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This Methodology is of the exclusive property of HR Ratings and it is applicable starting February 10th, 2021.

## This document explains the methodology used by HR Ratings to assign credit ratings to financial banking institutions.

HR Ratings' methodology allows credit ratings to be assigned that represent the capacity and will of financial institutions to meet their debt obligations promptly and correctly. The analysis conducted to establish said capacity is based on two concepts: first, on a quantitative analysis that requires the projection and weighting of a series of financial metrics in a Base Scenario and a Stress Scenario, and second, on a qualitative analysis that evaluates to what extent the environmental, social and corporate governance (ESG) factors have an impact on the bank's credit quality.

HR Ratings' quantitative analysis begins with an analysis of the bank's assets, considering trend, composition and concentration. It also analyzes liabilities in terms of access to different sources of funding and liquidity, considering the composition of the liabilities and the concentration of the main savers. The final elements considered in this aspect are the exchange rate and interest rate risks to which the bank is exposed, as well as the hedging tools it uses. This evaluation is used to develop the Financial Model, which weights metrics that are divided into three categories: (i) profitability and efficiency, (ii) solvency and capitalization and (iii) liquidity. Each of these metrics considers the last eight quarters (two years) of historical information and the projection for the next eight quarters. The projection exercise is conducted for two scenarios and requires the bank's evaluated historical financial information, considering the balance sheet, the statement of income and the statement of cash flow in order to determine a series of financial ratios to be evaluated.

The metrics used by HR Ratings incorporate concepts that are normally considered regulatory, such as the Capitalization Indexes (ICAPs), the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR).

With regard to the assumptions that HR Ratings will use to construct its scenarios, the analysis will depend on the characteristics observed in each bank, the strategies adopted and the tolerance to the risk they face. The factors that will be common to each evaluation relate to the construction of Macroeconomic Scenarios that reflect the current situation. In turn, the projected Base Scenario considers the projection of the behavior that has a greater likelihood of occurrence in the future given the bank's specific characteristics, whereas the Stress Scenario seeks to emulate a scenario of maximum adversity for the bank considering the main risks to which it is exposed.

In terms of the qualitative analysis, HR Ratings evaluates the impact of the ESG factors as a fundamental part to identify the credit quality of the bank. For the environmental analysis, factors such as the bank's policies and approach to said aspect are evaluated, as well as its exposure to natural phenomena in terms of portfolio and operation. The social analysis evaluates factors such as the bank's human capital policies, as well as its reputational risk and its social approach in terms of services and in terms of offering competitive prices. The last part of the ESG section refers to corporate governance and HR Ratings evaluates factors such as internal regulation, the quality of Upper Management, the mechanisms to mitigate the regulatory and macro-economic risk, the operational risk and the quality and transparency of the information generated by the bank.

Lastly, HR Ratings may assign qualitative adjustments to the relating in any direction, limited to three notches when any of the following factors is detected: (i) support by the authorities when there is a certain systemic relevance of the bank to the financial market in which it operates, (ii) when the bank's historical information cannot be representative of its future operation, and (iii) when the strength or weakness of an asset, liability or any other quantitative factor cannot be fully incorporated into the financial model.

## 1. Introduction

Banks and financial institutions that due to their function represent one of the main pillars of economic growth in any country. Granting credit to consumers and other productive segments enables the movement of capital that results in new investments and improves economic conditions. However, an adverse scenario in the sector may represent a significant source of risk for the economy as a whole.

The credit rating described in this methodology determines the bank's capacity and will to meet its debt obligations, including claims from its deposits. This implies evaluating if the capital available and the cash flow generated by the bank's diverse assets are sufficient to service the debt and to cover any claims that arise over time and in specific periods. Therefore, the methodology offers the tools necessary to measure the bank's capacity to generate high-quality assets that maintain their value over time, as well as the capacity of its management to propose and implement a strategy that ensures sufficient solvency and maintains a certain level of liquidity at all times.

HR Ratings' methodology uses quantitative analysis based on its Financial Model, which stands out for constructing projection scenarios to evaluate the main risks and measure the efficacy of the controls of each bank. The metrics that will be projected in each Scenario, which are grouped in accordance with their capacity to describe the operating profit and capacity, are solvency through the potential capital it would have and available liquidity.

It is important to clarify that the methodology considers that credit institutions, due to their importance and the systematic risk they face daily, are subject to robust regulatory measures. There are also international guidelines and general recommendations of international bodies, such as those of the Basel Committee, which seek to establish contingency plans to maintain solvency and liquidity of the sector when faced with stress scenarios. The metrics used by HR Ratings in its evaluation reflect to a certain extent the adherence to these international regulations. An example is that the solvency section considers capitalization indexes, whereas the liquidity section considers measurements such as the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR). The first metric measures a bank's liquidity to face a stress scenario for 30 days, whereas the second measures the volume of the liabilities enforceable in the long-term against highly-liquid assets.

HR Ratings' methodology also presents a qualitative analysis based on different environmental, social and corporate governance (ESG) factors, which allows the impact that these factors have on the credit quality of each bank evaluated to be incorporated.

It is important to clarify that the ESG factors, despite having their own evaluation, may have an impact on the construction of the Projection Scenarios and therefore, on the Financial Model metrics.

## 2. General Structure of the Methodology

HR Ratings' methodology is based principally on three steps: first, on an analysis of the bank's assets, liabilities and position in terms of financial and derivative instruments.

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The second step is conducted using this information, which refers to the development of the bank's Financial Model and its ESG factors. The final step refers to the assignment of a qualitative adjustment, limited to three notches in any direction, in order to capture factors that cannot be incorporated into the Financial Model and that may have an impact on the bank's credit quality.

The quantitative analysis of the bank and the credit rating is based on weighting two main captions: the first is the Financial Model, with a weight of 70.0% of the bank's rating, and that begins with the projection of the bank's financial statements and constructs financial metrics in a Base Scenario (65.0% of the Financial Model) and a Stress Scenario (35.0% of the Financial Model). The second caption relates to the ESG analysis and is based on evaluating a series of factors and risks to which the bank is exposed and its capacity to mitigate them.

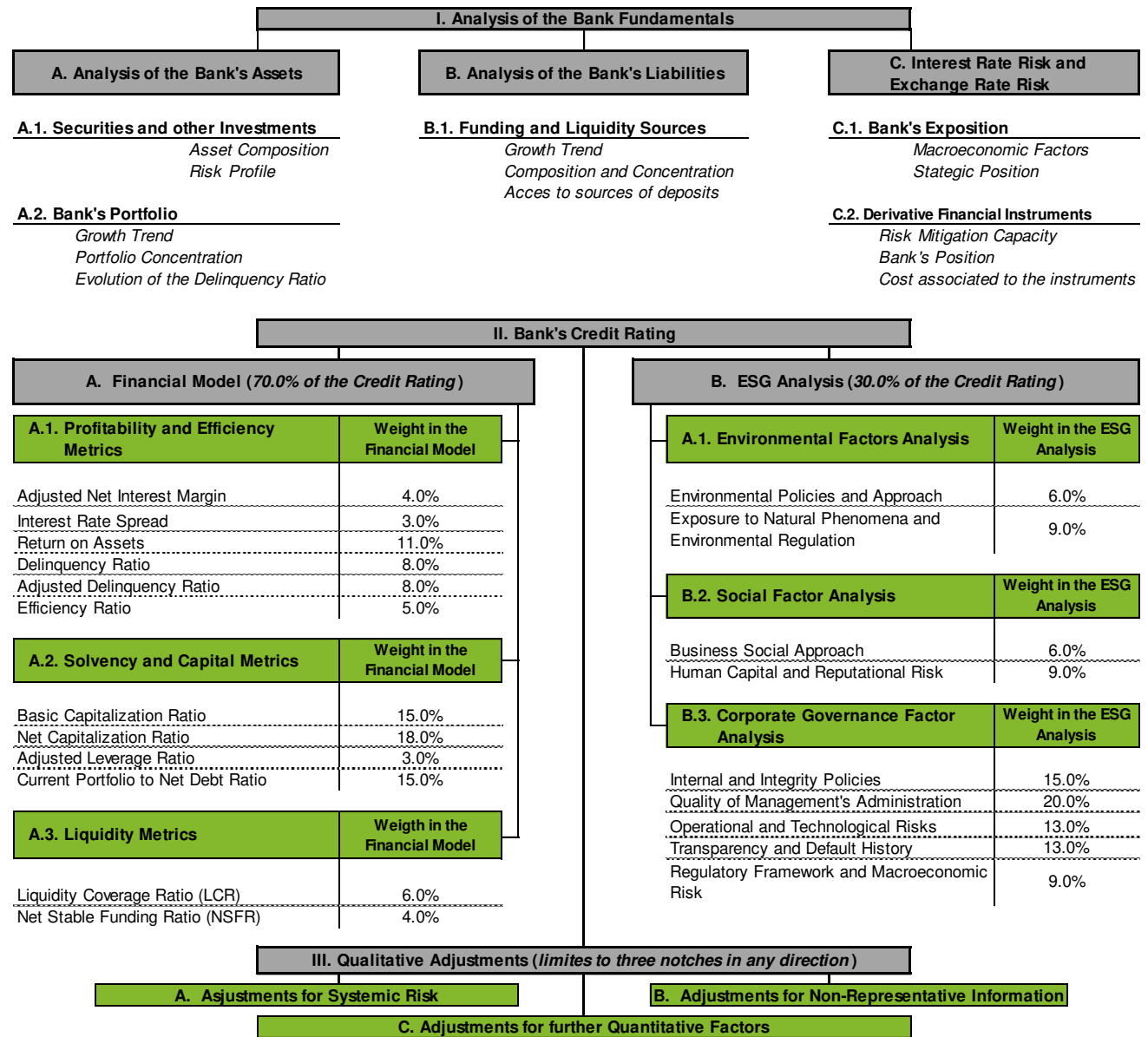
In terms of the Financial Model, HR Ratings separates the metrics it analyzes into three items: (i) profitability and efficiency measurement metrics, (ii) solvency and capital metrics and (iii) liquidity metrics. The metrics will be estimated not only for the last two years observed (the last 8 quarters), but they will also be projected in the two scenarios for the next two years (the next 8 quarters). This exercise is conducted based on the analysis of the bank's financial statements; therefore, in this vein, their clarity and transparency is fundamental. On the projections side, the Base Scenario begins with what HR Ratings considers as the bank's most likely performance, and incorporates the current macro-economic situation. Moreover, the Stress Scenario incorporates the risks detected in the financial analysis, considering the risk policies and tolerance, as well as the macroeconomic risks in order to incorporate the greatest-possible degree of stress.

The main risks that will be incorporated into both Projection Scenarios refer to items such as the bank's operational and administrative risks, the expected loss due to the possible growth of the past-due portfolio, the considerations of dispersed and centralized portfolios, and the loss of portfolio value due to market movements, among others .

In the ESG analysis, the factors will be evaluated through the three possible labels: *Upper*, *Average* and *Limited*: which refer to the bank's capacity to face the risks to which it is exposed. The *Upper* label implies that HR Ratings considers that the bank is not exposed to a certain risk or that, even while being exposed, it has the resources and mechanisms to significantly mitigate this risk. Moreover, the *Average* label implies that HR Ratings has identified that the risk analyzed, considering its trend, may have a moderate effect on the bank's credit quality. Finally, the *Limited* label reflects that the bank is exposed to a greater risk compared to its competitors and does not have the mechanisms or policies to mitigate it.

HR Ratings considers that the bank's credit rating, incorporating the projections in both Scenarios and the evaluation of the ESG factors, reflects the bank's capacity and will to meet its payment obligations. Figure 1 shows the general structure of the methodology and explains the metrics and factors evaluated, as well as the weights assigned to each within its model.

Figure 1: General Structure of the Methodology



Source: HR Ratings.

## 3. Quantitative Analysis of the Bank

In its quantitative analysis, HR Ratings develops the Financial Model based on the historical financial statement information provided by the bank. The information required by HR Ratings includes quarterly reports of the Statement of Income, the Balance Sheet, and the Cash Flow Statement, preferably of the previous five-years (ended or partial) given that said period will allow HR Ratings to understand the bank's evolution and project towards the future better. In the event that the bank has a shorter history, its

commencement date of operations will be considered. The projections to be made using this information will be for the next two years (eight quarters) and the historical data that has an impact on the model shall also be taken from the last two years (eight quarters). In cases in which HR Ratings is in the process of ratings a recently-incorporated bank and there is insufficient historical information, a single year of historical information and the respective two-year projections may be weighted in the financial model. In cases in which the bank does not have historical information, the rating may be based solely on the two-year projections.

This section details the components for the development of this model. It first describes HR Ratings' analysis of the bank's assets, followed by a description of its liabilities and the interest and exchange rate risks it faces. A fourth section refers to the financial reports that provide the information necessary for the analysis. The fifth section describes the metrics, grouped in accordance with the profitability, solvency and liquidity items. The sixth section describes the assumptions typically included in the Projection Scenarios, whereas the final section explains the rating process of the Financial Model and illustrates an example of the creation of a scenario.

## 3.1. Analysis of the Bank's Assets

The analysis of the bank's assets is fundamental in HR Ratings' ratings process, in which the size, distribution and quality of the historically-originated assets may be identified, as well as of those acquired in markets.

This analysis will be used as a base to project the financial reports and incorporate the respective assumptions into any of the projection scenarios.

