, then HR Ratings proceeds with the publication of the rating. In the event of a disagreement, the issuer has up to two (2) business days following the day it receives the rating to submit additional information to be analyzed and evaluated by the Credit Analysis Committee. If there is no response from the issuer within these two (2) business days, HR Ratings will publish the rating the next business day.

That during this time, the client may indicate whether the rating will be held private or made public; informing the client that all ratings on securities registered or intended to be registered in the National Securities Register in Mexico will always be made public, as well as any modifications, ratifications or withdrawals of these ratings.

Rotation policy for the participants in the rating procedures and Rating Committee.

The Lead Analyst responsible for the development and, where appropriate, monitoring of the rating process, cannot be involved with a client or companies within the group to which that client belongs, for more than a five (5) year period since its first participation in the initial rating or monitoring with respect to that client. Such analysts may resume these functions only after a minimum one (1) year period. A substitute analyst will be used, if necessary, in the fourth third year.

Moreover, the analyst responsible for the development and, where appropriate, monitoring of the rating process, cannot be involved with a client or companies within the group to which that client belongs, for more than a five (5) year period, since its first participation in the initial rating or monitoring with respect to that client. Such analysts may resume these functions only after a minimum one (1) year period.

In the case of the analysis committee responsible for the approval of the credit rating with respect to a client or companies within the group to which that client belongs, such committee should at least on a seven (7) year basis, returning after a minimum one-year break. To this end, HR Ratings rotates at least half of the members of each committee during this timeframe.

Surveillance and Monitoring

Once the initial rating is issued, HR Ratings assumes the responsibility to carefully evaluate the performance of the issuer and/or offering.

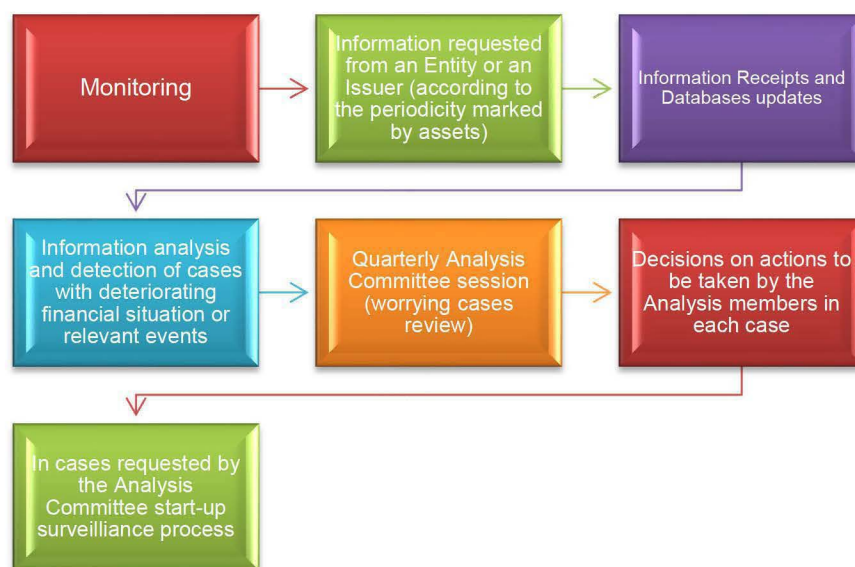
Monitoring refers to periodical internal rating reviews, depending on the entity, issuer, operation, or instrument that may or may not result in a rating action. The monitoring review will be monthly, quarterly or semi-annually depending upon the availability of information, or any other frequency required by HR.

Surveillance refers to the periodical annual review HR performs on all ratings, independent of internal monitoring, the results of which are reported to the public through a rating action.

It is important to note that HR Ratings makes no difference regarding the qualitative and quantitative factors under the initial or surveillance rating. Thus, an initial and a surveillance rating consider the same weight for each of the factors given.

HR Ratings adheres to the view that surveillance ratings can be even more important than the initial rating during the life of the issue until maturity. For this reason, the surveillance for tracking and monitoring all of the ratings assigned by HR Ratings is a vital ongoing activity.

Monitoring chart



Procedures to Withdraw or Suspend the Maintenance of a Credit Rating

The Credit Analysis Committee may withdraw the rating given to an entity, issuer, and/or operation on the occurrence of any of the following:

1. When the entity or issuer duly confirms to HR Ratings that the value of the instruments outstanding has been amortized in full and there is no extraordinary amount on the offering or operation pending rating;

2. When the entity or issuer duly confirms to HR Ratings that the rating assigned has not been used for a specific offering or loan and therefore there has been no mobilization of funds for said offering or loan, or for any extraordinary amount outstanding;
3. When HR Ratings receives the consent of all the holders of an offering to withdraw the rating, through the respective holders' meeting where all holders have approved the rating be withdrawn;
4. When the initial rating expires, and funds have not been moved using the rating. Under such circumstance, the rating is withdrawn automatically;
5. When, at the end of the restructuring period, the characteristics for the instrument have drastically changed, provided there is another structure in place;
6. When the entity or issuer declares bankruptcy, or the HR Ratings rating is no longer necessary;
7. When the absence of cooperation from the entity or issuer makes the assignment of a reliable rating impossible. In this case, the reasons for suspension will be made public for investors. However, before determining the suspension of the rating, HR Ratings will attempt to conduct the review based on the information published by the entity or issuer, and will also attempt to give the corresponding rating.
8. When the entity or issuer so requests of HR Ratings.

Additional information regarding the rating procedure can be found in HR Ratings' Internet website, at the following location: https://www.hrratings.com/en/regulatory_disclosure#rating_monitoring_procedure

Methodology Committee

HR Ratings has a Methodology Committee which is responsible for reviewing, discussing, and approving the Company's rating methodologies and any modifications thereof, and also the quantitative models incorporated into said methodologies and the criteria for their application, prior to submitting these to the Board of Directors for final approval.

The Methodology Committee meets at least once a year to review the process and terms established for each rating methodology, or when any of the circumstances established in the HR Ratings Code of Conduct are met.

In addition, the Methodology Committee will assess and validate the qualitative models to be incorporated into any rating methodology and any changes to these models. Similarly, the committee will conduct periodical reviews of the quantitative models incorporated into the rating methodologies.

The Methodology Committee meets on the date called to review, discuss and approve a new methodology or changes to a current methodology. In the event the modification of a methodology is agreed to, the Committee proceeds to analyze whether the ratings previously assigned under earlier methodology need to be reviewed. This analysis must be documented in the minutes of the corresponding Methodology Committee meeting.

When the Methodology Committee agrees to a rating methodology or changes to an already existing methodology, the Chief Operating Officer takes the requisite actions so that, before the end of the next business day following the Committee meeting, the methodology or its modifications are uploaded to a page on the HR Ratings website for the consultation and comments of market participants. The term for receiving comments from the public will be at least ten (10) calendar days. HR Ratings will publicize during this time any comments received through its website and will consider those deemed relevant.

At the end of the time given, the Chief Credit Officer will request the incorporation, when such is the case, of the relevant comments as soon as possible and once incorporated, they will ask the Compliance Officer to immediately take the actions necessary for said methodology or modification to be submitted for the formal approval of the Board of Directors.

The Compliance Officer will immediately send the methodology corresponding to the members of the Board of Directors for review and will request the timely call for a meeting of the Board to formally approve the methodology or its modifications.

As soon as the methodology or its modifications are approved by the Board of Directors, HR Ratings will notify the Mexican Banking and Securities Commission of the methodology or its modification, to meet compliance with the obligation established in the General provisions applicable to rating agencies in Mexico. If no comments are received from the Commission within twenty (20) business days, HR Ratings will publish the methodology or its modification in a visible location on the HR Ratings website indicating the reasons for the modifications, when such is the case, immediately at the end of said time and the methodology will be sent to HR Ratings employees and website subscribers by email.

In the case of methodologies that only apply to ratings in the U.S., HR Ratings will publish the methodology or its modification the next business day after being formally approved by the Board of Directors, by the means indicated in the previous paragraph.

Rating methodologies and their modifications will take effect the same day as published. Once the modifications or additions to a methodology have been published, the Company will use the new methodology for subsequent ratings and, accordingly, will inform the public immediately of the possible effects on the ratings that could be impacted by the new methodology once these ratings have been reviewed.

Accordingly, HR Ratings will issue a new rating for the instruments in question, within six (6) months following the publication of the modification of a methodology.