### 3.1.1. Analysis of Investments in Securities

In terms of the bank's investment portfolio, the analysis refers to items such as the composition of the portfolio in terms of negotiable instruments, instruments held to maturity and readily-marketable instruments. Up to a certain point, this allows the evaluation of aspects referring to the bank's liquidity. In this sense, the price of these instruments, as well as their profitability, are fundamental in HR Ratings' projections.

The other aspect evaluated in this section refers to the credit quality of the counterparties that have issued these instruments because the credit quality of the portfolio describes their capacity to maintain their value over time. The bank's strategy regarding the constitution and the future risk of the portfolio is included in the projections to the extent possible.

### 3.1.2. Analysis of the Bank's Portfolio

It is fundamental that the bank's portfolio is well diversified in order to avoid a greater degree of dependence on one client or group of clients. In the event that the bank reflects a high concentration on a single client or sector, its growth expectation shall be reduced from the point of view of the generation of preventive estimates against credit risks. In this vein, HR Ratings will evaluate the concentration on a sector with greater

default rates than others and in which a high concentration may reduce the bank's credit quality in the future..

HR Ratings shall consider the bank's portfolio diversification and concentration strategy. The Bank's strategy may be to seek diversification or focus on a specific sector, region or type of asset. Additionally, the bank's risk tolerance policies in terms of concentration must also be considered, not only that these policies are duly formalized by the bank in manuals or protocols, but that the risk considers the context, the macroeconomic conditions and the challenges visible in the industry or in any geographical region.

The concentration observed by HR Ratings will be necessary for its projection scenarios and in the case of the Base Scenario, the expected evolution will be incorporated given the context, whereas the probable risks to which the bank could be exposed to be incorporated into the Stress Scenario.

Moreover, HR Ratings will evaluate the growth or contraction trend of the different captions of the portfolio. This analysis must include the evaluation of whether the trends observed in the bank's portfolios are due to macroeconomic variables, to the challenges of specific industries or to policies implemented by the bank. The analysis report will explain HR Ratings' evaluation and will propose the bases to develop its projection assumptions.

Lastly, an analysis of late payment of the bank's portfolio will be included, which seeks to identify the quality of the assets generated by the bank, considering all the business lines in which it may specialize. It also reflects the bank's capacity to deal with clients who fall into the different ranges of default and the tools available to mitigate possible increases in past-due portfolio, as well as the tools in place for its recovery.

The factors evaluated by HR Ratings include the criteria applied to grant credit, the level of tolerance to risk and the bank's capacity to correct unfavorable trends. The formalization of credit policies and the existence of mechanisms to constantly evaluate them will be reflected in better conditions in the light of the assumptions for the development of its projections.

## 3.2. Analysis of the Bank's Liabilities

This section refers to the analysis of the bank's funding tools, which to a great extent determine the institution's capacity to obtain or acquire liquidity.

The analysis of this section is similar to the analysis used in the assets section in the sense that it evaluates the historical trends that show the bank's liabilities, not only in terms of the growth or decrease of the accounts, but also the composition of the different deposit sources and funding tools. For example, in the case of traditional deposits, an evaluation is conducted to establish whether or not funding comes from immediately on-demand deposits or term deposits. The analysis also considers whether or not the issue of credit or bonds is used. The interest rates associated to these tools are fundamental in the calculation of the bank's future expenditure.

Another aspect analyzed is the concentration of the main savers and the implications that may be generated in terms of interest rates and the availability of liquidity. The



concentration also extends to the liabilities with other banking institutions and specific banking sectors.

In its projections, HR Ratings also evaluates the bank's reputation and any other factor that enables it to consider the bank's participation in the financial sector in which it operates. These factors describe the institution's access to sources of liquidity. The bank's mechanisms to identify and correct any unfavorable trends observed are also considered. The formalization of funding policies and the existence of mechanisms to constantly evaluate them will be reflected in better conditions in the light of the assumptions for the development of the projections of the financial model.

It is important to clarify that in cases in which HR Ratings identifies strengths or weaknesses associated with the bank's assets or liabilities, and that the projections financial model cannot incorporate the risk or strength that they imply for the bank's credit quality. These factors may be incorporated through qualitative adjustments in any direction, which will be limited to three notches.

### 3.3. Interest Rate Risk and Exchange Rate Risk

This section evaluates the extent to which the bank is exposed to an exchange risk or several interest rate risks. On the one hand, the risk is associated to a macroeconomic context, in which the bank may be more exposed depending on its access to foreign markets. This risk also refers to the Central Bank's reference interest rates and the strategies that the bank has in place that have an effect on the rates it receives, both assets and liabilities.

The macroeconomic risks are captured for a Base Scenario and a Stress Scenario through the variables projected by HR Ratings' Economic Analysis Department; however, the risk is also associated with the quality of the bank's management and the tools it has to mitigate these risks.

In terms of mitigation and hedging, the analyzed consider whether or not the bank has different financial instruments, such as CAPS or SWAPs, which allow it to acquire countercyclical positions. In terms of the bank's derivative instrument position, the extent to which they are acquired and/or used to mitigate the risk associated to this transaction or to hedge its positions is also measured.

In the cases in which the bank uses its derivative financial instrument position as a business line, the profitability and sustainability of this strategy will be evaluated in the assets section. It is also important to emphasize that the costs associated to these instruments, both current to those planned to be acquired by the bank, will be incorporated into the financial model.

### 3.4. Financial Reports

The metrics to be used by HR Ratings to determine the bank's credit rating will be estimated using variables based on the information reflected in the financial statements. HR Ratings' quantitative analysis consists of making projections of these reports to determine the profitability, efficiency, solvency and liquidity of the bank evaluated.

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It is important to clarify that, in its analysis, HR Ratings establishes an assumption to develop its projections that must consider the historical performance of these reports, the plans that the bank has in place to operate in the future and the macroeconomic context it faces. The projections of the quantitative analysis consider the following financial reports:

## **3.4.1. Balance Sheet**

A bank's balance sheet reflects its capacity to generate revenue and the source of future obligations; therefore, it is fundamental to estimate the assets and liabilities to be able to project the free cash flow. Within the analysis of the balance sheet, HR Ratings will identify the quality of the assets to establish adequate growth trends considering the quality of the credit portfolios and the specialization in different lines of business.

It is fundamental to classify liabilities in accordance with the characteristics to determine the cost and establish an approximate amount of interest expense. In this sense, the analysis of the variation of the amount of assets and liabilities allows an estimate of the bank's income and expenditure, which reflects its profitability. HR Ratings' quantitative analysis must consider the bank's historical trends and plans implemented for the coming periods. This will be the base to project the financial metrics and will reflect the expectations of the bank's financial evolution in the coming periods.

## **3.4.2. Income Statement**

The bank's Statement of Income is based on the amount earned or collected by the bank's assets and liabilities. The bank's income is based on the quality of its financial assets, particularly the quality of its current credit portfolio, although the performance of different investment portfolios and the terms generated from repurchase transactions are also considered.

The interest income projection is based on the projection of the balance sheet and HR Ratings' expectations on the bank's lending rate. Moreover, once the liabilities are projected with a cost on the balance sheet, HR Ratings establishes an approximate passive interest rate for each one of the liabilities and obtains the total interest expense. On analyzing and projecting the bank's financial statements, HR Ratings' Analysis Team will consider the prevailing macroeconomic situation and the current business plan.

## **3.4.3. Cash Flow**

This financial statements reflects the cash movements following the bank's operation, financial activities and the investing activities in the period represented. The analysis of this financial statement is fundamental for HR Ratings to be able to determine and project the bank's liquidity and the insolvency of the balance sheet because the credit strength is reflected in the capacity to generate and make use of cash in order to meet debt obligations, both in the long and short terms.



## 3.5. Financial Metrics

This section explains the metrics obtained by HR Ratings on projecting the financial statements of the bank evaluated. These are divided in order that they may represent first the profitability and efficiency that arise from the bank's capacity to generate high-quality assets and to operate in such a manner so as to mitigate credit risks. Secondly, metrics are incorporated that reflect the bank's capacity to manage unexpected losses adequately in order to ensure that the operation does not deteriorate to an extent that it affects the risk perception and therefore, its credit rating. These metrics seek to establish the bank's solvency. The last group of metrics evaluates liquidity through the indicators proposed by Basel III, the Liquidity Coverage Ratio and the Net Stable Funding Ratio.

### 3.5.1. Profitability and Efficiency Metrics

The bank's profitability projections accumulate a weight of 34.0% in the bank's quantitative analysis and are focused on the capacity of the bank's assets and operations to generate income. These metrics capture both the quality of the assets and the market position of the bank and thus enable it to set its prices.

#### **3.5.1.a. Adjusted Net Interest Margin** ***(4.0% of the Financial Model / 2.8% of the Credit Rating)***

This metric measures the brokerage margin adjusted for the credit risks of a bank. In particular, it offers the advantage of being an indicator of the capacity with which the institution brokers resources through its operations. This indicator captures the difference between the interest income generated and the amounts of interest paid by its debt obligations adjusted for credit risks in relation to the value of its productive assets.

$$\text{Adjusted NIM} = \frac{\text{Sum of the (Interest Income} - \text{Interest Expenses} - \text{Loan Loss Provisions) in the LTM}}{\text{LTM Average Productive Assets}}$$

Moreover, the productive assets are formed in accordance with the following equation:

$$\begin{aligned} \text{Productive Assets} \\ = \text{Cash and Equivalents} + \text{Investment Values} + \text{Derivative Hedging} \\ + \text{Total Loan Portfolio} - \text{Loan Loss Provisions} \end{aligned}$$

Figure 2 illustrates the values typically shown by entities rated in different ranges:

**Figure 2: Adjusted Net Interest Margin range by rating**

HR AAA	HR AA	HR A	HR BBB	HR BB	HR B	HR C
(∞, 4.5%]	(4.5%, 3.1%]	(3.1%, 2.0%]	(2.0%, 1.2%]	(1.2%, 0.6%]	(0.6%, 0.3%]	(0.3%, -∞)

Source: HR Ratings.

### **3.5.1.b. Interest Rate Spread**

**(3.0% of the Financial Model / 2.1% of the Credit Rating)**

The purpose of this metric is to measure the bank's brokerage margin through the difference between the rate at which the portfolio is placed and the investments (referred to collectively as productive assets) and the rate at which deposits and other funding mechanisms are agreed. It also measures the exposure of the bank's interest income to adverse movements in interest rates.

This metric is formed in the following manner:

$$\text{Interest Rate Spread} = \frac{\text{Sum of all Interest Income in the LTM}}{\text{LTM Average Productive Assets}} - \frac{\text{Sum of all Interest Expenses in the LTM}}{\text{LTM Average Productive Assets}}$$

Figure 3, below, shows the difference ranges of rates typically shown by the banks evaluated in the different rating ranges:

**Figure 3: Interest Rate Spread range by rating**

HR AAA	HR AA	HR A	HR BBB	HR BB	HR B	HR C
(∞, 5.5%]	(5.5%, 3.9%]	(3.9%, 2.6%]	(2.6%, 1.6%]	(1.6%, 0.9%]	(0.9%, 0.6%]	(0.6%, -∞)

Source: HR Ratings.

Among the variables that will be considered when projecting this metric, as well as the historical trends and the bank's strategy, inflation and the expected interest rates stand out in macroeconomic terms, as well as the bank's position in the market, the type of portfolio, and the derivative financial instruments hedging it maintains.

### **3.5.1.c. Return on Assets (ROA)**

**(11.0% of the Financial Model / 7.7% of the Credit Rating)**

This metric captures the profitability of a bank based on its assets. In cases where necessary, HR Ratings may add the income from assets off the balance sheet; therefore, the following equation shows how this metric is calculated:

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$$ROA = \frac{\text{Sum of all (Net Result – Minority Contributions) in the LTM}}{\text{LTM Averaged Productive Assets – LTM Average Repo Debt Balance of Operations}}$$

It is important to mention that even though the Return on Equity (ROE) metric may be considered as the most common profitability metric, HR Ratings considers that this metric may be significantly influenced by the bank's solvency position and risk appetite through it over a specific period of time. Figure 4 illustrates the values typically shown by entities rated in different ranges:

Figure 4: Return on Assets (ROA) range by rating						
HR AAA	HR AA	HR A	HR BBB	HR BB	HR B	HR C
(∞,2.0%]	(2.0%,1.4%]	(1.4%,0.8%]	(0.8%,0.4%]	(0.4%,0.2%]	(0.2%,0.03%]	(0.03%, -∞)

Source: HR Ratings.

## 3.5.1.d. Delinquency Ratio

(8.0% of the Financial Model / 5.6% of the Credit Rating)

This indicator is of great importance because it reflects the quality of the assets originated by the bank, which in turn shows how the controls and criteria to grant credit have an impact on factors such as profitability and the capacity to generate constant cash flow.

$$\text{Delinquency Ratio} = \frac{\text{Delinquent Loan Portfolio}}{\text{Total Loan Portfolio}}$$

The projection of this metric is of particular relevance for this methodology. In it, HR Ratings considers the current macroeconomic situation to evaluate both the growth of the portfolio and the increase of the proportion of the delinquent portfolio. The bank's criteria to grant credit and tolerance to risk will also be considered, as well as the historic management of the delinquent portfolio. One of the most important factors when analyzing this metric refers to the portfolio of different products because a default that are typical to one product may differ from the default commonly observed in another product. Figure 5 shows the values of this metric that HR Ratings expects to observe for each rating range:

Figure 5: Delinquency Ratio range by rating						
HR AAA	HR AA	HR A	HR BBB	HR BB	HR B	HR C
(0,3.0%]	(3.0%,4.8%]	(4.8%,6.3%]	(6.3%,7.5%]	(7.5%,8.2%]	(8.2%,8.7%]	(8.7%,100%)

Source: HR Ratings.

## 3.5.1.e. Adjusted Default Ratio (8.0% of the Financial Model / 5.6% of the Credit Rating)

This metric incorporates the losses of the delinquency ratio, which are estimated through the change in the preventive estimates, considering those generated in each period and deducting the income for the releases also made in the 12-month period for which the metric is estimated. This metric allows the bank's complete credit activity to be analyzed without being distorted by policy, or determination or the requirement to apply write-offs. The metric is expressed as:

$$\text{Adjusted Delinquency Ratio} = \frac{\text{Delinquency Loan Portfolio} + \text{LTM accumulated Losses}}{\text{Total Loan Portfolio} + \text{LTM accumulated Losses}}$$

The projection of the delinquent portfolio and the losses requires multiple elements, as in the previous metric. The first refers to the distinction of credits for different purposes; diverse assets show specific behavior and are, to a greater or lesser extent, prone to different trends. The second element measures the historical capacity shown by the Bank to originate credit.

Figure 6 illustrates the values typically shown by entities rated in different ranges:

Figure 6: Adjusted Delinquency Ratio range by rating						
HR AAA	HR AA	HR A	HR BBB	HR BB	HR B	HR C
(0,5.0%]	(5.0%,7.4%]	(7.4%,9.4%]	(9.4%,10.8%]	(10.8%,11.9%]	(11.9%,12.4%]	(12.4%,100%)

Source: HR Ratings.

The increase of the delinquent portfolio and the losses shall have negative consequences on the bank's liquidity, profitability and capitalization projections. It is important to mention that when the amount of delinquent or past-due portfolio is greater, the need for preventive estimates will also be greater, but the profit at the end of the period will be lower.

## 3.5.1.f. Efficiency Ratio (5.0% of the Financial Model / 3.5% of the Credit Rating)

This indicator measures the bank's efficiency to compare administration expenses with total operating income, including the credit risk estimates in a single period. In other words, the costs generated by the bank's operation are evaluated in proportion to income earned. This indicator is constructed in the following manner:

$$\text{Efficiency Ratio} = \frac{\text{LTM Sum of the Administration and Promotion Expenses}}{\text{Sum of all (total income + loan loss provisions) in the LTM}}$$

Figure 7 illustrates the values typically shown by banks rated in different ranges:

Figure 7: Efficiency Ratio range by rating						
HR AAA	HR AA	HR A	HR BBB	HR BB	HR B	HR C
(0,46.0%]	(46%,56%]	(56%,65%]	(65%,75%]	(75%,84%]	(84%,94%]	(94%,∞)

Fuente: HR Ratings.

## 3.2.2. Solvency and Capital Metrics

The solvency metrics calculated by HR Ratings reflect the bank's capacity to manage unexpected losses adequately in order to ensure that the operation does not deteriorate to an extent that it affects the risk perception and therefore, its credit rating. On evaluating these metrics, the elevated values must be identified as being due to a recent capital increase or an improvement in profitability levels. HR Ratings also considers the administration practices and strategy in terms of the acceptable level of capitalization and its response capacity to increase capital, if required.

### 3.5.2.i. Basic Capitalization Ratio (15.0% of the Financial Model / 10.5% of the Credit Rating)

For HR Ratings, the capitalization ratios (ICAPs) are the most important metrics in the analysis of a bank's risks. This is because said indicators allow a measure of available capital to face possible losses of assets to be established. In particular, the amount of assets considered for these indicators is as determined by the Risk-Weighted Assets (RWA). This metric weighs the credit risk inherent to each of the bank's assets.

Basic Capital, pursuant to the terms of this methodology, is constructed of items such as capital reserves, income from prior years, net income and shares representative of capital stock. This indicator is constructed in the following manner:

$$\text{Basic ICAP} = \frac{\text{Basic Capital in the last trimester}}{\text{RWA in the last trimester}}$$

The Capitalization Ratio (ICAP) is a common regulatory metric and, regardless of the regulations applicable to each country, in Figure 8 HR Ratings shows the values of the Basic ICAP typically observed for the different rating ranges:

**Figure 8: Basic Capitalization Ratio range by rating**

HR AAA	HR AA	HR A	HR BBB	HR BB	HR B	HR C
(∞, 14.5%]	(14.5%, 12.2%]	(12.2%, 10.3%]	(10.3%, 9.0%]	(9.0%, 8.3%]	(8.3%, 8.0%]	(8.0%, 0)

Source: HR Ratings.

Only the amount of the last quarter of the year is used for the construction of this metric, both for the construction of the basic capital and for the risk-weighted assets. This also applies to the construction of the following indicator.

### **3.5.2.i. Net Capitalization Ratio**

**(18.0% of the Financial Model / 12.6% of the Credit Rating)**

This metric presents a broader measurement of capital in its numerator. The complementary capital is added to the basic capital measure, which includes items such as general reserves and subordinate obligations in order to capture the capital available to face the bank's RWA. This indicator is shown as follows:

$$\text{Net ICAP} = \frac{\text{Sum of all Basic and Complementary Capital in the last trimester}}{\text{RWA in the last trimester}}$$

For this methodology, Figure 9 shows the values that HR Ratings expects to observe for the different rating ranges:

**Figure 9: Net Capitalization Ratio range by rating**

HR AAA	HR AA	HR A	HR BBB	HR BB	HR B	HR C
(∞, 16.5%]	(16.5%, 14.3%]	(14.3%, 12.7%]	(12.7%, 11.5%]	(11.5%, 10.7%]	(10.7%, 10.5%]	(10.5%, 0)

Source: HR Ratings.

In the projection of these indicators, HR Ratings will consider the bank's strategy to maintain its level of capitalization against adverse scenarios. The projection in the Stress Scenario may consider said strategies to the extent that they are clearly detailed and explained.

### **3.5.2.k. Adjusted Leverage Ratio**

**(3.0% of the Financial Model / 2.1% of the Credit Rating)**

The Adjusted Leverage Ratio is one of the most common metrics in the financial analysis because it reflects the ratio between the bank's liabilities and capital. In the particular case of HR Ratings, the adjusted leverage ratio is measured as shown in the following formula:



$$\text{Adj. Leverage Ratio} = \frac{\text{LTM Average Liabilities} - \text{LTM Average Repurchase Agreements}}{\text{LTM Stockholder's Equity}}$$

This ratio measures the number of times that the capital is represented by the bank's liabilities. Immediate on-demand deposits, loans from banks and other bodies, securities transactions, other accounts payable, outstanding subordinate obligations, deferred taxes payable, deferred credits and advanced collections are considered in the numerator. The reference to the adjustment is because the credit balance of repurchase transactions is excluded in order to deduct temporary movements on the balance sheet, which on occasions, are significant.

As with the preceding metrics, the analysis is based on the relative positioning of the bank in the territory in which it operates. However, Figure 10 shows the values that HR Ratings typically observes banks in the different rating ranges:

**Figure 10: Adjusted Leverage Ratio range by rating**

HR AAA	HR AA	HR A	HR BBB	HR BB	HR B	HR C
$(-\infty, 6.0]$	$(6.0, 8.1]$	$(8.1, 9.9]$	$(9.9, 11.3]$	$(11.3, 12.2]$	$(12.2, 12.8]$	$(12.8, \infty)$

Source: HR Ratings.

### 3.5.2.I. Current Portfolio to Net Debt Ratio (15.0% of the Financial Model / 10.5% of the Credit Rating)

This metric measures of the bank's capacity to meet its debt obligations. Ideally, this indicator must be above 1.0x and how it is formed is shown as follows:

$$\text{Current Portfolio Ratio} = \frac{\text{Current Loan Portfolio in the last trimester}}{\text{Debt Net in the last trimester}}$$

Moreover, net debt is constructed in accordance with the following equation:

$$\begin{aligned} \text{Net Debt} = & \text{Traditional Deposits} + \text{Loans from other Banks} \\ & + \text{Net liabilities from Derivative Hedging} - \text{Cash and Equivalents} \\ & - \text{Investment in Values} \end{aligned}$$

Figure 11 shows the values of this metric that HR Ratings expects to observe for each rating range:

**Figure 11: Current Portfolio to Net Debt Ratio range by rating**

HR AAA	HR AA	HR A	HR BBB	HR BB	HR B	HR C
(∞,1.70]	(1.70,1.41]	(1.41,1.18]	(1.18,1.00]	(1.00,0.89]	(0.89,0.77]	(0.77,0)

Fuente: HR Ratings.

### 3.5.3. Liquidity Metrics

In HR Ratings' opinion, the measure of the quality for a financial institution must focus on two concepts which are put forward in the regulation proposed by the Basel Committee on Banking Supervision (BCBS)<sup>1</sup>. However, the metrics proposed by this Committee do not apply in all countries, and in those in which they do, they are not necessarily weighted using the same parameters. HR Ratings considers that these concepts are adequate to measure the liquidity risks and proposes in this methodology to metrics to adapt these concepts so as they may be comparable between institutions from different countries.

In this vein, the first metric used by HR Ratings in its analysis allows the transversal cut-off to evaluate the bank's liquidity condition at a specific point. This metric refers to the capacity of the assets to be transformed into cash and meet the immediately enforceable liabilities of the bank. The second metric proposes to allow the evaluation of the bank's capacity to fund itself through mechanisms that allow the mitigation of liquidity crisis scenarios, which implies maintaining the enforceability of its liabilities in longer terms.

#### 3.5.3.m. Liquidity Coverage Ratio

**(6.0% of the Financial Model / 4.2% of the Credit Rating)**

The Liquidity Coverage Ratio (LCR) is one of the main metrics proposed by the BCBS to measure the liquidity of financial institutions. The ratio is focused on the bank's capacity to pay its immediately-enforceable liabilities in a Stress Scenario that lasts for 30 days. Despite the Basel III agreements, this indicator does not apply in all countries. However, in HR Ratings' opinion, the concept it represents has a great impact on the measurements of a financial institution's credit quality. This section first explains the construction of this metric and then the manner in which HR Ratings will apply this concept to evaluate banks in different countries.

Through the proposal put forward by the Basel Committee on Banking Supervision, this metric and its desired position can be summarized as follows:

$$\frac{\text{Stock of High Quality Liquid Assets}}{\text{Total net cash outflows over the next 30 calendar days}} \geq 1$$

<sup>1</sup> The regulation proposed by the Basel Committee on Banking Supervision is explained at the following link: [https://www.bis.org/bcbs/basel3\\_es.htm](https://www.bis.org/bcbs/basel3_es.htm)

The numerator, the High Quality Liquid Assets (HQLA) identifies the bank's assets that may be transformed immediately into cash without losing their value. The monetary value of these assets depends on the Stress Scenario under which they are liquidated, the volume of assets to be liquidated and the period available for liquidation. The desirable characteristics consider two aspects:

1) Fundamental Characteristics:

- a. Lower-risk assets tend to be the most liquid.
- b. Assets must not be correlated to other risky assets.
- c. There must be a market consensus with regard to the evaluation of the asset.
- d. The asset must be quoted on a market.

2) Market Characteristics:

- a. The market in which the asset is traded must have an adequate infrastructure and must be broad and deep.
- b. The asset must reflect scarce historical volatility.
- c. The asset must be a highly secure destination or not be substituted when greater security is demanded.

Moreover, the denominator measures the amount of immediate liabilities that may be enforced from the bank in a stress period of 30 days. This scenario is very specific and to a great extent replicates the financial crisis that started in 2007. However, these stress parameters may differ from those that HR Ratings considers in its projection scenarios.

For HR Ratings, the metric that will be used in this methodology consists of an estimation of the bank's immediate capacity to acquire cash through its assets. The difference with the LCR numerator follows that the assumptions that will be used to determine the market value of the assets will reflect the Base Scenario and the Stress Scenario considered by HR Ratings in its evaluation. The projection of immediately-enforceable liabilities is based on the same assumptions; therefore, HR Ratings' evaluation may be summarized in the following metric:

$$LCR = \frac{\text{Available Assets}}{\text{Enforceable Liabilities in the short term}}$$

The stress assumptions constructed in the projection scenarios follow macroeconomic factors inherent to the markets in which the bank operates. The same assumptions to project this metric will be applied among the institutions of the same country. Notwithstanding, each bank has different strategies to acquire assets is different liquidities, liabilities and degrees of enforceability. For this metric, greater values will be evaluated favorably, regardless of the country in which the bank operates commercially. In general, the values that HR Ratings seeks to observe for each rating range are shown in Figure 12:

**Figure 12: Liquidity Coverage Ratio range by rating**

HR AAA	HR AA	HR A	HR BBB	HR BB	HR B	HR C
(∞,1.50]	(1.50,1.24]	(1.24,1.08]	(1.08,1.00]	(1.00,0.83]	(0.83,0.67]	(0.67,0)

Source: HR Ratings.

### **3.5.3.n. Net Stable Funding Ratio (NSFR)**

**(4.0% of the Financial Model / 2.8% of the Credit Rating)**

The second metric proposed by the Basel III agreements is the Net Stable Funding Ratio, which measures the funding risk on a broader horizon. This indicator expresses an institution's capacity to acquire funding from stable sources in order to mitigate the risk in future stress scenarios.