Once a new NRSRO methodology has been published, HR Ratings will submit to the Securities and Exchange Commission an updated Form NRSRO. In addition, HR Ratings will submit an updated Form NRSRO when modifications are made to an NRSRO methodology. The Risk Officer will verify compliance with that established in this paragraph.

In addition, HR Ratings will publish through its website, notice of any significant error identified in any process or methodology that could result in any change to a current rating.

The Chief Credit Officer will report decisions made by the Methodology Committee to the Company's analysis team, with the corresponding documentation, the same day as said decisions take effect.

In addition, if considered appropriate, meetings will be held with the analysis team to explain the important decisions made by the Methodology Committee.

2. HR RATINGS' SCALES

2. HR Ratings' scales.

2.1	Long Term Local Rating Scale.	https://www.hrratings.com/methodology/rating_scales.xhtml
2.2	Short Term Local Rating Scale.	https://www.hrratings.com/methodology/rating_scales.xhtml
2.3	Long Term Global Rating Scale.	https://www.hrratings.com/methodology/rating_scales.xhtml
2.4	Short Term Global Rating Scale.	https://www.hrratings.com/methodology/rating_scales.xhtml
2.5	Structured Finance Rating Scale.	https://www.hrratings.com/methodology/rating_scales.xhtml
2.6	Market Risk Rating Scale.	https://www.hrratings.com/methodology/rating_scales.xhtml

2.1. Long Term Local Rating Scale

Symbol	Definition of the Rating
HR AAA	The issuer or issue with this rating is considered to have the highest credit quality, offering high safety for timely payment of debt obligations. Maintains minimum credit risk.
HR AA	The issuer or issue with this rating is considered to have high credit quality and offers high safety for timely payment of debt obligations. Maintains very low credit risk under adverse economic scenarios.
HR A	The issuer or issue with this rating offers acceptable safety for timely payment of debt obligations. Maintains low credit risk.
HR BBB	The issuer or issue with this rating provides moderate safety for timely payment of debt obligations. Maintains moderate credit risk, with weakness in the ability to pay in adverse economic scenarios.
HR BB	The issuer or issue with this rating provides inadequate safety for timely payment of debt obligations. Maintains high credit risk.
HR B	The issuer or issue with this rating provides low safety for timely payment of debt obligations and maintains a high credit risk. The issue or issuer is susceptible to falling into default.
HR C	The issuer or issue with this rating exhibits high probability of falling into default in debt obligation payments.
HR D	The issuer or issue with this rating has the lowest rating. The issue is already in, or is highly likely to fall into, default in the short term.

**Our ratings range from HR AAA to HR D, a plus or minus sign may be included in the range from HR AA to HR C, to indicate strength or weakness within a general rating category.*

2.2. Short Term Local Rating Scale

Symbol	Definition of the Rating
HR1	The issuer or issue with this rating exhibits high capacity for timely payment of debt obligations in the short term and maintains the lowest credit risk. Within this category, debt instruments and or issuers with features showing relative superiority in terms of credit characteristics may be rated as HR+1.
HR2	The issuer or issue with this rating exhibits an acceptable capacity for timely payment of debt obligations in the short term and maintains a higher credit risk compared with higher credit rating debt instruments.
HR3	The issuer or issue with this rating exhibits a moderate capacity for timely payment of debt obligations in the short term and maintains a higher credit risk compared with higher credit rating debt instruments.
HR4	The issuer or issue with this rating exhibits an insufficient capacity for timely payment of debt obligations in the short term and maintains a very high credit risk. These instruments are susceptible to falling into default.
HR5	The issuer or offering is highly probable they will fall into default on the payment of debt obligations.
HR D	The issuer or offering given this rating has the lowest credit rating and they are already in default.

2.3. Long Term Global Rating Scale

Symbol	Definition of the Rating
HR AAA (G)	The issuer or issue with this rating is considered to have the highest credit quality, offering high safety for timely payment of debt obligations. Maintains minimum credit risk on a global scale basis.
HR AA (G)	The issuer or issue with this rating is considered to have high credit quality and offers high safety for timely payment of debt obligations. Maintains very low credit risk on a global scale basis, under adverse economic scenarios.
HR A (G)	The issuer or issue with this rating offers acceptable safety for timely payment of debt obligations. Maintains low credit risk on a global scale basis.
HR BBB (G)	The issuer or issue with this rating provides moderate safety for timely payment of debt obligations. Maintains moderate credit risk on a global scale, with weakness in the ability to pay in adverse economic scenarios.
HR BB (G)	The issuer or issue with this rating provides inadequate safety for timely payment of debt obligations. Maintains high credit risk on a global scale basis.
HR B (G)	The issuer or issue with this rating provides low safety for timely payment of debt obligations and maintains a high credit risk on a global scale. The issue or issuer is susceptible to falling into default.
HR C (G)	The issuer or issue with this rating exhibits high probability of falling into default in debt obligation payments.
HR D (G)	The issuer or issue with this rating has the lowest rating on a global scale basis. The issue is already in, or is highly likely to fall into, default in the short term.

**Our ratings range from HR AAA (G) to HR D (G), a plus or minus sign may be included in the range from HR AA (G) to HR C (G), to indicate strength or weakness within a general rating category.*

2.4. Short Term Global Rating Scale

Symbol	Definition of the Rating
HR1 (G)	The issuer or issue with this rating exhibits high capacity for timely payment of debt obligations in the short term and maintains the lowest credit risk on a global scale basis. Within this category, debt instruments and or issuers with features showing relative superiority in terms of credit characteristics may be rated as HR+1 (G).
HR2 (G)	The issuer or issue with this rating exhibits an acceptable capacity for timely payment of debt obligations in the short term and maintains a higher credit risk compared with higher credit rating debt instruments on a global scale basis.
HR3 (G)	The issuer or issue with this rating exhibits a moderate capacity for timely payment of debt obligations in the short term and maintains a higher credit risk compared with higher credit rating debt instruments on a global scale basis.
HR4 (G)	The issuer or issue with this rating exhibits an insufficient capacity for timely payment of debt obligations in the short term and maintains a very high credit risk on a global scale basis. These instruments are susceptible to falling into default.
HR5 (G)	The issuer or offering is highly probable they will fall into default on the payment of debt obligations.
HR D (G)	The issuer or offering given this rating has the lowest credit rating and they are already in default.

2.5. Structured Finance Rating Scale

Symbol	Definition of the Rating
HR AAA (E)*	The issue with this rating is considered to have the highest credit quality, offering high safety for timely payment of debt obligations. Maintains minimum credit risk.
HR AA (E)*	The issue with this rating is considered to have high credit quality and offers high safety for timely payment of debt obligations. Maintains very low credit risk under adverse economic scenarios.
HR A (E)*	The issue with this rating offers acceptable safety for timely payment of debt obligations. Maintains low credit risk.
HR BBB (E)*	The issue with this rating provides moderate safety for timely payment of debt obligations. Maintains moderate credit risk, with weakness in the ability to pay in adverse economic scenarios.
HR BB (E)*	The issue with this rating provides inadequate safety for timely payment of debt obligations. Maintains high credit risk.
HR B (E)*	The issue with this rating provides low safety for timely payment of debt obligations and maintains a high credit risk. The issue is susceptible to falling into default.
HR C (E)*	The issue with this rating exhibits high probability of falling into default in debt obligation payments.
HR D (E)*	The issue with this rating has the lowest rating. The issue is already in, or is highly likely to fall into, default in the short term.

(E)* is a local rating

***Our ratings range from HR AAA (E) to HR D (E), a plus or minus sign may be included in the range from HR AA (E) to HR C (E), to indicate strength or weakness within a general rating category.*

2.6. Market Risk Rating Scale

Symbol	Definition of the Rating
1HR	The asset portfolio has extremely low sensitivity to changes in market conditions.
2HR	The asset portfolio has low sensitivity to changes in market conditions.
3HR	The asset portfolio has low to moderate sensitivity to changes in market conditions.
4HR	The asset portfolio is moderately sensitive to changes in market conditions.
5HR	The asset portfolio has moderate to high sensitivity to changes in market conditions.
6HR	The asset portfolio is highly sensitive to changes in market conditions.
7HR	The asset portfolio is extremely sensitive to changes in market conditions.

3. METHODOLOGIES

3.1. Current versions of previously sent methodologies

3.1.1	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
3.1.2.	General Methodological Criteria.	https://www.hrratings.com/docs/metodologia/General%20Methodology%20Criteria%20Nov%2017.pdf
3.1.3.	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
3.1.4.	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
3.1.5.	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
3.1.6.	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
3.1.7.	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
3.1.8.	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
3.1.9	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
3.1.10	Sovereign Debt Methodology (<i>Long Term and Short Term Global Rating Scales</i>).	https://www.hrratings.com/docs/metodologia/0Sovereign%20Debt%20Methodology.pdf
3.1.11	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
3.1.12	Methodology for Infrastructure (<i>Structured Finance Rating Scale</i>).	https://www.hrratings.com/docs/metodologia/0Metodologia%20para%20Infraestructura%20(english)%20limpio1.pdf
3.1.13	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
3.1.14	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

3.1.15	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
3.1.16	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
3.1.17	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
3.1.18	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
3.1.19	Rating Methodology for Mutual Funds (<i>Long Term and Short Term Local Rating Scales; Market Risk Rating Scale</i>).	https://www.hrratings.com/docs/metodologia/2.%20ADDENDUM%20-%20Rating%20Methodology%20for%20Mutual%20Funds.pdf
3.1.20	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%20(eng).pdf

3.2 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: 1

File Name: *MF_SIID_Blank*

Approved (Model): May 2013.

Methodology: Rating Methodology for Mutual Funds, December 2008.

Approved (Methodology): March 14,2018.

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 Quirografia 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.

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This text replaces and updates the previous methodological criteria, published in November 2017 and will take effect beginning on March 27th, 2019.

The present Methodology establishes the General Methodological Criteria of HR Ratings.

Our credit ratings need to be understood as rankings of the relative creditworthiness of different entities or credits. Creditworthiness takes into consideration both the ability and willingness to meet debt obligations in the manner prescribed in the relevant documentation. Default refers to the non-compliance of previously agreed obligations. Later, this document presents the type of defaults that we recognize and the evaluation that is made over the impact that the default will have in certain obligations over the entity's rating.

As our ratings measure relative creditworthiness they do not necessarily reflect any specific statistical probability of default. To make more valid rankings of creditworthiness our different methodologies will apply stress case scenarios to complement our base case analysis.

Ratings given on a local scale basis generally refer to the overall creditworthiness of the obligor and imply a rating on a local (or national) currency basis, unless otherwise specified. In those cases, in which the obligor has a significant amount of debt that is not consistent with its cash flow stream, with resulting currency mismatches, the stress case scenario will explicitly incorporate significant moves in the relevant currency. The most obvious case would be an entity with local currency-based revenues and foreign currency costs, or with substantial foreign currency debt exposure. A similar stress analysis would be applied in the case of an entity with inflation adjusted debt should HR Ratings believe that the cash flow might not be able to keep pace with high levels of inflation.

The major difference between local and global ratings is the incorporation within the latter of transfer and convertibility risk. In the case of local currency global ratings, we additionally take into consideration currency debasement risk via inflation to reduce the burdensomeness of historical debt. This concept attempts to recognize the danger for creditors of the often-unlimited ability of a sovereign formally to meet local currency debt obligations via Central Bank monetary expansion and financing. Generally, global ratings will explicitly specify the currency (local or foreign) to which they apply.

In the determination of our non-sovereign local currency global ratings, a key benchmark will be the difference between the AAA rating that is generally assigned to the local scale, local currency sovereign rating and the global scale, local currency sovereign rating. This sovereign global ratings discount, measured in terms of notches, will generally be applied to a non-sovereign local scale rating to determine its local currency global rating, plus/minus extraordinary factors, if any, considered by the Analysis Committee.

This sovereign global rating discount will represent the total impact of convertibility, transfer and currency debasement risk in the determination of the local currency, global sovereign rating. In the case of foreign currency, global ratings, debasement risk generally will be irrelevant. Additionally, relationship between the sovereign and non-sovereign ratings is much less pre-determined and will be a function of the analysis of each individual case. With respect to non-sovereign global scale, foreign currency ratings, HR Ratings will incorporate the convertibility and transfer risk implied in the sovereign rating in the jurisdiction in which foreign exchange revenues are received and foreign currency payments are made.

The Analysis Committee has the faculty of deciding if an entity or issuance will enjoy the same level of credit risk as the sovereign risk of the entity where it resides, or if applicable, determine to what degree such entity or issuance counts with the support of the federal government, currently and in the future, to be able to respond as a guarantor. The assignment of sovereign risk to an entity or issue is justifiable when the entity or issue: 1) provides substantial financial support to the Federal or Central Government, consequently default will immediately deprive the public sector of important revenue flows, 2) in the case of default would result in substantial harm to the economy and thus place significant burdens on the government such that it will feel obliged to support the entity or issue so as to avoid non-payment, 3) has significant political influence such that authorities will feel compelled to intervene in order to prevent default. In those cases, in which an entity or issue is deemed to enjoy sovereign risk status, the rating process, as reflected in the report, will consist of: 1) a discussion as to why the entity or issue merits sovereign risk status, 2) a discussion of relevant macroeconomic and business variables, including full financial projections. Financial projections will include a complete stress case analysis.

Legal Opinion – February 2013 Update

The Legal Opinion is primarily designed to ensure that the terms of the operation as specified in the documentation and incorporated into the financial analysis leading to the credit rating cannot be successfully challenged in the courts or by an administrative body. Generally, this will be a binary decision, either sufficient or insufficient. In the event of a determination of insufficiency, the credit rating will receive no benefit from the elements of the structure deemed to be insufficient.

In contrast, the Legal Opinion is not designed to evaluate possible weaknesses in the structure of an operation or, more specifically, factors that might affect the viability of the income flow that is designed to service its debt. Weaknesses in this non-legal context refer not to the projected income flow, per se, as this is part of the financial analysis, but rather to elements that would put into jeopardy the reception of the entirety of the income flow itself. Given the diverse and highly subjective nature of these potential weaknesses, the Analysis Committee will necessarily evaluate their appearance on an ad hoc basis. This could include an assessment of the probability of a loss in income, directly related to the structural weakness and not, for example, to macroeconomic factors. The resulting smaller income flow, therefore, will be part of the financial analysis and in this fashion affect the final credit rating. Or, alternatively, the Analysis Committee can decide that the financial analysis not incorporate the possible effect of these structural weaknesses but rather deduct from the rating determined purely based on the financial analysis an appropriate number of notches in order to reflect the perceived risk that the weakness entails.

HR Ratings reserves the right to obtain a second legal opinion, from a separate attorney, should it be given one that has been issued by counsel contracted for this purpose by those involved in the structuring of the operation for which this Agency is to provide a credit rating.

Treatment of Bank Credits issued as support for Working Capital Needs or Productive Chains – February 2013 Update

HR Ratings considers that bank credits issued to finance an entity's working capital needs represent bank debt, independently of how they might be registered by the entity on its financial statements; for example, as accounts payable. Therefore, non-payment represents a credit default. Additionally, default, or non-payment, arises at the moment in which this occurs even if the creditor bank has not yet classified the credit as being non-performing.

Treatment for lack of transparency in the reported information or low level of corporate governance - *February 2015 Update*

There are times in which the information reported by the issuers or entities suffers, according to HR Ratings, from a lack of transparency in terms of presentation and/or consistency. This can include examples where a specific entity does not generate the information according to international accounting standards, or where due to the low level of detail in terms of the presented information, the analysis made by HR Ratings according to its methodologies is affected.

Because of this, HR Ratings can determine, through its Analysis Committee, an additional and direct adjustment factor to the rating assigned to an issuer or entity, when the issuer or entity presents a lack of transparency in terms of the reported information. The adjustment factor must consider the following considerations in order to determine the impact of such factor in the assigned rating:

- 1.- Severity: The Analysis Committee will evaluate the severity of the lack of transparency in terms of the reported information, considering the severity as proportional to the impact that the lack of transparency has in the analysis made by HR Ratings.
- 2.- Frequency: The Analysis Committee will evaluate the frequency in which the lack of transparency is presented in the information, considering an increased frequency as more serious.
- 3.- Willingness and ability to react: The Analysis Committee will also evaluate the willingness and ability from the issuer or entity to react over the lack of transparency, incorporating the adjustments already made by the issuer and the adjustments that will be made in the future.

On the other hand, there are occasions where the issuer or entity shows a low level of development in terms of adequate practices of corporate governance, including the lack of internal committees or corporate structures that allow objectivity mainly in terms of internal controls and audits. For this situation, the Analysis Committee will also be able to determine adjustments over the assigned rating of an entity, considering the severity and the willingness and ability to react to determine the impact of the adjustment.