This section has a similar structure to the previous section. It first describes the metric proposed by the BCBS and then goes on to describe the metric used by HR Ratings. With regard to the first point, the requirement for the Stable Funding Ratio may be summarized with the following inequality:

$$\frac{\text{Available Stable Funding}}{\text{Required Stable Funding}} \geq 1$$

The numerator adds the bank's liabilities and capital and weights them based on their enforceability. Greater weight is given to those items that should or may be liquidated in a period greater than one year. For example, the regulating capital or the liabilities secured with residual maturities greater than one year receive a higher weighting, whereas liabilities with no specific maturity or funding with a residual majority of less than six months receive a weighting of nullity.

The denominator weights the bank's assets based on their availability. Greater weight is given to assets constituted by cash reserves, such as coins, bills and reserves in the Central Bank, whereas assets, such as those payable in a period greater than one year receive a weighting of nullity.

For HR Ratings, the metric that will be used in this analysis consists of an estimation of the value of the liabilities that cannot be enforced within a period of less than one year and contrasts them with the assets available and monetizable, as shown in the following equation:

$$NSFR = \frac{\text{Equity and Liabilities enforceable past one year}}{\text{Available Assets}}$$

This metric offers a longer-term vision on the liquidity standards of a financial institution. The calculation of the denominator of this metric, which is the numerator of the previous metric, depends to a great extent on the assumptions associated with HR Ratings'

projection scenarios. The historical information, and above all, the bank's future strategy for the management of its liabilities and capital must be considered for the numerator of this metric. Figure 13 illustrates the values that HR Ratings typically observes in entities rated in different ranges:

**Figure 13: Net Stable Funding Ratio range by rating**

HR AAA	HR AA	HR A	HR BBB	HR BB	HR B	HR C
( $\infty$ ,1.5]	(1.5,1.25]	(1.25,1.07]	(1.07,0.90]	(0.90,0.73]	(0.73,0.57]	(0.57,0)

Source: HR Ratings.

The metric is developed using the data available in the bank's historical information, as well as with HR Ratings' projections. In its Analysis report, HR Ratings will explain the liabilities, capital and assets used and weighted in the measurement of this metric.

## 3.6. Projections Scenarios

HR Ratings' analysis is based on the projection of its financial metrics under two scenarios: the Base Scenario and the Stress Scenario. These consider in the first instance the current macro economic situation, as reflected in HR Ratings' Macroeconomic Scenarios. The assumptions incorporated into each scenario will be adapted on a case-by-case basis depending on the bank evaluated with regard to factors such as the bank's operation, the value and downgrade of portfolio assets, the portfolio concentration the risk, etc.

In this vein, HR Ratings' Analysis report will explain the assumptions incorporated into each scenario and will show the value of its metrics in each one. This section explains the assumptions typically observed in each Projection Scenario.

### 3.6.1. Base Scenario Assumptions

The projections in this scenario result from the application of the assumptions that consider the most likely performance of the operational, financial and macroeconomic variables that allow the metrics described in the preceding section to be calculated. Each bank mainly faces three areas of endogenous risk. The first area of risk refers to operational risks, such as fraud, computer system crashes, processing errors and the demands of employees, customers, investors or authorities. HR Ratings will evaluate the controls implemented by the bank to identify, prevent and mitigate these risks. However, the strategy in these ambits may expose the bank to a greater or lesser extent despite its controls.

The second area of risk refers to the bank's policies to grant credit. Default of the different portfolios will be projected based on its strategy, its historical performance, macroeconomic trends of consumption and saving, as well as the expectation of the interest rate.

The last factor refers to market risks, from the value of certain readily-marketable assets, the derivatives and futures positions or the price of shares and other instruments within the bank's portfolios.

In terms of exogenous risks, HR Ratings mainly identifies three areas: macroeconomic factors, regulatory factors and accounting factors. In terms of the Macroeconomic Scenarios, HR Ratings maintains projections for variables such as growth in the nominal and actual GDP, with the respective deflator, as well as for inflation, exchange rate, interest rate, certain accounts within the balance of payments and levels of consumption and savings of the economy.

Moreover, the banking sector is one of the most regulated and supervised by the authorities in the world. HR Ratings will analyze the bank's adherence to the regulatory measures in the market in which it operates, placing emphasis on the minimum capital required by the regulator, the amount of reserves against the risk of default and the standards related to banking entities' operations, including the types of transactions permitted and forbidden.

The bank's adherence to the accounting standards stipulated by each regulator will also be analyzed. Constant changes in accounting and financial reporting policies with unreliable information are considered as negative factors. In the same manner, the disclosure of assets, income capitalization, as well as the lack of adherence to the accounting standards will be evaluated negatively and may result in conservative projections.

### 3.6.2. Stress Scenario Assumptions

HR Ratings incorporates various risk factors into a Stress Scenario. Due to the complexity of the bank, stress must always consider the specific characteristics of the entity evaluated. However, certain factors will be common in the development of this scenario. The sources of stress that are usually evaluated in this scenario refer to: (i) losses related to operational risks, (ii) loss of value of portfolio assets, (iii) loss of value of market assets and (iv) macroeconomic stress. Any of these factors may have an adverse effect on the projections of the financial metrics.

With regard to losses related to operational risks, the factors identified may be reflected in the operating expense caption and on some occasions, in the capacity of the rated entity to receive income. Moreover, operational risks may also hinder the growth of certain assets, and on occasions, of liabilities and even the generation of capital.

Two aspects must be considered initially with regard to stress on the current portfolio. The first is the size and growth of the different portfolios and the second is the increase of the past-due portfolio.

In terms of the first factor, the stress conditions typically consider the scope of the bank's market, the demand for credit, current interest rates and the entity's ability to manage the portfolio. Macroeconomic factors, the tolerance to risk and the criteria to grant credit, the management history and the size of the past-due portfolio are considered for the growth of past-due portfolio. Lastly, if there is a risk of concentration, whether by main customers or by industry, sector or geographical region, HR Ratings



will review the concentration of the portfolio on an on-going basis at least in terms of the first ten main customers.

It is important to emphasize that these factors are only those that may be considered when preparing the Stress Scenario given that each bank will display its own risks and HR Ratings will explain the assumptions to be incorporated into the scenario in its report.

The evaluation of the counter-parties or the underlying assets in which the portfolio components are based is required in terms of market losses. The bank evaluated must not only show analytical capacity, but also administrative capacity to maintain the value of its investments. HR Ratings will evaluate the portfolios held to maturity, readily-marketable assets and the evolution of the net derivative financial instruments position.

### 3.6.3. Macroeconomic Assumptions

When preparing its scenarios, HR Ratings' ratings are supported by the Macroeconomic Scenarios developed by the Economic Analysis Department. The aspects considered in these scenarios typically refer to economic growth, inflation, interest rates and the exchange rate:

- a) HR Ratings' economic growth considers the most recent trends in private consumption, government spending, industrial production, the investment matrix and the trade balance. It also considers the historical difference between the information and the GDP deflator. In a stress scenario, growth may be hindered by a restrictive monetary policy, which will have an adverse effect on consumption and banks' portfolios, not only in terms of default, but also when considering the creation of new portfolios.
- b) HR Ratings' inflation considers its different components; first the underlying component, which is directly affected by monetary policy and by movements in the prices of other currencies. For the projection of the non-underlying component, HR Ratings also considers movements in fiscal policy that affect the sub-component of prices set by the government. In the stress scenario, inflation will be considerable greater than that expected in the base scenario, regardless of the monetary policy stand.
- c) In order to determine the projection of interest rates, HR Ratings seeks to anticipate monetary policy movements based on current macroeconomic conditions. Interest rates may be increased in the stress scenario, not only to seek to control greater inflation, but also to maintain the interest of the international investing community that, above all, evaluates rate differentials.
- d) To determine the movement in the prices of other currencies, despite the high volatility of these metrics, HR Ratings projects the exchange rate in real terms to disregard the inflationary component of the relevant economies and thus evaluate the most stable trends. In the stress scenario, inflation affects the nominal movements in the prices of other variables and in the values of certain assets and liabilities.

## 3.7. Construction of the Financial Model

HR Ratings' credit rating assigns a weight of 70.0% to the value obtained in the Financial Model. This process consists of three steps and will be maintained in each bank evaluated.

The first step is based on the calculation of the financial metrics for each scenario. In this step, it is important to clarify that each metric is calculated for the last two years of historical information and for the following two years projected, each year, for each metric, has a weight. These yearly weightings will be set for any bank rated using this methodology. Figure 14, below, shows the weight and the quarters of each year evaluated.

The figure also considers the cases in which HR Ratings must proceed with its rating process even if the bank does not have at least two years of historical information. Only a single historical year or none at all, and how the two years of projections for each scenario will be weighted in these cases.

**Figure 14: Weights by year**

Year	Trimesters and Years Considered (with <u>at least two years</u> of historical information)	weight
t <sub>-1</sub>	The penultimate year of available historical information.	22.0%
t <sub>0</sub>	The last year of available historical information.	38.5%
t <sub>1</sub>	The first year of projections.	22.0%
t <sub>2</sub>	The second year of projections.	17.5%
Year	Trimesters and Years Considered (with <u>only one year</u> of historical information)	weight
t <sub>0</sub>	The last year of available historical information.	49.4%
t <sub>1</sub>	The first year of projections.	28.2%
t <sub>2</sub>	The second year of projections.	22.4%
Year	Trimesters and Years Considered (with <u>no historical information</u> )	weight
t <sub>1</sub>	The first year of projections.	63.6%
t <sub>2</sub>	The second year of projections.	36.4%

Source: HR Ratings.

The second step in the Financial Model rating process consists of assigning an integer value between 1 (lower credit rating) and 19 (greater credit rating) to the weighted average of the years of each metric. These assignment curves are those that have been shown in the section in which each metric was described. These figures show the rating range that applies to the value of each metric; whereas the following figure shows the possible integer values that may be taken by a metric given its rating range.

**Figure 15: Value to Range**

Rating Range	Integer Values
HR AAA	{19}
HR AA	{16,17,18}
HR A	{13,14,15}
HR BBB	{10,11,12}
HR BB	{7,8,9}
HR B	{4,5,6}
HR C	{1,2,3}

Source: HR Ratings.

The third step consists of calculating a weighted average of these integer values to assign a rating to each scenario in accordance with the weights proposed in this section in which the metrics are described. Lastly, both scenarios will be weighted, where the Base Scenario receives a weight of 65.0% and the Stress Scenario receives the remaining weight of 35.0%. Once again, each bank evaluated with this methodology will receive the weights proposed. Figure 18 offers an example of how the value of both scenarios and the Financial Model is calculated, showing the weights and the value of the curves relating to years and metrics.

# Methodology for Rating Banks

Financial Institutions  
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**Figure 16: Example of the application of the Financial Model**

Base Scenario	Weights by Year	22.0%	38.5%	22.0%	17.5%	Weighted Average by Year	Integer Value	Wight by Metric	
	Year	t-1	t0	t1	t2				
Profitability and Efficiency Metrics									
Adjusted Net Interest Margin		3.24%	3.17%	3.33%	3.39%	3.26%	16	4.0%	
Interest Rate Spread		4.10%	4.08%	4.46%	4.54%	4.25%	16	3.0%	
Return on Assets		1.79%	1.85%	1.89%	1.91%	1.86%	18	11.0%	
Delinquency Ratio		2.73%	3.21%	2.85%	2.90%	2.97%	18	8.0%	
Adjusted Delinquency Ratio		4.33%	5.54%	5.84%	5.61%	5.35%	18	8.0%	
Efficiency Ratio		66.96%	69.36%	58.43%	56.02%	64.09%	13	5.0%	
Solvency and Capital Metrics									
Basic Capitalization Ratio		11.39%	10.66%	10.65%	12.10%	11.07%	14	15.0%	
Net Capitalization Ratio		12.82%	13.15%	14.15%	15.87%	13.77%	15	18.0%	
Adjusted Leverage Ratio		9.82	9.74	9.34	9.54	9.63	13	3.0%	
Current Portfolio to Net Debt Ratio		1.61	1.56	2.11	2.15	1.80	19	15.0%	
Liquidity Metrics									
LCR		1.41	1.56	1.39	1.35	1.45	18	6.0%	
NSFR		1.02	1.08	1.12	1.16	1.09	13	4.0%	
Stress Scenario	Weights by Year	22.0%	38.5%	22.0%	17.5%	Weighted Average by Year	Integer Value	Wight by Metric	
	Year	t-1	t0	t1	t2				
Profitability and Efficiency Metrics									
Adjusted Net Interest Margin		3.24%	3.17%	3.12%	3.08%	3.16%	16	4.0%	
Interest Rate Spread		4.10%	4.08%	4.20%	4.12%	4.12%	16	3.0%	
Return on Assets		1.79%	1.85%	1.71%	1.76%	1.79%	18	11.0%	
Delinquency Ratio		2.73%	3.21%	5.56%	6.12%	4.13%	17	8.0%	
Adjusted Delinquency Ratio		4.33%	5.54%	7.11%	7.23%	5.92%	17	8.0%	
Efficiency Ratio		66.96%	69.36%	71.12%	83.30%	71.66%	10	5.0%	
Solvency and Capital Metrics									
Basic Capitalization Ratio		11.39%	10.66%	10.51%	11.34%	10.91%	14	15.0%	
Net Capitalization Ratio		12.82%	13.15%	14.01%	15.11%	13.61%	14	18.0%	
Adjusted Leverage Ratio		9.82	9.74	11.02	11.23	10.30	12	3.0%	
Current Portfolio to Net Debt Ratio		1.61	1.56	1.76	1.71	1.64	18	15.0%	
Liquidity Metrics									
LCR		1.41	1.56	1.21	1.18	1.38	18	6.0%	
NSFR		1.02	1.08	0.89	0.71	0.96	10	4.0%	
Ratings by Scenario		Base Average		Stress Average		Base Weight		65.0%	Final R.
		16.27		15.48		Stress Weight		35.0%	15.99

Source: HR Ratings.

This figure shows an example in which the metrics of each year are averaged. All the relative weightings, weight per year, metric and scenario are shown in green. HR Ratings constructs the metrics for each year and obtains the weighted average that is shown in the "Intertemporal Average" column. The value obtained in this column for each metric has a integer equivalent value between 1 (lowest) and 19 (highest). These are shown in the "Integer Value" column. These curves are those shown in the section of each metric.

The next step is based on estimating the weighted average of the metrics considering the weights shown in the "Weight by Metric" column. In this example, the whole values of the Base Scenario average 16.27; whereas the average is 15.48 in the Stress Scenario. Considering the weights of 65.0% and 35.0% of these scenarios, the Financial Model provides a value of 15.99, which will eventually be averaged (with a weight of 70.0%) with the value obtained in the bank's ESG analysis (weight of 30.0%).

## 4. Environmental, Social and Corporate Governance (ESG) Analysis

The purpose of this section is to incorporate into the rating of any bank the impact of environmental, social and corporate governance factors may have on its credit quality. Previously, HR Ratings' methodology for banks used to incorporate qualitative evaluation factors, which we now consider to be included, updated and enhanced in the ESG factors evaluated. The multiple factors that will be evaluated in this section may have a quantitative impact; therefore, to a certain extent, they may be incorporated into the projections made by HR Ratings in the Financial Model. Notwithstanding, the ESG factors are usually measured against criteria related to social trends and new market and corporate governance standards that change over time; therefore, they must be treated qualitatively.

Not all entities are exposed to the same ESG risks; therefore, HR Ratings' analysis is focused on identifying said risks and considers the extent to which the entity is capable of mitigating and/or managing them.

HR Ratings' methodology grants a weight of 30.0% of the credit rating to the ESG evaluation. The process to incorporate this evaluation into the credit rating consists of three steps (i) a label is assigned to each factor between : {*Upper, Average and Limited*}, in accordance with the policy applicable to it and the level of risk perceived, (ii) a value of {3, 2, 1} applies to each label, which is then used to calculate the weighted average of these values, and (iii) an integer value between 1 (lowest) and 19 (highest) is estimated based on a relationship with the weighted average of the values of the labels. This curve will be shown later.

In the meantime, the following sections describe the environmental, social and corporate governance factors analyzed for each bank and the criteria used to assign the weight to the ESG evaluation and how this affects the credit rating will be explained later.

## 4.1. Environmental Factors

These factors will be evaluated based on the commitment that HR Ratings identifies that the bank has to finance activities that are considered to have a favorable effect on the environment. A label with a greater value may be assigned to the extent to which these policies are formalized and have a history. The bank's exposure to natural phenomena will also be evaluated, and refer mainly to the concentration of the credit portfolio or the operation in high-risk regions.

### **4.1.a. The Bank's Environmental Policies and Approach** ***(6.0% of the ESG Analysis / 1.8% of the Credit Rating)***

HR Ratings will identify the extent to which priority is given to the environment within the bank's policies in terms of its acquisition of assets. This refers to whether or not its policies to grant credit favor corporations, sectors or companies with an environmental approach. HR Ratings also considers whether or not its portfolio investment favors activities or counter-parties with the same approach.

To a great extent, the bank is evaluated to establish if it shows an interest in offering financing to the environmental sector and if these policies are promoted from Upper Management and are formalized through protocols and/or manuals. Lastly, if the bank has internal policies on the use of resources in terms of paper, recycling or the moderated use of electricity, etc., will also be weighted.

### **4.1.b. Exposure to Natural Phenomena and Environmental Regulation** ***(9.0% of the ESG Analysis / 2.7% of the Credit Rating)***

HR Ratings will identify the risk of exposure to environmental phenomena in two ways: (i) the first refers to whether or not its investments and portfolio are focused on multiple areas of environmental development of sustainability, (ii) the second refers to the exposure of its credit portfolio, investment derivatives or other instruments, as well as the measured operational exposure, for example, through branches exposed to these phenomena. On the regulation side, and evaluation will be conducted as to whether the bank must follow costly regulation in the short or long term in order to mitigate environmental impacts.

The criteria to assign the labels to the factors described in this section are explained in Figure 17 below:



Figure 17: Assignment of a Labels to each Environmental factor

Concept / Label	Upper	Average	Limited
<b>Environmental Policies and Approach</b>	This label will be assigned in those cases in which the Bank's portfolio, or its assets, are funding activities that favors the environment or are promoting sustainable development. Additionally, these policies must be formalized in the Bank's credit policies.	This label will be assigned in those cases in which part of the Bank's portfolio, or its assets, are funding activities that favors the environment or are promoting sustainable development. This label considers that these policies are not formalized, but the Bank is on its way to do so.	This label will be assigned in those cases in which only a small part of the Bank's portfolio, or its assets, are funding activities that favors the environment or are promoting sustainable development. Additionally, the Bank has no intention to formalize environmental policies.
<b>Exposure to Natural Phenomena and Environmental Regulation</b>	The bank has a policy for diversifying assets to cover different areas of development and sustainability. Also for the assets to hold their value in cases of distress by natural phenomena. In cases in which environmental regulations must be obeyed, a plan for minimizing the costs of implementing it should exist.	The bank has no policy for diversifying assets to cover different areas of development and sustainability. Also, the protocol for the assets and operating system to hold their value and capacity in cases of distress by natural phenomena may not be sufficient. The plan for minimizing the costs of implementing environmental regulation could not minimize cost.	The Bank has offered little funding to environmental sectors. The value of its assets and its operating capabilities are vulnerable to natural phenomena. In cases in which any environmental policy is to be implemented, there is no plan for minimizing costs.

Source: HR Ratings.

## 4.2. Social Factors

The social factors analyzed in this section evaluate the extent to which the bank adopts policies with a focus on social development. In this vein, the bank's capacity to generate a significant impact will depend on its market positioning and share. This section also evaluates the human capital attraction, retention and development policies.

### 4.2.a. Social Approach of the Business

**(6.0% of the ESG Analysis / 1.8% of the Credit Rating)**

HR Ratings will identify if the bank's origination policies have a social integration approach. This implies that its products favor the integration of isolated communities into the market and they are accompanied by competitive prices.

### 4.2.b. Human Capital and Reputational Risk

**(9.0% of the ESG Analysis / 2.7% of the Credit Rating)**

Employee benefits, the training programs available and career plans are evaluated in this factor. In this vein, the quality and formality of the human resources policies will be analyzed. The turnover level must also be identified because lower turnover is an indicator of efficient operation. This last point is relevant to identify the capacity to retain talent, which is correlated with better operational and administrative practices. Gender inclusion and equality policies will also be considered. In this sense, the bank's policies will be evaluated to ensure that they favor equality at all levels within the institution.

In terms of reputational risk, the bank must be identified as having an adequate reputation achieved by the treatment of its employees, its credit policies and collection of commissions.

The criteria to assign the labels to the factors described in this section are explained in Figure 18 below:

**Figure 18: Assignment of a Labels to each Social factor**

Concept / Label	Upper	Average	Limited
<b>Business Social Approach</b>	The Bank must have policies that incentivize the search for new products and markets that are not integrated in the financial system. It will be desirable that the Bank holds a social approach that leads to formal policies to give credit or acquire investment assets.	The Bank is involved in activities that extends the size of the local financial market to marginalized communities; However, these activities haven't been formalized within the institution.	The Bank has not been involved in activities to extending the local financial market. The Bank has not implemented any social policies, in regards to giving credit or acquiring investment assets.
<b>Human Capital and Reputational Risk</b>	The benefits that the Bank gives to its employees comply with the minimum required by law; the Bank offers programs for employee capacitation and training, according to each department technical and operating needs; and the rotation level is typically below 10%.	The benefits that the Bank offers to its employees comply with the minimum stipulated by law; the Bank does not offer enough capacitation programs to comply with the technical and operating needs; and the level of employee rotation is variable from one year to another.	The benefits that the Bank offers to its employees are below the minimum stipulated by law; the Bank does not offer enough capacitation programs to comply with the technical and operating needs; and the level of employee rotation is above 10%.

Source: HR Ratings.

## 4.3. Corporate Governance Factors

The factors evaluated in this section are focused on the corporate policies that promote transparency in decision-making, including those taken during transactions and negotiations. To do this, the bank's formal tools to identify, mitigate, and resolve risks arising from multiple sources will be evaluated.

### **4.3.a. Internal Standards and Integrity Policies (15.0% of the ESG Analysis / 4.5% of the Credit Rating)**

This factor is of particular importance because it measures multiple concepts, among them, whether or not the bank has a compliance department, if there are manuals that set out the internal standards policies, with clear processes to identify and implement any changes necessary. A factor that must be considered is whether or not the bank has a control to protect itself against possible corruption schemes, as well as a matrix of major risks that also identifies risks related to the operational and administrative processes and that it evaluates the profitability levels of its credit policies. Lastly, an evaluation is conducted to ensure that the internal standards define and offer solutions to possible conflicts of interest, both internal and with third parties.

## **4.3.b. Quality of Management's Administration** ***(20.0% of the ESG Analysis / 6.0% of the Credit Rating)***

HR Ratings also considers the history of the bank's Upper Management in terms of initiatives for growth, debt and the capacity to achieve goals. HR Ratings analyzes the bank's strategy in terms of markets and growth in detail. It is important to consider the competence of Upper Management in terms of the composition of the management team and decision-making. This factor evaluates the existence of a well-structured business plan and strategic plans.

The *Upper* label indicates a policy that fosters a low turnover of Upper Management, that it has broad experience and a conservative management style. Upper Management tends to comply with the bank's risk profile and with the manuals and protocols applicable to different processes and the generation of assets. The historical reaction to exogenous shocks discloses the technical capacity of Management and its ability to comply with the aforementioned protocols.

## **4.3.c. Operational and Technological Risks** ***(13.0% of the ESG Analysis / 3.9% of the Credit Rating)***

This section evaluates the bank's propensity to take risky or speculative decisions and operate with counter-parties with low credit ratings. To a great extent, the bank's specific sensitivity to market, credit and operating risk will be captured in the Financial Model; therefore, the objective of this factor is to identify and measure if the mechanisms available are capable of offering an adequate reaction to stress situations. This refers to the technical capacity of the bank.

It also examines the controls and processes established by the bank to measure and control risks. This includes restrictions in the granting of credit and the position in foreign investments, especially in stock market transactions, including derivatives. The credit placement policy is also examined in terms of the exposure limits of a customer, the main customers, sector or type of instrument. It is important to clarify that the factors described hereinbefore seek to identify the existence and formality of these criteria; whereas this section evaluates their approach and whether or not they meet the bank's needs.

Lastly, this factor evaluates whether or not the bank has the technological tools to streamline and optimize its operation, as well as if it has sufficient tools to ensure its security and to adapt to new risks.

## **4.3. Transparency and Default History** ***(13.0% of the ESG Analysis / 3.9% of the Credit Rating)***

This factor refers to the information produced by the bank on its operation. This factor evaluates the extent to which the financial statements comply with the accounting standards pursuant to their applicable legislation. With regard to the default history, it is important to mention that HR Ratings' *General Methodological Criteria* propose the treatment of recent defaults; whereas this section will evaluate the treatment given to

prior defaults and the mechanisms adopted to prevent similar situations and mitigate credit risk.

In order to be able to assign an *Upper* label to this factor, the bank must submit information periodically with regard to HR Ratings' follow-up processes. The information must comply with the accounting standards and must have the transparency necessary in order to be able to perform the credit evaluation with a degree of certainty. This factor will also consider that the information is available to the regulators and in the cases applicable by regulation, to the public.

#### **4.3.e. Regulatory Framework and Macroeconomic Risk** ***(9.0% of the ESG Analysis / 2.7% of the Credit Rating)***

This section evaluates the extent to which the current macroeconomic trends may have an unfavorable impact on the value of the bank's assets. In terms of regulation, the bank's adherence to the relevant regulatory measures will be analyzed, placing emphasis on the minimum capital required, the amount of reserves against the risk of default and the standards related to banking entities' operations, including the types of transactions permitted and prohibited.

It is important to clarify that to a certain extent this analysis is also considered in the Financial Model. Notwithstanding, in this section, the analysis will be focused on the capacity perceived by HR Ratings that the bank has to adapt its counter-cyclical policy to adverse circumstances that due to their nature, may be extremely varied.