The Analysis Committee will have the capacity to evaluate the factors mentioned above and determine the necessary adjustments to be made to the rating of an entity. It is important to mention that such adjustments will be in addition to the impact that the lack of transparency and the weaknesses in terms of corporate governance can have according to a specific methodology.

Default Criteria –*September 2015 Update*

Default: By level and degree of compliance

In the assignment of default ratings, HR Ratings' methodologies allow for the distinction between the default of specific debt instruments, on the one hand, and of the entity to which the payment obligation corresponds, on the other. Additionally, HR Ratings does not limit the default rating to the default act per se but extends it to the analysis of the situations in which the payments do not comply in a timely fashion with the originally agreed conditions.

In the specific context of debt instruments, HR Ratings defines "default" (HR D) as the failure to comply with obligatory interest and principal payments, according to the originally agreed upon terms. In the context of the entity responsible for payment compliance, the determination of the credit rating depends on the degree of fulfillment with the totality of its

payment obligations. When the default of an entity extends to the “predominant” part of its debt, the rating would be HR D. On the other hand, when the default extends to a “significant” but not necessarily a predominant portion of its debt, the rating would be HR DS (selective default). In those cases where the entity follows the predominant portion but not with the totality of its debt, it will not necessarily be considered as being in default. In such cases, the rating would be the result of the normal process indicated in the methodology of the relevant asset class and penalized according to the importance and relevance of the debt obligations that are not in compliance.

In specific circumstances, an entity may be in stressed conditions that diminish its willingness and/or ability to comply with its payment obligations according to the originally agreed upon conditions. This may result in a renegotiation between the entity and its creditors of the payment terms. HR Ratings considers a renegotiation in which the creditors agree to accept the new payment terms knowing that the alternative is to receive inferior payments to the ones originally agreed (or no payment whatsoever), as a “forced restructure”. This restructure may represent a “technical default” because the entity would not comply with the original agreed payment terms. The result would be the assignment of a rating of HR DT for the instrument(s) in question, in the moment in which the determined payment is made in the forced restructure. However, depending upon the evolution of the entity’s credit environment (e.g. the acceptance by the creditors, the contracting of new debt by the entity) these instruments could experience improvements in their credit rating.

Regarding the credit rating of the entity that has one or more instruments in HR DT, HR Ratings will employ the same criteria used to determine the relation between the ratings of instruments in HR D and that of the entity; basically, the notion of the predominance of the debt in default or technical default.

The ratings of HR D and HR DT would be applied to the default on a debt instrument with any third-party creditor, whether it be an institution, fund or legal person, private or public. Also, it would be applied if the creditor is the original party or a purchaser of the instrument in a secondary market, except in situations in which a non-transferability clause exists. The ratings of HR D and HR DT may not be applied in the cases in which the “creditor” is not a third party but rather an entity with an intrinsic relationship with the debtor. For example, a debt contracted between a sovereign and a development bank or a social security agency belonging to it.

It is worth noting that the HR D rating differs significantly from other ratings due to the fact that these refer to the relative probability (not statistical) of the occurrence of non-payment on a debt instrument, while in the case of HR D the default event has already occurred; or in the case of an HR DT, modified payments are being made.

In the case of issuers, the movement from one condition to the other (from non-payment to payment, or to a modified payment, with all its relevant attendant circumstances) is based on our internal criteria, which leaves it to the expert judgement of the committee as to both the degree of penalization in notches as well as the duration of such penalization, which will gradually decrease as the entity demonstrates stability and trustworthiness in its payments.

Considerations in the rating of an entity in mixed situations

An entity can become non-compliant on the payment of anywhere from one to the totality of its debt instruments. In those cases, in which an entity complies with payment obligations on one or more credits after non-compliance on others, the circumstances of the default will be evaluated as the latter will have an impact on the credit risk of the entity and on that of debt instruments in particular, increasing its relative probability of default.

HR Ratings defines its DS rating as a selective non-compliance by an entity. This classification presumes that the entity has a part of its debt that is in default, or in technical default, and another part that complies, in such a manner that neither component can be considered as being predominant.

In those cases in which an entity has debt in default as well as obligations that are still being paid with “normality”, the designation of a rating of HR DS will not be automatic, as it will be necessary to evaluate the relevance and predominance, both of the current debt as well as the debt in default with respect to both the entity as a whole and to the debt that is in compliance. The relevance and therefore the predominance of the debt will be based on the following concepts:

- **Proportion:** The magnitude of the financial value of defaulted debt will be measured in relation to the current debt.
- **Temporality:** We will take into consideration the current impact of the debt in default. The relevant criteria will include: When was it issued? When was it supposed to be paid? Is it still current or outstanding?
- **Litigation:** We will consider whether the defaulted debt is in a legal process to define if the payment on the debt could result inadmissible.
- **Willingness to pay:** The current government will be analyzed in order to evaluate its payment intentions as to debt instruments, both those in default, as well as those that could be in compliance.
- **Others:** We will evaluate the possible existence of other pertinent factors that might help to distinguish the relevance of each debt instrument.

Therefore, HR Ratings will classify the entity in one of the three following sections:

- **HR D / HR DT:** In those cases, in which our analysis determines that the debt in default (by non-compliance due to lack of payment or by restructured payments) predominates it will not be necessary to make a Preliminary Analysis of the entity to arrive at a rating.
- **HR DS:** In those cases in which our analysis determines that there is no basis for declaring defaulted debt or debt in compliance as being preponderant the rating process will not need to take into consideration an analysis in accordance with the asset's relevant methodology.
- **Qualitative penalization on the Preliminary Analysis:** This refers to those cases in which HR Ratings concludes that the debt in default does not represent a predominant portion of the entity's total debt, rather that the debt predominantly is current. In these cases, the normal rating process will be followed, leaving the qualitative penalization judgment to the Analysis Committee. This penalization will use as its starting point the results of the Preliminary Analysis to incorporate the effect of the default history on the entity's credit rating. This qualitative penalization for default is added to other penalization factors or qualitative rewards that would have affected the result of the Preliminary Analysis.

Considerations for the rating of obligations from entities with default history

An entity, despite non-compliance with certain financial obligations, could be current on the payments of other credits. Therefore, even though the rating of an entity is in HR D, HR DS or HR DT or with a default penalization in certain instruments, it would be possible to proceed with the rating of its debt obligations that are in full compliance within the established periods.

The rating process would be made according to the relevant methodology for the type of asset in which the obligation subject to analysis is located. However, the final rating of the

instrument will be subject to possible limitations depending upon the entity's rating classification. These limitations are defined as follows:

- If the entity's rating is HR D or HR DT, the credit risk rating that HR Ratings assigns to an individual obligation cannot be investment grade on a global scale (i.e., HR BB+ (G) as a maximum rating).
- If the entity's rating is HR DS, the assigned rating given to a compliant obligation will receive a qualitative penalization.
- In case that HR Ratings defines the entity's non-default debt as being predominant, the obligation will receive a qualitative penalization. However, this penalization could be even less than that assigned to the entity (thus, the obligation could have a final higher rating awarded to the entity).

The relevance and dominance of defaulted debt will be continuously evaluated by the Analysis Committee for which reason the credit risk rating of the entity and therefore of its obligations, could change over time.

Subsequent Stage to the entity's default

If we observe an increase in the level of dominance of non-defaulted debt or even the total debt payment that the entity had in default, the qualitative penalization will continue for an indefinite period, at a progressively lower level. Both the extension in the period as well as the degree of penalization will be evaluated case by case by the analysis committee.

When HR Ratings assigns a rating of HR D, because of structural or non-structural factors, an HR C rating will be the next rating assigned, immediately after the totality of defaulted financial obligations have been paid. However, the criteria for assigning higher ratings after an HR C will vary depending on the reasons for the default in question. Such criteria are as follows:

Stages of Structural Default

In the case of structural default, the various stages in a rating's evolution are as follows:

1. An HR D rating will be assigned, in case of Default.
2. An HR C rating will be assigned, when the default is fully paid.
3. Evaluation of the entity's financial situation by the Analysis Team.
4. Rating assignment considering the financial situation of the entity and various other factors that the Analysis Team and the Analysis Committee will consider. The improvement in the rating will be gradual, as the situation of the entity reflects it.