The criteria to assign the labels to the factors described in this section are explained in Figure 19 below:

Figure 19: Assignment of a Labels to each Corporate Governance factor

Concept / Label	Upper	Average	Limited
<b>Internal and Integrity Policies</b>	The internal policies are formalized through manuals that are clear and accessible to all employees. The Bank has a risk matrix that, beside identifying risks, it offers a process or a protocol for treating each risk. The internal policies have a formal and periodical committee that keeps each policy current, facilitating its adaptability.	Despite having Internal Policies formalized, these policies have not permeated the institution. The risk matrix has some areas of opportunity and the process to actualize and adapt these policies are not formalized and they not cover all the need of the Bank.	The Internal Policies are not formalized. The risk matrix is not existent, or it is not capable of identifying or offering contention strategies against risks. Besides, there are no committees or any process for discussing or reviewing the content of these policies.
<b>Quality of Management's Administration</b>	The Bank exhibits low rotation in its high administration, that is experienced and has a conservative approach. The administration tends to comply with the Bank's risk profile, as well as with the institutions manuals and protocols for generating assets. The historical approach to face market shocks reveals technical skills and its ability to comply with its own policies.	Despite having a high rotation in administrative positions, the Bank has clear policies regarding the tolerance for risk. The historical performance against external shocks reveals inconsistencies in the way that existing protocols have been implemented, and the performance shows mixed results as a consequence.	The Bank has high rotation in its administrative positions, and as a consequence the risk tolerance and other internal policies change constantly. The performance against external shocks reveal the lack of planning and the inconsistency in applying existing protocols.
<b>Operational and Technological Risks</b>	The Bank must have the technological resources to face high levels of exposition to different risks. It also needs a manual or protocol that states the level of tolerable risks, and that these levels, as well as the implementation of the surrounding policies, contribute to credit quality.	The technological resources of the Bank are sufficient to hold the operational capacities; however, these could be insufficient to identify and mitigate risks. The strategies of the Bank to handle risks are not clear and risk tolerance are not established.	The Bank does not have the technological resources to face high levels of exposition to different risks. It also lacks a manual or protocol that states the level of tolerable risks, as well as the implementation of the surrounding policies.
<b>Transparency and Default History</b>	The Bank must deliver information periodically, as stated with HR Ratings own monitoring process. The financial information should comply with the accounting standards and with the transparency needed for granting certainty in the rating process. The banks must also have a history of complying with its obligations, not only with those related to debt.	The information delivered to HR Rating for its review and rating process does not hold to accounting standards or it has not been delivered with the required frequency. Additionally, the Bank has no history of default with its debt obligations, and even non-debt obligations.	The Bank has not delivered information periodically, as stated with HR Ratings own monitoring process. The financial information does not comply with the accounting standards and with the transparency needed for granting certainty in the rating process. The banks has a history of not complying with its debt obligations.
<b>Regulatory Framework and Macroeconomic Risk</b>	The bank has the technical capacity to adapt to regulations in the less costly manner, as well with counter-cyclical strategies for mitigating macroeconomic shocks; these without having the banks assets loose values or by gaining liabilities that could lead to a diminished capacity to pay debt service in the future.	The Bank has the resources to confront these risks; however, it does not have clear strategies. Inversely, the Bank might have the correct strategies, but these do not comply with the available resources.	The bank lacks the technical capacity to adapt to regulations in the less costly manner, as well with counter-cyclical strategies for mitigating macroeconomic shocks; these without having the banks assets loose values or by gaining liabilities that could lead to a diminished capacity to pay debt service in the future.

Source: HR Ratings.

## 4.4. The ESG Model

This section explains the criteria that HR Ratings will consider when applying the labels to the ESG factors. However, this is only the first step to incorporate this evaluation into the bank's credit rating. It has always been mentioned that the labels between {*Upper*, *Average*, *Limited*} have values of {3, 2, 1}, which will be weighted to obtain a integer value of between 1 (lower) and 19 (higher). Figure 20 shows how the weighted average obtained following the assignment on the labels is translated into this integer value between 1 and 19.

Figure 20: ESG Relation			
ESG Weighted Average Range	Integer Value	ESG Weighted Average Range	Integer Value
[ 1.00 , 1.11 ]	1	( 2.06 , 2.16 ]	11
( 1.11 , 1.21 ]	2	( 2.16 , 2.27 ]	12
( 1.21 , 1.32 ]	3	( 2.27 , 2.37 ]	13
( 1.32 , 1.42 ]	4	( 2.37 , 2.48 ]	14
( 1.42 , 1.53 ]	5	( 2.48 , 2.58 ]	15
( 1.53 , 1.63 ]	6	( 2.58 , 2.69 ]	16
( 1.63 , 1.74 ]	7	( 2.69 , 2.79 ]	17
( 1.74 , 1.84 ]	8	( 2.79 , 2.90 ]	18
( 1.84 , 1.95 ]	9	( 2.90 , 3.00 ]	19
( 1.95 , 2.06 ]	10		

Source: HR Ratings.

Figure 21 shows an example of how HR Ratings will apply its ESG evaluation:

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**Figure 21: Example of the ESG Model**

Environmental Factors	Label	Value	Weight
Environmental Policies and Approach	Upper	3	6.0%
Exposure to Natural Phenomena and Environmental Regulation	Average	2	9.0%
Social Factors			
Business Social Approach	Upper	3	6.0%
Human Capital and Reputational Risk	Limited	1	9.0%
Corporate Governance Factors			
Internal and Integrity Policies	Limited	1	15.0%
Quality of Management's Administration	Limited	1	20.0%
Operational and Technological Risks	Upper	3	13.0%
Transparency and Default History	Average	2	13.0%
Regulatory Framework and Macroeconomic Risk	Upper	3	9.0%
<b>Factors Weighted Average</b> 1.90	<b>Integer Value</b>	<b>10</b>	

Source: HR Ratings.

This example shows how each label has a value of {1,2,3} and how they are averaged based on the weight of each factor in the "Weight" column marked in green. The weighted average of the factors is 1.90 and this relates to a integer value between 1 (lower) and 19 (higher). In this example, the integer value is 10 and will be averaged with a weight of 30% with the result of the Financial Model in order to obtain the bank's credit rating.

## 5. The Bank's Credit Risk Rating and Additional Considerations

The result of the Financial Model, which is between 1 and 19, and the ESG result, which is also a value between 1 and 19, are averaged to obtain a value which will be translated into the credit rating of the bank evaluated. The value of the Financial Model has a weight of 70.0%; whereas the ESG value has the remaining weight of 30.0%.

Considering the example given in Figures 16 and 20 of this methodology, the final values result in a weighted average of 14.38. This value is rounded to its nearest whole number and gives a credit rating of HR A. In this methodology, the weighted value of the Financial Model and the ESG Evaluation is always rounded to the nearest integer



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number to assign the credit rating. This value is set between 1 (the value that would relate to a rating of HR C-) and 19 (the value that would relate to a rating of HR AAA).

HR Ratings may assign a favorable adjustment of up to three notches to the bank's credit rating in cases in which any of the following circumstances are identified: (i) the downgrade of the bank's credit rating would imply a systemic risk; therefore, it is highly likely that the jurisdictional authorities may provide direct support for the bank to be able to meet its debt obligations, or (ii) the credit granted by any asset, liability or source of income cannot be fully Incorporated into the financial model and requires an adjustment to capture its impact on the credit rating.

Conversely, a disfavorable adjustment may be assigned of up to three notches to the bank's credit rating in cases in which any of the following circumstances are identified: (i) The bank's historical information may not be representative of its historical operation. (ii) The credit weakness that refers to any asset, liability, expense or source of income cannot be fully incorporated into the financial model and requires an adjustment to capture its impact on the credit rating.

## Appendix 1: Financial Projection Processes

This section describes the process implemented by HR Ratings to project the accounts on the balance sheet, the statement of income and the cash flow statement, including an example through various figures. It is important to clarify that the projections are based mainly on the bank's historical profile, as disclosed in its financial information. Several financial assumptions are incorporated into this exercise that are based on the bank's strategies and the macroeconomic framework that HR Ratings observes and projects.

### A.1.1. Balance Sheet Accounts

The bank's balance sheet represents the source of income generation (as already mentioned); therefore, it is fundamental to estimate the bank's assets and liabilities in the flow projection. HR Ratings includes the quality of the assets as part of the analysis of the balance sheet; therefore it will establish growth trends for each one considering the characteristics and specialization in each of the different market niches. It is fundamental to analyze the types of liabilities referred to in accordance with the characteristics to determine the cost and establish an approximate amount of interest expense.

In order to make the projections in accordance with the bank's historical conditions, HR Ratings considers the trends in the financial information provided, as well as the growth expectations for the bank in terms of the factors detailed in the Base Scenario and Stress Scenario section.

HR Ratings projects the growth rates of the following accounts and the balance expected for the next eight quarters. The following figure shows an example of how the information is broken down in the Financial Model:

**Figure A1: Asset Projection in Financial Model**

Asset Accounts on the Balance Sheet	Quarters in Financial Model							
	First Year of Historical Data				First Year Projected			
	1T(t <sub>0</sub> )	2T(t <sub>0</sub> )	3T(t <sub>0</sub> )	4T(t <sub>0</sub> )	1T(t <sub>1</sub> )	2T(t <sub>1</sub> )	3T(t <sub>1</sub> )	4T(t <sub>1</sub> )
<b>A. Assets</b>	<b>274,934</b>	<b>290,348</b>	<b>312,481</b>	<b>330,774</b>	<b>340,996</b>	<b>350,642</b>	<b>355,927</b>	<b>368,489</b>
<i>A.1. Cash and Equivalents</i>	41,599	39,792	41,684	45,848	52,310	57,283	58,796	63,219
<i>A.2. Financial Assets</i>	18,700	23,775	25,814	25,924	25,000	26,000	26,000	30,000
<i>A.3. Hedging Derivative Assets</i>	2,332	2,417	4,557	2,648	2,648	2,648	2,648	2,648
<i>A.4. Total Loan Portfolio</i>	188,234	195,456	213,289	226,197	230,781	234,431	238,181	242,281
<i>A.4.1. Net Loan Portfolio</i>	184,574	191,918	209,914	222,965	227,549	231,199	234,949	239,049
<i>A.4.1.a. Current Loan Portfolio</i>	185,538	193,151	211,004	223,916	228,000	231,250	234,500	238,000
<i>Commercial Loans</i>	121,102	125,843	139,458	148,825	152,000	154,000	156,000	158,000
<i>Consumer Loans</i>	27,220	28,262	30,376	31,409	31,000	31,250	32,000	33,000
<i>Housing Loans</i>	37,216	39,046	41,170	43,682	45,000	46,000	46,500	47,000
<i>A.4.1.b. Non-Performing Loans</i>	2,743	2,743	3,063	3,840	4,890	5,840	6,890	8,040
<i>A.4.1.c. Allowance for Loan Losses</i>	-3,707	-3,976	-4,153	-4,791	-5,341	-5,891	-6,441	-6,991
<i>A.4.2. Receivables</i>	3,660	3,538	3,375	3,232	3,232	3,232	3,232	3,232
<i>A.5. Other Assets</i>	24,069	28,908	27,137	30,157	30,257	30,280	30,302	30,341

Source: HR Ratings example

Figure A1 shows the historical information of the last four quarters, as well as the projection for the next four quarters. HR Ratings makes estimates for the different types of assets and thus projects the cash flow generated for the next eight quarters. The information shown in yellow represents the accounts projected to obtain the total of the assets and establishes the interest income generated by the bank. On the liabilities side, the projections are made based on the following accounts:

**Figure A2: Liabilities Projection in Financial Model**

Liabilities Accounts on the Balance Sheet	Quarters in Financial Model							
	First Year of Historical Data				First Year Projected			
	1T(t <sub>0</sub> )	2T(t <sub>0</sub> )	3T(t <sub>0</sub> )	4T(t <sub>0</sub> )	1T(t <sub>1</sub> )	2T(t <sub>1</sub> )	3T(t <sub>1</sub> )	4T(t <sub>1</sub> )
<b>B. Liabilities</b>	<b>244,025</b>	<b>258,708</b>	<b>277,754</b>	<b>295,431</b>	<b>303,218</b>	<b>312,250</b>	<b>316,096</b>	<b>327,144</b>
<b>B.1. Deposits</b>	203,533	197,144	221,470	241,719	247,107	257,101	260,102	268,103
B.1.1. Short-term deposits	111,114	103,173	106,724	107,707	107,107	118,000	120,000	123,000
B.1.2. Long-term deposits	92,419	93,971	114,746	134,012	140,000	139,000	140,000	145,000
B.1.3. Banks	0	0	0	0	0	101	102	103
<b>B.2. Interbank Transactions, Loans and Onlending</b>	14,094	27,753	17,691	15,173	16,000	16,000	17,000	20,000
<b>B.3. Assigned Values Pending Settlement</b>	10	1,745	1,570	1,486	1,486	1,486	1,486	1,486
<b>B.4. Derivative Financial Instruments</b>	2,924	3,408	4,996	3,483	5,000	4,000	3,800	3,800
<b>B.5. Other Accounts Payable</b>	12,470	13,174	14,007	14,436	14,436	14,436	14,436	14,436
<b>B.6. Subordinated Notes</b>	10,210	14,561	16,932	17,923	17,923	17,923	17,923	17,923
<b>B.7. Deferred Taxes</b>	0	0	0	0	55	93	138	185
<b>B.8. Deferred Loans and Advanced Collections</b>	784	923	1,088	1,211	1,211	1,211	1,211	1,211

Source: HR Ratings example.