Stages of Non-Structural Default

The stages, in terms of the assigned rating if the default was for non-structural reasons are:

1. An HR D rating will be assigned, in case of Default.
2. An HR C rating will be assigned, when the default is fully paid.
3. Penalization Period, in which a non-investment grade rating is assigned. In such a period, the possible effects related to Default are evaluated, such as: cross default, early amortization events or acceleration of credits or debt issuances and possible legal consequences for the entity. This period may last from one day and until the analyst presents the case with a higher number of decision elements to the Analysis Committee.
4. Recovery Period which could last up to 6 months, is one where a Default Adjusted Rating is assigned. The Default Adjusted Rating incorporates a certain number of penalization notches as determined by the Analysis Committee, because of the factors that originated the non-structural default.
5. Rating assignment without an adjustment due to Default.

Limited Ratings – June 2017 update

Limited ratings are an analysis of credit strength requested by clients where HR Ratings prepares an assessment of an entity, issue or loan under a set of specific characteristics with the objective of making a strategic decision or performing a restructure. HR Ratings will assess the entity, issue or loan based on the methodologies used for each asset, although it will assume and take into consideration assumptions provided by the client, assigning a rating according to these assumptions. Limited ratings will only assess assumptions or scenarios that have not yet materialized but have a probability of occurrence in the future. As appropriate, HR Ratings may incorporate its own assumptions into the rating process.

Limited ratings will be given principally in the following cases:

- When an issue or loan is to be analyzed according to a set of specific hypothetical characteristics (determined loan-value ratio level, coverage, term, amount, source of payment, among others).
- When the impact of the credit quality terms is to be assessed for a transaction an entity is about to operate (merger, acquisition, specific purchase, investment projects, refinancing or restructuring process, sale of assets, splitting up of business units, among others).
- When for structured transactions a financial assessment is needed, and the final legal documentation or legal opinions are not available yet to consider possible changes to issues already in the market. Given that the limited rating, considering the hypothetical changes, could be a requirement for the shareholders to approve the proposed modifications.

To prepare a limited rating, the first step is to receive the express request from the client. Following this, HR Ratings conducts the analysis to determine the rating based on information provided by the client. During the analysis process, HR Ratings will not provide any feedback to the client as limited ratings are not an advisory or financial structuring service.

HR Ratings will detail in the report or communiqué the assumptions considered for the assignment of the rating, clarifying the rating is limited and that it is reliant on the assumptions received.

Limited ratings are only given for assessing a certain situation according to the specific assumptions set by the entity. Due to this, limited ratings are merely indicative, so they are not subject to withdrawal, monitoring or review.

Limited ratings may be public or private, depending on the requirement of the client.

The scale used for limited ratings is that used in the scales corresponding to each class of asset, however, HR Ratings assigns the symbol "(L)" at the end of each rating to indicate the rating is a limited rating.

Preliminary Ratings – November 2017 update

Preliminary ratings are an analysis of credit strength requested by clients where HR Ratings prepares a previous or initial assessment of a transaction that the issuer intends to materialize but does not have the closing information of the transaction yet, generally with the objective of starting marketing. HR Ratings will assess the entity, issue or loan based on the methodologies used for each asset.

Preliminary ratings will be given principally in the following cases:

- When for a public entity or any other institution needs to assess the ability of a bidder to finance a project or transaction.
- When for structured and non-structured transactions a financial assessment is needed, and the final documentation is not available yet, with the aim of marketing the transaction prior to issuance.

The preliminary rating provides a preliminary or initial assessment that is not a final traditional credit rating with regulatory effects, but which can be converted into a final traditional credit rating if the conditions applicable to the preliminary rating are confirmed. It is important to mention that a final traditional credit rating may differ from the preliminary rating if there was a change in the conditions applicable to the preliminary rating when the transaction finally materialized. Once the preliminary rating becomes a final traditional credit rating, it will have the same treatment as the rest of ratings, so they will be subject to withdrawal, monitoring or review. Preliminary ratings are merely indicative, so they are not subject to withdrawal, monitoring or review.

To prepare a preliminary rating, the first step is to receive the express request from the client. Following this, HR Ratings conducts the analysis to determine the rating based on information provided by the client. During the analysis process, HR Ratings will not provide any feedback to the client as preliminary ratings are not an advisory or financial structuring service.

Preliminary ratings are only given for assessing a certain situation if in the opinion of HR Ratings, the documentation provided is close to the final documentation.

HR Ratings will detail in the report or communiqué the rating is preliminary. Preliminary ratings may be public or private.

The scale used for preliminary ratings is that used in the scales corresponding to each class of asset, however, HR Ratings assigns the symbol "(P)" at the end of each rating to indicate the rating is a preliminary rating.

Influential Ratings– March 2019 Update

In certain analytical processes, HR Ratings requires a credit assessment of entities over which it does not hold an assigned rating. In these cases, a rating issued by another rating agency may be used, which is defined as Influential Rating. The Influential Rating must be granted by rating agencies authorized by the relevant authorities, and the Analysis Committee may evaluate in each case if it considers the Influential Rating while assigning a rating according to the different applicable methodologies.

In case an Influential Rating is used, the analysis team will follow up on a weekly basis to monitor possible changes on said rating, which could affect the analysis performed by HR Ratings. This implies keeping a spread sheet updated with the latest information of the Influential Rating in question, no later than the last working day of each week, according to what is established in the applicable internal regulations.

Global Scale to Local Scale Equivalency – June 2017 Update

On occasions HR Ratings finds it necessary to convert to its Mexican local scale a global Influential Rating for a foreign entity that has been issued by a different rating agency

recognized by the appropriate authorities. The objective is to establish the credit strength for an entity that operates within Mexico by using the global scale rating mentioned above. The conversion will also consider the global Influential Rating assigned to the “relevant sovereign” of the foreign entity. Both Influential Ratings must have been assigned by the same agency.

The process to determine the rating in terms of HR Ratings local Mexican scale of these entities is as follows:

1. Assign an HR Ratings global internal rating to the previously defined “relevant sovereign”.
2. Determine the difference in number of notches between the assigned global scale internal rating, mentioned in point 1, and the Mexican sovereign global scale rating; both assigned by HR Ratings.
3. Determine the difference in number of notches between the global Influential Rating of the foreign entity and the global Influential Rating of its “relevant sovereign” as assigned by the same recognized agency.
4. Assign to the entity operating within Mexican territory an HR Ratings local Mexican scale rating by incorporating the HR Ratings Mexican sovereign local scale rating (“HR AAA”) and the results obtained in steps 2 and 3.
5. Adjustment considerations can be made on the result of the previous steps, based on the specific situation of the entity at the local level.

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Methodology to incorporate Partial Guarantees into the credit analysis process for different types of assets.

This methodology is applicable to all credits or issues of structured or unsecured debt rated by HR Ratings and which have a Partial Guarantee (PG). This document discusses the concepts and outlines the methods for incorporating these PGs into the different types of assets. The method of incorporation will be followed on any rating process conducted by the analysis team; starting, in most cases, with the assumption that the partial guarantee represents a credit enhancement.

In general terms, HR Ratings considers a partial guarantee a mechanism whose purpose is to improve the credit quality of a credit or issue, whether they are structured or unsecured products, through the commitment of a third party to unconditionally and irrevocably cover a portion of the debt placed. In practice, this portion is generally determined as a fixed percentage of the outstanding balance on the debt, which is backed by an agreement signed between the issuer/borrower and the guarantor (third parties may be included as necessary).

Therefore, HR Ratings does not consider as partial guarantee any pledge included in the flows to be securitized or which is explicitly pledged as part of the source of payment for the debt. This methodology addresses only the following: (i) partial guarantees determined as a fixed percentage of the outstanding balance, (ii) reserves set up through a trust, and (iii) guarantees that represent a percentage of the amount placed.

A legal opinion must be obtained from an independent law firm for HR Ratings to incorporate this credit enhancement into the evaluation of a credit or issue. This legal opinion is meant to determine if the relevant legal documentation will ensure in a satisfactory manner, among other things, that the partial guarantee is irrevocable and unconditional; as well as clearly stating that the funds will be used exclusively to service the debt on the credit or issue. However, for jurisdictions or legislations that do not require a legal opinion, by law, the Analysis Committee may assign a rating without the legal opinion.

It's important to note that effect of a guarantee is only considered when the credit quality of the guarantor is better than the credit quality of the issue or credit it is intended to back.

The different sections of this document offer, first, a general framework that defines the concepts necessary to understand how partial guarantees operate, considering the differences between each class of asset and their application according to the criteria of each methodology. The following three sections discuss the method for assessing partial guarantees applied on i) non-structured unsecured debt, ii) structured bank credits and notes of Mexican states and municipalities (revenue sharing obligations, RSO), iii) debt for infrastructure projects, and iv) debt for projects that are rated through future flows and financial asset debt.

Characteristics of a partial guarantee and its legal analysis

This section discusses the general characteristics of partial guarantees as well as those that must be satisfied to be considered as such and to be assessed according to the methods outlined in this document. In addition, details are offered for the elements to be analyzed in a legal opinion, which should be satisfactory so that HR Ratings can incorporate the guarantee into the rating process for the credit or issue. In the case of issues or credits carried out according to legislations outside of Mexico, the Analysis Committee may proceed with the assessment without a legal opinion, provided the law does not expressly require a legal opinion from an independent law firm. The decision of the committee will be reflected in the minutes and/or corresponding report.

HR Ratings defines partial guarantee as any instrument granted by a third party (guarantor), by which they commit to partially covering the financial obligations of a issue or credit. This is based on a percentage determined on the outstanding balance on the debt or a guaranteed amount.

The debt may be structured or unsecured, and this will determine the method used to assess the guarantee. The guarantor, meanwhile, may be a financial or a non-financial entity, provided they have a credit rating higher than that for the debt the guarantee is intended to back.

The characteristics the independent legal opinion looks at, for the purposes of this methodology include:

- The legal documentation for the guarantee should clearly state that the resources from the guarantee will be used solely to service the debt;
- The guarantee agreement should specify the times and conditions necessary for the activation and execution of the payment in full of the guaranteed debt, considering the percentages and/or amounts specified;
- The guarantee must be irrevocable, meaning there are no clauses that would permit the guarantee to be cancelled before the total repayment of the rated debt, or if such clauses were to exist, they would only be effective in certain circumstances;
- The guarantee must be unconditional. The payment will not be subject to any additional condition, beyond the availability of funds from the debtor to cover its payment obligations and compliance with the process for notifying the guarantor, so that they may fund the payments in a timely manner;
- In the case of guarantees on structured debt, the repayment of the amounts drawn from the guarantee must be subordinate to the debt service in the debt's payment waterfall. This repayment may be made with the structure's remaining resources after debt service;
- In the case of guarantees on unsecured debt, the obligations for the repayment of the guarantee, within the analysis, should not jeopardize the capacity of the issuer to satisfy their payment obligations on the rated debt.

In addition to the characteristics that have been described, the HR Ratings analysis team will review the additional attributes of these types of contracts, to appropriately incorporate the benefits of the guarantee into the analysis. However, if because of its complexity, any characteristic cannot be incorporated into the HR Ratings financial model, the analysis committee may assign a qualitative adjustment, which will be detailed in the analysis report and/or the committee's minutes. Some of the most common characteristics include the following:

Partial Guarantees for Structured and Unsecured Debt Issues

March 22, 2019

A) Revolvency: Guarantees may be revolving or not revolving. A revolving guarantee will consider in the available total any amount that has been drawn in previous periods and paid to the guarantor as established in the respective agreement. On the other hand, a non-revolving guarantee will not consider amounts drawn and repaid as available.

B) Draw and Amortization (or repayment) Periods. Guarantee agreements should clearly specify the draw and repayment periods. The draw date should cover the full term on the debt, while the amortization period will usually start after the draw period has ended. During this last period, the flows generated by the asset that backs the debt should be used to amortize the whole of the amount drawn on the guarantee, as well as the interests that may have been capitalized, as laid out in the agreement. However, both the guarantee agreement and the debt documents may permit early payments on the guarantee if there are remnant flows. When this is the case, it will be important that any payment of principal or interest on the guarantee is completely subordinated to the payment of the debt and, insofar as possible, incorporated into the financial model.

C) Guaranteed Amount. In general, the guaranteed amount will be defined in each period based on the outstanding balance and percentage guaranteed, and sometimes may correspond to a percentage of the amount placed. It may also be limited to a fixed amount determined in the guarantee agreement.

D) Amount Available. The amount available will, in addition to the amounts drawn in previous periods, depend on the characteristics established in the guarantee including its revolvency. HR Ratings defines a guarantee as frozen when the percentage it covers, and therefore the amount available, is fixed for a specific period. Meanwhile a non-frozen guarantee refers to that where the available amount is not fixed despite having been used.

E) Amount Drawn. Amounts that have been used from the guarantee to cover debt obligations.

F) Consideration. Defined as the payment the party contracting the guarantee makes to the guarantor from time to time, for the guarantee to remain effective.

G) Conditions for default and early termination. The analyst will determine whether the conditions stipulated represent a credit enhancement or risk to the structuring.

H) Guarantor's Rating. The analyst will consider the rating of the guarantor to assess the quality of the guarantee. When the guarantee is a liquid reserve fund, already set up and available through a trust, the equivalent rating will be considered as HR AAA.

It's important to note that the characteristics detailed here are only the most common that exist in guarantee agreements. Additionally, the potential impact of a partial guarantee will be assessed during the annual review of the instrument for which it was established.

Partial guarantees on unsecured debt¹

The different HR Ratings methodologies provide the process and the metrics considered to assign a rating to the unsecured debt (non-structured) of an entity, whether it be a state

¹ This section refers primarily to unsecured guarantees for corporations and financial institutions, although they may also apply to states and municipalities.

Partial Guarantees for Structured and Unsecured Debt Issues

March 22, 2019

or municipality, a corporation, bank or a non-bank financial institution, etc. As the source of payment is not isolated in these cases, and it may also serve more than one debt instrument at a time, the rating for the non-structured debt is linked to the rating for the issuer or borrower. To improve this rating, the issuer or borrower may contract a third-party guarantee, or establish a reserve in a separate trust that would provide liquidity to the non-structured debt in stress situations.²

In general terms, HR Ratings will increase the debt rating one notch for every 15% that is guaranteed. This is subject to the guarantor having the maximum credit quality on the local Mexican scale. When the guarantor does not have an HR AAA or equivalent rating, the guaranteed amount will be reduced as noted in Table 1.

Table 1: Guarantor's Rating Factor

HR AAA	100%	HR A+	80%
HR AA+	95%	HR A	75%
HR AA-	85%	HR A-	70%

Source: HR Ratings.

This table shows that if the guarantee covers, for example, 20% of the outstanding balance on the guaranteed issue, but the guarantor has a rating of HR A-, only 14% of the outstanding balance will be taken as guaranteed. It's important to note that if the guarantor's rating is equal to or less than the issuer's rating, HR Ratings will not incorporate this instrument into the analysis.

Liquid funds offered as a credit enhancement for this type of debt, and which preferably are constituted through a management trust, will add one notch to the rating for secured debt for every 15% these resources represent in the current outstanding balance. This is because a liquid fund is considered to hold a credit rating equal to HR AAA. When the funds need to be generated, the analyst will assess the future capacity of the asset that will generate the cash to constitute the guarantee. Additionally, the HR Ratings analysis team will assess the liquidity of different assets for these to be included in this line. For example, debt paper with the highest credit quality. The analysis team may qualitatively assign one notch if they identify a credit enhancement that cannot be incorporated quantitatively, or only under specific conditions.

Partial guarantees on structured bank credits and debt issues of public entities (Revenue Sharing Obligations)

General Characteristics and Concepts

This section considers partial guarantees that are contracted to cover the structured debt obligations of both Mexican states, municipalities, and of decentralized government agencies that may contract debt whose source of payment is found in federal revenue or some type of self-generated revenue.

² The analysis team will identify the execution mechanism to ensure the liquidity the guarantee is intended to provide is immediate and unconditional. When the guarantee is offered through a third party, the credit rating will be monitored.

Partial Guarantees for Structured and Unsecured Debt Issues

March 22, 2019

It's important to mention that although this type of guarantees may be offered by a public or private financial institution, domestic or international, only development banks have offered them for the states, municipalities and decentralized government agencies debt structures rated by HR Ratings.

The credit rating of the guarantor is a relevant factor that the analysis team will look at to determine the credit enhancement the guarantee gives to the bank credit or debt issue. If the characteristics of the guarantee agreement cannot be incorporated into the flow estimates, the analysis team may consider the guarantor's credit rating as an Extraordinary Adjustment Consideration.

If the guarantee can be incorporated into the financial model, the guarantee amount will be the result of multiplying the percentage guaranteed by the factor associated with the guarantor's rating, as shown in Table 1. The resulting amount will be that considered in the analysis process and in the calculation of the Target Stress Rate (TSR).

It's important to note that if the credit rating for the guarantor is equal to or lower than the rating given to the structure without guarantee, then HR Ratings will not consider that instrument in the analysis.