As in the projection of assets, the projection of liabilities is based on the historical information provided by the bank and the accounts marked in yellow represent the estimates made by HR Ratings in accordance with the historical interest rate, as well as certain macroeconomic and financial factors that have already been mentioned.

HR Ratings must also consider the funding sources for the projections of liabilities. Deposits are the main source of financing of banking entities. However, if there are alternative sources of financing, such as loans from other banks or financial institutions, HR Ratings will analyze said sources and perform a detailed analysis. If a high concentration is found in a single source of funding, a greater stress will be applied to reflect the cost on debt and the passive interest rate in these cases.

The analysis of the concentration of the sources of funding includes a detailed evaluation of the maturity of liabilities in accordance with the term and cost of the debt. The impact of a high concentration by an entity will be reflected in a higher cost of debt and an eventual downgrade of its capitalization. An scenario of said analysis is presented as follows in five steps, specifically related to bank loans:

**Step 1.** Liabilities are analyzed depending on the maturity over time (long or short term) and the balance at the end of each quarter is included. The estimate of liabilities considers the macroeconomic and financial conditions of each of HR Ratings' projection scenarios.

Figure A3, below, shows how HR Ratings projects the maturities and interest that must be settled in each period for each liability based on the provisions that have been observed and eventually projected.

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**Figure 3 Appendix 1: Liabilities in the Financial Model**

Loans from other Banks and other Organisms	1T(t <sub>0</sub> )	2T(t <sub>0</sub> )	3T(t <sub>0</sub> )	4T(t <sub>0</sub> )	1T(t <sub>1</sub> )	2T(t <sub>1</sub> )	3T(t <sub>1</sub> )	4T(t <sub>1</sub> )
<b>Short Term</b> <i>Balance of loans from other Banks</i>	<b>5,557</b>	<b>5,577</b>	<b>5,604</b>	<b>5,636</b>	<b>5,678</b>	<b>5,708</b>	<b>5,740</b>	<b>5,777</b>
1T(t <sub>0</sub> )	5,557	4,167	2,778	1,389	0	0	0	0
2T(t <sub>0</sub> )		1,410	1,058	705	353	0	0	0
3T(t <sub>0</sub> )			1,768	1,326	884	442	0	0
4T(t <sub>0</sub> )				2,216	1,662	1,108	554	0
1T(t <sub>1</sub> )					2,779	2,084	1,389	695
2T(t <sub>1</sub> )						2,074	1,555	1,037
3T(t <sub>1</sub> )							2,242	1,682
4T(t <sub>1</sub> )								2,363
<i>New Dispositions</i>		1,410	1,768	2,216	2,779	2,074	2,242	2,363
<i>Maturity</i>		1,389	1,742	2,184	2,738	2,043	2,209	2,328
<i>Interest paid</i>		97	96	90	104	97	91	94
<i>Average Interest Rate</i>		7.00%	6.87%	6.43%	7.37%	6.83%	6.36%	6.54%
Loans from other Banks and other Organisms	1T(t <sub>0</sub> )	2T(t <sub>0</sub> )	3T(t <sub>0</sub> )	4T(t <sub>0</sub> )	1T(t <sub>1</sub> )	2T(t <sub>1</sub> )	3T(t <sub>1</sub> )	4T(t <sub>1</sub> )
<b>Long Term</b> <i>Balance of loans from other Banks</i>	<b>9,455</b>	<b>9,463</b>	<b>9,471</b>	<b>9,480</b>	<b>9,490</b>	<b>9,501</b>	<b>9,513</b>	<b>9,526</b>
1T(t <sub>0</sub> )	9,455	8,667	7,879	7,091	6,303	5,515	4,727	3,939
2T(t <sub>0</sub> )		796	729	663	597	531	464	398
3T(t <sub>0</sub> )			863	791	719	647	575	503
4T(t <sub>0</sub> )				935	857	779	702	624
1T(t <sub>1</sub> )					1,014	930	845	761
2T(t <sub>1</sub> )						1,099	1,008	916
3T(t <sub>1</sub> )							1,192	1,093
4T(t <sub>1</sub> )								1,292
<i>New Dispositions</i>		796	863	935	1,014	1,099	1,192	1,292
<i>Maturity</i>		788	854	926	1,004	1,089	1,180	1,279
<i>Interest paid</i>		97	95	95	95	95	95	95
<i>Average Interest Rate</i>		8.51%	6.96%	4.00%	4.00%	4.00%	4.00%	4.00%

Source: example by HR Ratings.

**Step 2.** The maturities during each quarter are analyzed in order to follow up on the need for financing and the concentration of sources of funding throughout the period projected. This is shown in Figure A4, which analyzes the maturities related to each dissipation based on the respective interest rate and its amortization curve.

**Figure 4 Appendix 1: Liabilities in the Financial Model**

Maturity of Short Term Loans	1T(t <sub>0</sub> )	2T(t <sub>0</sub> )	3T(t <sub>0</sub> )	4T(t <sub>0</sub> )	1T(t <sub>1</sub> )	2T(t <sub>1</sub> )	3T(t <sub>1</sub> )	4T(t <sub>1</sub> )
1T(t <sub>0</sub> )								
2T(t <sub>0</sub> )								
3T(t <sub>0</sub> )		1,390	1,389	1,389	1,389			
4T(t <sub>0</sub> )			352	353	352	353		
1T(t <sub>1</sub> )				442	442	442	442	
2T(t <sub>1</sub> )					554	554	554	554
3T(t <sub>1</sub> )						695	695	694
4T(t <sub>1</sub> )							519	518

Maturity of Long Term Loans	1T(t <sub>0</sub> )	2T(t <sub>0</sub> )	3T(t <sub>0</sub> )	4T(t <sub>0</sub> )	1T(t <sub>1</sub> )	2T(t <sub>1</sub> )	3T(t <sub>1</sub> )	4T(t <sub>1</sub> )
1T(t <sub>0</sub> )								
2T(t <sub>0</sub> )								
3T(t <sub>0</sub> )		788	788	788	788	788	788	788
4T(t <sub>0</sub> )			67	66	66	66	67	66
1T(t <sub>1</sub> )				72	72	72	72	72
2T(t <sub>1</sub> )					78	78	77	78
3T(t <sub>1</sub> )						84	85	84
4T(t <sub>1</sub> )							91	92

Source: example by HR Ratings.

**Step 3.** HR Ratings calculates the proportion of the amount due, including the estimate of new loans in order to calculate the possible increase in the source of funding and thus continue with the refinancing of the debt. It is important to analyze the maturities of the loan according to the term in order to detect the bank's liquidity in different periods.

**Step 4.** Based on the analysis of the maturities of liabilities and new lines of financing, HR Ratings calculates new interest rates that the bank may face. The analysis of the rates will reflect the impact of a high concentration on the sources of funding and therefore, a greater cost of debt.

**Step 5.** The interest payable on current loans and the possible increase in lines of financing are calculated to reflect the impact of a high concentration on the bank's profitability. The greater the passive interest rate and interest payable, the lower profitability will be and the the greater the downgrade of the bank's capitalization index will be.

## A.1.2. Statement of Income Accounts

The bank's Statement of Income is based on the financial balance and the amount earned or collected by the bank's assets and liabilities. HR Ratings' Financial Model places an emphasis on the institution's level of lending rate and passive interest rate, always considering the historical trends of the bank and the macroeconomic outlook of the country in which it operates.

The bank's income is based on the income generated by the financial assets, particularly from the bank's current credit portfolio and the returns generated by repurchase transactions. Therefore, the projection of interest income is based on the projection of the financial balance and the bank's expectation of its lending rate. HR Ratings' analysis of a bank's financial statements is performed on a quarterly basis;

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therefore, the projections made are based on the increase of the financial assets in each period and on the expectation of rates for the different assets of the bank. The accounts projected by HR Ratings in relation to the bank's income and that are obtained from the the historical information provided by the bank are shown as follows:

**Figure A5: Income Projection in the Financial Model**

<u>Income Account in Income Statement</u>	<u>Quarters in Financial Model</u>							
	<u>First Year of Historical Data</u>				<u>First Year Projected</u>			
	<u>1T(t<sub>0</sub>)</u>	<u>2T(t<sub>0</sub>)</u>	<u>3T(t<sub>0</sub>)</u>	<u>4T(t<sub>0</sub>)</u>	<u>1T(t<sub>1</sub>)</u>	<u>2T(t<sub>1</sub>)</u>	<u>3T(t<sub>1</sub>)</u>	<u>4T(t<sub>1</sub>)</u>
<b>Financial Income</b>	<b>11,168.7</b>	<b>10,895.2</b>	<b>11,377.2</b>	<b>12,593.0</b>	<b>12,759</b>	<b>11,689</b>	<b>11,255</b>	<b>11,137</b>
Interest from Liquid Assets	633.1	571.2	552.0	643.0	674	768	842	864
Interest and Income from Investments	381.6	419.7	441.9	486.9	479	480	489	527
Interest and Income from Investment Operations	3,603.2	3,704.6	3,801.8	4,145.9	3,971	2,648	1,986	1,655
Interest from Current Loan Portfolio	5,559.5	5,862.1	6,255.7	6,919.5	7,190	7,307	7,410	7,517
Interest from Non-Performing Loan Portfolio	95.7	90.7	102.5	123.7	156	192	228	268
Comissions from Initial Loan Placement	95.3	102.9	116.1	138.3	142	146	149	152
Benefits	281.2	144.0	107.2	135.7	145	146	149	152
Premium from Loan Placement	0.0	0.0	0.0	0.0	0	0	0	0
Utility from Valuation	7.9	0.0	0.0	0.0	2	2	2	2
Gains from Interest Income Update	511.2	0.0	0.0	0.0	0	0	0	0

Source: HR Ratings example.

In the preceding Figure, the values shown in yellow represent estimates made by HR Ratings based on the historical level. The rest of the values in the projections are obtained by multiplying the balance of the assets at the end of each period (quarterly periods) by the lending rate estimated in the model. The lending rates projected and that determine the bank's level of income are the following:

**Figure A6: Lending Rates Projection in Financial Model**

<u>Lending Rates</u>	<u>First Year Projected</u>				<u>Second Year Projected</u>			
	<u>1T(t<sub>1</sub>)</u>	<u>2T(t<sub>1</sub>)</u>	<u>3T(t<sub>1</sub>)</u>	<u>4T(t<sub>1</sub>)</u>	<u>1T(t<sub>2</sub>)</u>	<u>2T(t<sub>2</sub>)</u>	<u>3T(t<sub>2</sub>)</u>	<u>4T(t<sub>2</sub>)</u>
Cash and Cash Equivalents	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%
Finacial Assets	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
Financial Asset Lending and Repo Operations	600%	400%	300%	250%	200%	200%	200%	200%
Current Loan Portfolio	12.7%	12.7%	12.7%	12.7%	12.7%	12.7%	12.7%	12.7%
Non-Performing Loan Portfolio	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%

Source: HR Ratings example.

The historical information on the balance sheet once again represents the base of the analysis for the projection of the bank's expenses. Once the liabilities are projected with a cost on the balance sheet, HR Ratings establishes an approximate passive interest rate (obtained from the start trends and market conditions) for each of the accounts and obtains the total interest expense. The accounts projected by HR Ratings are the following pursuant to the interest expense accounts in the Statement of Income:

**Figure A7: Expense Projection in Financial Model**

Expense Accounts in Financial Statements	Quarters in Financial Model							
	First Year of Historical Data				First Year Projected			
	1T(t <sub>0</sub> )	2T(t <sub>0</sub> )	3T(t <sub>0</sub> )	4T(t <sub>0</sub> )	1T(t <sub>1</sub> )	2T(t <sub>1</sub> )	3T(t <sub>1</sub> )	4T(t <sub>1</sub> )
<b>Financial Expense</b>	<b>6,128.9</b>	<b>5,974.6</b>	<b>6,309.8</b>	<b>7,362.4</b>	<b>7300.9</b>	<b>7047.9</b>	<b>6290.9</b>	<b>6023.9</b>
Interest for short term deposits	204.2	207.4	461.3	302.2	215	226	238	243
Interest for long term deposits	1,323.5	1,464.6	1,339.1	2,150.9	2,175	2,215	2,215	2,262
Interest for bonds	0.0	0.0	0.0	0.0	0	0	0	0
Interest for Interbank Transactions, Loans and Onlending	331.5	350.0	398.6	284.0	284	284	284	284
Interest for Subordinated Notes	243.7	241.6	310.0	384.9	385	385	385	385
Interest and expenses from Repo Transactions	4.5	3.4	2.9	2.5	0	0	0	0
Expenses from Benefits	3,734.7	3,702.9	3,786.8	4,215.8	4,242	3,938	3,169	2,850
Prices in excess paid for financial investments	0.0	0.0	0.0	0.0				
Discounts from Loan Placement	0.0	0.0	0.0	0.0				
Costs and Expenses from Loan Placement	0.0	0.0	0.0	0.0				
Losses from Valuation	0.0	4.7	11.1	22.1				
Increment from Interest Expense Update	286.8	0.0	0.0	0.0				

Source: HR Ratings example.

For the rest of the bank's expenses and income, HR Ratings takes an average of the financial information of the last year as a base and applies a reasonable growth rate in view of the historical trends and the expected outlook. Once the Majority Net Profit is obtained, HR Ratings uses the results to obtain:

- The initial balance of the cash flow generated by the bank during the period.
- Part of the capital earned by the bank increasing the Majority Net Profit of the balance sheet and increasing the stockholders equity.