General rating process for structured products for States and Municipalities

The HR Ratings "Methodology for Structured Products for Mexican States and Municipalities: Debt backed by Federal Transfers to States" (January 24, 2013) outlines the process for assessing state and municipal structures. This process is based on the calculation of the TSR, which is described in general terms following:

1. HR Ratings stresses the pledged revenues in its projections, cyclically. This revenue usually refers to *Ramo 28* Federal Transfers.³ The methodology details the process for stressing *Ramo 28*.
2. The HR Ratings analysis team determines, according to the projection of the stressed revenue and the structured debt servicing, the point at which the structure will show the minimum coverage. The Critical Stress Period is built considering six periods before and six periods after.
3. The revenue will be stressed in the Critical Stress Period through the TSR, to the point where the secondary debt coverage drops to exactly one. This coverage considers the reserves, which these structures typically have.
4. The TSR has an important additional restriction, and this is that the stress on the revenue must be such that the structuring can replenish the reserve in a Post-Critical Stress Period, using its remnants.
5. The Post-Critical Stress Period starts when the Critical Stress Period ends, and its length is determined according to the target balance amount of the reserve. For example, if the reserve represents three debt servicing periods, the Post-Critical Stress Period will be three periods.

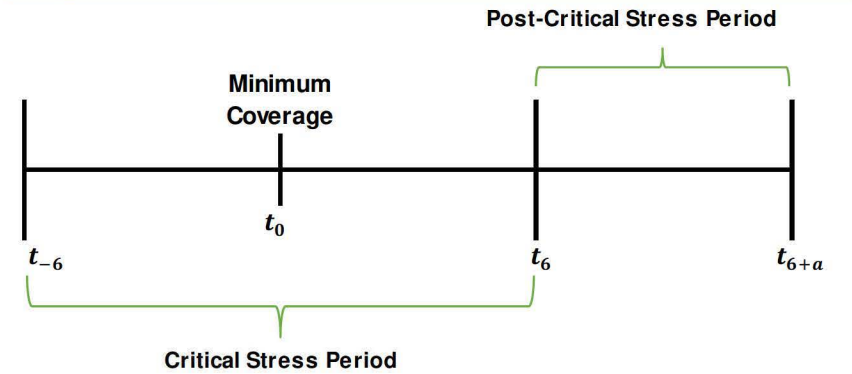
³ According to the HR Ratings methodology, and corresponding addenda, the pledged revenue may also refer to self-generated revenue.

Partial Guarantees for Structured and Unsecured Debt Issues

March 22, 2019

In summary, the critical stress period is t_{-6} to t_6 , during which the TSR penalizes the stressed revenue until the secondary coverage reaches 1.0x, meaning the reserve is fully depleted, considering the restriction discussed in point 4. Diagram 1 shows the rating process.

Diagram 1: Structured Products



Source: HR Ratings.

The Post-Critical stress period starts at t_6 and continues until t_{6+a} , with a being a whole number defined according to the following:

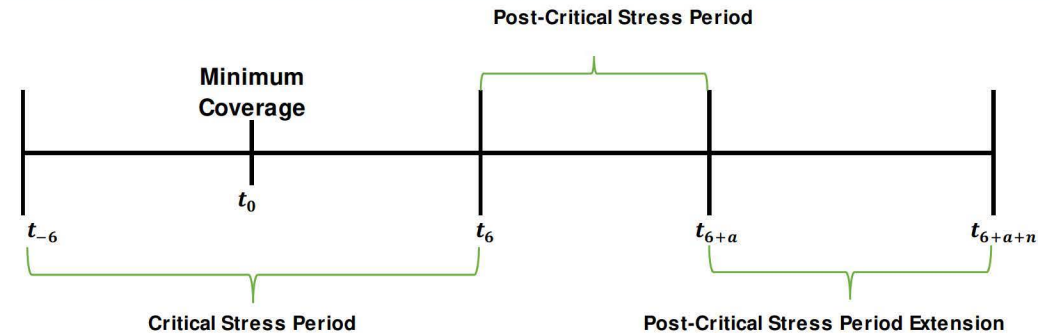
$$a = \begin{cases} 1 & \text{if the reserve is equal to one debt servicing} \\ \vdots & \\ i & \text{if the reserve is equal to } i \text{ debt servicings} \end{cases}$$

Where i , and therefore a , is a whole number and could be zero if the structuring does not have a reserve to cover the debt servicing.

Process for modeling the partial guarantee

When there is a guarantee, the model allows for the resources available under the guarantee to be used during the Critical Stress Period, in addition to the reserve. The Post-Critical Stress Period will need to be modified to also replenish the partial guarantee, considering the payment of the interest accrued. Diagram 2 shows the rating process incorporating a partial guarantee.

Diagram 2: Partial Guarantee for a Structured Product



Source: HR Ratings.

When there is a guarantee and its resources are used, the Post-Critical stress is extended n additional periods starting t_{6+a} , where n is the maximum whole resulting from dividing the percentage guaranteed by 5. This means that one additional period is added for every five percent (5%) guaranteed. For example, a guarantee that covers 25% of the outstanding balance will imply an extension of five periods, during which the amount used will be paid along with the corresponding interest. This process is summarized as:

$$n = \left\lfloor \frac{\text{Percentage Guaranteed}}{5} \right\rfloor$$

The balance TSR should be such that the whole of the reserve can be used and only the amount that can be repaid at the end of the extended Post-Critical stress period is drawn from the guarantee, considering the interests this draw would accrue, when this is the case.

Development of the Model

As a rule, the guarantee is incorporated into the rating process through the projection of future payments the guarantor would make, according to the terms and conditions of the corresponding agreement and the payment waterfall of the structure.

By consequence, the analysis would assume that, under certain conditions and according to that stipulated in the guarantee agreement, the source of payment for the debt will be complemented with the additional resources from the guarantee. This could aid the borrower to cover the debt servicing payments. Regardless, the effect of this additional source of resources on the credit rating for the structure will be reflected in the calculation of the TSR and, by consequence, in the credit rating given.

It's important to mention that the support the guarantee provides, in terms of resources, will be considered an additional flow to the source of payment and to all the other resources available within the structuring.⁴ Therefore, this will not have a direct impact on the calculation of the primary or secondary debt service coverage ratio.

⁴ The existing resources in a reserve consider available resources within the structuring to pay the debt servicing.

Partial Guarantees for Structured and Unsecured Debt Issues

March 22, 2019

Technically there are two possible cases where the guarantee would be involved, which will depend on the average primary debt service coverage during the Post-Critical Stress Period. These cases are described following:

Case 1

- When the average primary debt service coverage is equal to or greater than 2.0 times (x) in the Post-Critical Stress Period, without extending the period for the repayment of the guarantee. The remnants accumulated during the Post-Critical Stress Period, without extending, generally exceed what is needed to replenish the reserve to its target amount.

Since the average primary coverage in this case is equal to or greater than 2.0x during the Post-Critical Stress Period, the reserve fund would be fully depleted during the Critical Stress Period, the target amount could be replenished with the remnants, and the TSR would benefit from the use of the guarantee.

Conceptually, this is the simplest case. The structure may use the guarantee on the condition that the projected remnants, during the extension on the Post-Critical Stress Period, can replenish the resources used from the guarantee, including the interests accrued and, as applicable, capitalized.

When the average primary coverage is strictly greater than 2.0x during the Post-Critical Stress Period, there is an additional restriction as the structure will use its remnants to cover the servicing of the guarantee prior to the end of the Post-Critical Stress Period. This means that for a guarantee that covers 25% of the outstanding balance, the structure will have more than five periods to cover the amount borrowed from the guarantee and the accrued interest. Therefore, HR Ratings will only consider the remnants available for the repayment of the servicing on the guarantee at an amount equal to the sum of those accumulated during the Post-Critical Stress Period.

Case 2

- When the average primary coverage is strictly below 2.0x in the Post-Critical Stress Period, without extending to the guarantee repayment period. The remnants are not enough in the Post-Critical Stress Period, without extending, to fully replenish the target balance of the reserve.

As the average primary coverage in this case is strictly less than 2.0x during the Post-Critical Stress Period, the reserve cannot be replenished with the remnants and the TSR will not permit the use of the guarantee.

To resolve this problem and incorporate the effect of the guarantee on the structuring, an adjustment to the Post-Critical Stress Period is needed. Therefore, HR Ratings will allow the reserve to be replenished in the Post-Critical Stress Period considering both the periods for the reserve to be replenished and those corresponding to the payment of capital and interest for the use of the guarantee. This would allow the whole of the reserve to be used and the credit benefits of the guarantee to be partially applied.

Partial guarantees on debt for infrastructure projects

The guarantees contracted to support the debt servicing on infrastructure projects will be incorporated into the model so that their effect on the flow of resources is considered in the base and stressed scenarios.⁵ Generally speaking, the credit rating assigned to the debt structure will depend on its financial strength, which is measured through the difference between the real cumulative revenue in both scenarios. This will also consider the characteristics of each debt structure and the asset whose flows will back the debt payment.

However, as guarantees are the last resort the structure has for covering the debt servicing, their potential benefit may be underestimated in the quantitative analysis. Hence, in addition to the scenario analysis, the coverage the guarantee would give the structure is independently assessed from the debt's payment waterfall and the project's capacity to generate flows. This manner of conducting the analysis allows HR Ratings to compare guarantees with different characteristics on an issue or credit, as well as credits or issues with different characteristics on the same guarantee.⁶

The Guaranteed Debt Service Ratio (GDSCR) or "guaranteed coverage" is defined as the number of times (x) the amount available on a guarantee would cover the debt servicing (interest and principal) in a given period. Considering that the debt servicing in each period will rarely remain constant and that in most cases, the amount available on the guarantee, even when this has not been used, will decrease over time, the GDSCR will show a downward trend throughout the life of the debt. Therefore, the average of the guaranteed coverage is calculated to determine the benefit of the guarantee, considering the remaining term on the structure, and based on this, the adjustment is determined in number of notches applied to the credit rating for the structuring.

$$GDSCR_t = \frac{\text{Amount Available}_t}{\text{Debt Servicing}_t}$$

$$GDSCR_{av_t} = \frac{\sum_{n=t}^T RCGSD_n}{T - t}$$

Where " T " refers to the periods that constitute the structure and " t " the period analyzed.

Considering the frequency of payment on the principal and interest may vary between debt structures, the average guaranteed coverage is standardized to reflect the number of months of debt servicing that the guarantee could cover if needed. This takes into consideration that, as the guarantee represents the last liquid resource for a structure, the fact that it is used would reflect a weakness in the asset or project to generate flows, the recovery of which will depend on external variables and would be beyond the scope of this analysis.

⁵ To date, the guarantees HR Ratings has evaluated for infrastructure projects have been for debt backed by revenue from highways, although the analysis could be applied for other projects. For more information on the rating process for debt backed by toll revenue, see "Methodology for Infrastructures: Debt backed by revenue from the operation of highways, tunnels and bridges" (November 6, 2015).

⁶ Although this analysis does not consider the project flows, if the debt is denominated in UDIs or has a variable interest rate, the projections for the stressed scenario will be used to assess the guarantee as discussed in this section.

Partial Guarantees for Structured and Unsecured Debt Issues

March 22, 2019

Based on the above, we consider that the guarantee provides enough of a credit enhancement in terms of notches, provided it can cover nine or more months of debt servicing, regardless of the payment frequency. In this regard:

- 1) If the average guaranteed coverage represents between 9 and 18 months of debt servicing, the guarantee could represent an additional level in the credit rating for the structure without analyzing this benefit.
- 2) If the average guaranteed coverage represents 18 or more months of debt servicing, the rating may be improved by two or more levels.

Lastly, considering the guarantor's rating, the concept shown in Table 1 also applies to the partial guarantees on infrastructure projects.

Partial Guarantees for other Structures or Debt Structures Backed by Financial Assets

In the case of partial guarantees on debt structures backed by financial assets, the effect of the guarantee is incorporated directly into the transaction flow depending on the activation clauses (triggers). Guarantees that do not have these triggers cannot be considered. These triggers will depend on each contract and each guarantee analyzed, therefore the assessment and evaluation of the triggers is conducted on a case-by-case basis. In the HR Ratings model, the amount of the guarantee directly influences the flow available for the debt servicing and, therefore, the estimation of the Maximum Default the structuring supports. This process has a direct impact on the calculation of the Times Default Rate (TDR) that HR Ratings uses to assign the credit rating.

$$TDR_t = \frac{MDR_t}{HDR}$$

Where “MDR” refers to the Maximum Default, “HDR” the historic default rate calculated through the vintage analysis of the asset, and “t” the current period.

The HR Ratings methodology for the evaluation of financial assets details the necessary TDR values to assign the rating for the structure.

Under this scheme, in general, any partial guarantee will represent a credit enhancement and the amount HR Ratings will consider in its analysis will be dependent on the rating of the guarantor, as shown in Table 1. In the case of liquid guarantees, constituted through a trust, it is assumed the guarantee has a credit quality equal to HR AAA.

For other structures not mentioned in this document, HR Ratings will include the partial guarantee in the flow projection to assess the scope of the credit enhancement.

Glossary

1. **Partial Guarantee:** This guarantee, which is typically considered a credit enhancement, refers to a contract by which a third party commits to servicing a part of a certain debt issue in the event the issuer is unable to cover the servicing.
2. **Structured Debt:** Refers to a debt mechanism that isolates, through a trust, the cash flow earmarked to service a debt issue.
3. **Unsecured Debt:** Refers to debt issues where the servicing depends on the capacity of the entity to generate enough cash flow. In this case, consideration is given to whether the issuer needs to cover various costs and expenses in addition to debt servicing.
4. **Outstanding Balance:** Refers to the amount of debt placed and pending amortization.
5. **Issuer / Borrower:** The entity that has issued the structured or unsecured debt.
6. **Guarantor:** The entity that offers cash to service a percentage of the debt issued by the issuer / borrower.
7. **Reserve:** In terms of this methodology, refers to an asset, constituted of cash that is earmarked for debt servicing in the event the free cash flow is insufficient.
8. **Debt Servicing:** Refers to the payment of interest and the amortization set by contract for each period.
9. **Remnants:** In terms of this methodology, refers to the amount of free cash flow remaining after servicing the debt.
10. **Target Stress Rate (TSR):** HR Ratings applies this rate to assess the credit quality of Sub-Sovereign debt structures. The rate penalizes the revenue the Sub-Sovereign may receive from *Ramo 28* transfers, and in specific cases, *Ramo 33* or self-generated revenue.
11. **Critical Stress Period:** Refers to a timeframe where HR Ratings stresses the income, through the TSR, for *Ramo 28* debt structures issued by Sub-Sovereigns.
12. **Post-Critical Stress Period:** Refers to the timeframe, following the Critical Stress Period, when the structuring should replenish the reserve to its target balance, and as applicable, pay the interest and the amount used from the Partial Guarantee.
13. **Coverage:** The ratio that measures the capacity of the free cash flow to service the debt, typically considering amortization and interest.
14. **Primary Coverage:** The available flows include the income generated by the assets; in the case of Sub-Sovereign debt structures, this refers to the *Ramo 28* transfers; in the case of highways, it refers to the income generated by tolls. The expenses that may be considered include, among others, administrative and operating expenses, etc.
15. **Secondary Coverage:** In addition to the income generated by an asset, sources of cash include reserves that may, or must, be used to service the debt.

Partial Guarantees for Structured and Unsecured Debt Issues

March 22, 2019

16. **Guaranteed Debt Service Coverage Ratio (GDSCR) or “guaranteed coverage”:** The number of times (x) the amount available on a guarantee covers the debt servicing (interest and principal) in a given period.
17. **Times Default Rate (TDR):** The number of times the pledged assets can be stressed in terms of the most common default rate for the type of asset rated, taking into consideration timely and full payment of obligations.
18. **Maximum Default Rate (MDR):** Refers to the maximum default rate the assets supporting a structuring can withstand while still satisfying the debt servicing.
19. **Historic Default Rate (HDR):** Refers to the most common default rate presented by similar assets to those pledged to the issuer trust.

References

The following HR Ratings methodologies accompany this document:

- 1) Methodology for Structured Products for Mexican States and Municipalities: Debt backed by Federal Transfers to States (January 24, 2013).
- 2) Methodology for Structured Products for Mexican States and Municipalities: Debt backed by Federal Transfers to Municipalities (February 14, 2013).
- 3) Methodology for Structured Products for Mexican States and Municipalities: Debt backed by the Self-Generated Revenue of Subnational Entities (March 22, 2013).
- 4) Methodology for Infrastructures: Debt backed by revenue from the operation of highways, tunnels and bridges. (November 6, 2015).
- 5) Methodology for Financial Assets, Debt backed by a set of financial assets. (March 22, 2019).

These methodologies can be found at: <https://www.hrratings.com/es/methodology>



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Partial Guarantees for Structured and Unsecured Debt Issues

March 22, 2019

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