### A.1.3. Projections of Past-Due (Delinquent) Portfolio and its Provisions

HR Ratings places particular emphasis on the projection of preventive estimates for credit risks and the past-due portfolio. Both accounts represent part of assets. Notwithstanding this, a distinction must be made between the two items; whereas the past-due credit portfolio represents an increase of the net credit portfolio, the preventive estimates reduce the value of the bank's portfolio.

Preventive estimates represent the bank's hedging against possible losses in its credit portfolio. When the bank considers that a part of the past-due portfolio cannot be recovered, the bank absorbs the losses and transforms that said amount of the past-due portfolio into estimated write-offs.

The projection of the amount of the past-due portfolio and the preventive estimates credit risks is based on the calculation of write-offs estimated in subsequent periods. In this vein, it is important to calculate the historical write-offs and the performance of the estimates over time, as well as having identified income through releases in the historical information. The captions calculated by HR Ratings to project the past-due portfolio and the preventive estimates for credit risks are presented as follows:



**Figure A8: Portfolio Amount Projection**

Projected Concepts	4T(t <sub>0</sub> )	Projected Quarters						
		1T(t <sub>1</sub> )	2T(t <sub>1</sub> )	3T(t <sub>1</sub> )	4T(t <sub>1</sub> )	1T(t <sub>2</sub> )	2T(t <sub>2</sub> )	3T(t <sub>2</sub> )
Impairment Charges in Financial Statement	1,587.2	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Impairment Estimates	949.2	950	950	950	950	950	950	950
New Non-Performing Loan in Quarter	1,726.5	2,000	1,900	2,000	2,100	2,100	2,100	2,100
New Current Loan Portfolio (cash outflow)	14,640.0	6,084	5,150	5,250	5,600	3,500	5,513	5,513

Source: HR Ratings example.

The following captions are calculated:

- Charge for Preventive Estimates to Income.* This represents the amount of preventive estimates generated during the period and charged directly to the Statement of Income.
- Estimated Write-offs.* This estimate is obtained by adding the preventive estimates in the prior period, plus the Charge for Preventive Estimates to Income less the preventive estimates accumulated in the current period.
- New Past-Due (delinquent) Portfolio in the Quarter.* This represents the sum of the past-due portfolio in the current period, less the past-due portfolio in the prior period, plus the estimated write-offs of the period.

According to Figure A8 and based on the periods marked in yellow, HR Ratings makes estimates to obtain the Past-Due Portfolio of the period and the respective amount of Preventive Estimates for Credit Risks. The past-due portfolio is calculated as follows:

- Past-Due Credit Portfolio (projected). Past-Due Portfolio of the prior period, plus New Past-Due Portfolio in the quarter less Estimated Write-offs.
- Preventive Estimates for Credit Risks (projected). Preventive Estimates in the prior period plus Charge for Preventive Estimates to Income less Estimated Write-offs.

Among the stress considerations that HR Ratings may incorporate into its projections process is determining the bank's capacity to manage different levels of hedging with assumptions also relative to the generation of new past-due portfolio and the effect of the preventive estimates on the the level of capitalization. The generation of preventive estimates has a negative effect on the bank's net income and therefore, on its level of capitalization.

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Figure 1 Appendix 2: General Structure of the Financial Model in the Methodology

I. Financial Model (70.0% of the bank's rating)	
Description	HR Ratings Financial Model is based on projected financial metrics, which are constructed taking four years into account: two historical years and two projected years. The projections are made for two scenarios, a Base Scenario, which includes the financial and macro economical factors deemed most likely; and a Stress Scenario, which incorporates: operation risks, portfolio risk, market risks and macro economical risks.
A. Years Considered	
Information incorporated in the Financial Model	Weight
The penultimate year of available historical information (t-1)	22.0%
The last year of available historical information (t <sub>0</sub> )	38.5%
The first year of projections (t <sub>1</sub> )	22.0%
The second year of projections (t <sub>2</sub> )	17.5%
B. Projection Scenarios	
<b>Base Scenario</b> 65.0%  This scenario reflects the development of financial and macro economical factors deemed most likely. The model weights the previous two years of historical data given by the bank, but considers data from at least the previous five years of operation.	<b>Stress Scenario</b> 35.0%  In this scenario stress factors are incorporated to reflect: (i) losses related to operation risks, (ii) losses in value of portfolio assets, (iii) losses in value of market assets, (iv) macro economical stress.
C. Metrics in the Financial Model	
C.1. Profitability and Efficiency Metrics	
<b>Adjusted Net Interest Margin</b> 4.0%  $\frac{(\text{Interest Income} - \text{Interest Expenses} - \text{Loan Loss Provisions})}{\text{Productive Assets}}$	<b>Spread de Tasas</b> 3.0%  $\frac{\text{Interest Income}}{\text{Productive Assets}} - \frac{\text{Interest Expenses}}{\text{Productive Assets}}$
<b>Return on Assets</b> 11.0%  $\frac{(\text{Net Result} - \text{Minority Contributions})}{\text{Productive Assets} - \text{Repo Debt Balance of Operations}}$	<b>Delinquency Ratio</b> 8.0%  $\frac{\text{Delinquent Loan Portfolio}}{\text{Total Loan Portfolio}}$
<b>Adjusted Delinquency Ratio</b> 8.0%  $\frac{\text{Delinquency Loan Portfolio} + \text{accumulated Losses}}{\text{Total Loan Portfolio} + \text{accumulated Losses}}$	<b>Efficiency Ratio</b> 5.0%  $\frac{\text{Administration and Promotion Expenses}}{(\text{Total Income} + \text{Loan Loss Provisions})}$
C.2. Solvency and Capital Metrics	
<b>Basic Capitalization Ratio</b> 15.0%  $\frac{\text{Basic Capital}}{\text{RWA}}$	<b>Net Capitalization Ratio</b> 18.0%  $\frac{\text{Basic and Complementary Capital}}{\text{RWA}}$
<b>Adjusted Leverage Ratio</b> 3.0%  $\frac{\text{Liabilities} - \text{Purchase Agreements}}{\text{Stockholder's Equity}}$	<b>Current Portfolio to Net Debt Ratio</b> 15.0%  $\frac{\text{Current Loan Portfolio}}{\text{Debt Net}}$
C.3. Liquidity Metrics	
<b>Liquidity Coverage Ratio (LCR)</b> 6.0%  $\frac{\text{Available Assets}}{\text{Enforceable Liabilities in the short term}}$	<b>Net Stable Funding Ratio (NSFR)</b> 4.0%  $\frac{\text{Equity and Liabilities enforceable past one year}}{\text{Available Assets}}$

Source: HR Ratings.

**Figure 2 Appendix 2: General Structure of the ESG Analysis in the Methodology**

## II. ESG Analysis (30.0% of the Bank's Rating)

### Description

HR Ratings' ESG analysis is based on the assignment of a label with the levels of "Upper", "Average", "Limited" to a diverse set of Environmental, Social, and Governance factors relevant for the bank. This section is meant to identify risks which might have an impact on the bank's credit profile and which cannot be incorporated through the projections in the Financial Model.

### A. Description of the Labels

**Upper**

Refers to banks which are not exposed to certain factor, or that even though there is exposure, they have the capability of managing or adapting to the risk it presents.

**Average**

Refers to banks that through exposure to these risks could face a moderate impact on their credit quality.

**Limited**

Refers to banks that through exposures to these risks could face a significant impact on their credit quality.

### B. Analyzed Factors

#### B.1. Environmental Factors

**Environmental Policies and Approach** 6.0%

This factor evaluates if the bank has formalized or gives priority to the acquisition of assets which favor the environment; this refers to the credit lending policies, or the acquisition of investments.

**Exposure to Natural Phenomena and Regulation** 9.0%

This factor refers to the exposure to natural phenomena faced by the bank's assets, or its operation. This analysis is based on the concentration of assets or the bank's branches. Additionally, it measures if the bank must implement costly regulation in the short or medium term.

#### B.2. Social Factors

**Business Social Approach** 6.0%

This factor identifies if the bank's loan origination policies focus on social integration. This means that its products encourage isolated communities to become part of the market and that they have competitive pricing.

**Human Capital and Reputational Risk** 9.0%

This factor evaluates the employee's benefits, available training programs and career plans. The quality and formality of the human resources policies and the level of turnover are also evaluated.

#### B.3. Corporate Governance Factors

**Internal and Integrity Policies** 15.0%

This factor evaluates if the bank has a compliance department, the existence of manuals which outline the internal regulation policies. If the institution has a control mechanism to protect itself from possible corruption schemes, and with a risk matrix which identifies operation and administrative risks, and that it evaluates the profitability of its credit policies.

**Quality of Management's Administration** 20.0%

This factor considers management's record in terms of growth initiative, debt and capability to reach set goals. HR Rating's thoroughly analyzes the bank's strategy in terms of markets and growth.

**Operational and Technological Risks** 13.0%

This factor evaluates the bank's propensity to take risky or speculative positions and to operate with low credit rating counterparts. It examines the credit policy in terms of limiting exposure to a particular client, set of clients, sector or instrument.

**Transparency and Default History** 13.0%

This factor evaluates how well the financial statements comply with the accounting standards set by the relevant legislation. This section evaluates the treatment given to previous defaults and the mechanisms set to avoid similar situations and manage credit risk.

**Regulatory Framework and Macroeconomic Risk** 9.0%

This factor analyzes the bank's compliance with the relevant regulatory measures, with an emphasis on the minimum capital requirement, reserve amounts to face default risk and the norms related to the operation of banks, including permitted and restricted operations. It also evaluates the counter-cyclical strategies available to the bank.

Source: HR Ratings.



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## METHODOLOGIES

### Current versions of previously sent methodologies

	Methodology	
1	Methodology for the Evaluation of Charter School Debt ( <i>Long Term and Short Term Global Rating Scales</i> ).	<a href="https://www.hrratings.com/docs/metodologia/New%20Charter%20Schools%20Methodology%20R.pdf">https://www.hrratings.com/docs/metodologia/New%20Charter%20Schools%20Methodology%20R.pdf</a>
2	General Methodological Criteria.	<a href="https://www.hrratings.com/docs/metodologia/GMC%20March%202019.pdf">https://www.hrratings.com/docs/metodologia/GMC%20March%202019.pdf</a>
3	Methodology for Public Finances: Unsecured Debt Ratings for Mexican Municipalities Methodology Addendum ( <i>Long Term and Short Term Local Rating Scales</i> ).	<a href="https://www.hrratings.com/docs/metodologia/Addenda_Deuda_Quirografia_Municipios%20English%20Final.pdf">https://www.hrratings.com/docs/metodologia/Addenda_Deuda_Quirografia_Municipios%20English%20Final.pdf</a>
4	HR Ratings' Corporate Debt Credit Risk Evaluation ( <i>Long Term and Short Term Local Rating Scales</i> ).	<a href="https://www.hrratings.com/docs/metodologia/Corporate%20Debt%20Credit%20Risk%20Evaluation%20Final.pdf">https://www.hrratings.com/docs/metodologia/Corporate%20Debt%20Credit%20Risk%20Evaluation%20Final.pdf</a>
5	Public Finance Methodology Unsecured Rating for Mexican States ( <i>Long Term and Short Term Local Rating Scales</i> ).	<a href="https://www.hrratings.com/docs/metodologia/Unsecured%20Rating%20for%20Mexican%20States.pdf">https://www.hrratings.com/docs/metodologia/Unsecured%20Rating%20for%20Mexican%20States.pdf</a>
6	U.S. State Government General Obligations Methodology Addendum ( <i>Long Term and Short Term Global Rating Scales</i> ).	<a href="https://www.hrratings.com/docs/metodologia/General%20Obligation%20States%20Methodology%20March%202014_final.pdf">https://www.hrratings.com/docs/metodologia/General%20Obligation%20States%20Methodology%20March%202014_final.pdf</a>
7	Sovereign Debt Methodology ( <i>Long Term and Short Term Global Rating Scales</i> ).	<a href="https://www.hrratings.com/docs/metodologia/Sovereign%20Debt%20Methodology.pdf">https://www.hrratings.com/docs/metodologia/Sovereign%20Debt%20Methodology.pdf</a>
8	U.S. Local Government General Obligations Methodology ( <i>Long Term and Short Term Global Rating Scales</i> ).	<a href="https://www.hrratings.com/docs/metodologia/General%20Obligation%20Methodology%20Nov2013_final.pdf">https://www.hrratings.com/docs/metodologia/General%20Obligation%20Methodology%20Nov2013_final.pdf</a>
9	Methodology for Infrastructure ( <i>Structured Finance Rating Scale</i> ).	<a href="https://www.hrratings.com/docs/metodologia/0Metodologia%20para%20Infraestructura%20(eng)%20limpio1.pdf">https://www.hrratings.com/docs/metodologia/0Metodologia%20para%20Infraestructura%20(eng)%20limpio1.pdf</a>
10	Hybrid Instruments Credit Methodology ( <i>Long Term Local Rating Scales</i> )	<a href="https://www.hrratings.com/docs/metodologia/Hybrid%20Instruments%20Credit%20Methodology.pdf">https://www.hrratings.com/docs/metodologia/Hybrid%20Instruments%20Credit%20Methodology.pdf</a>
11	Addendum - Rating Methodology for Subordinated Debt ( <i>Long Term and Short Term Local Rating Scales</i> ).	<a href="https://www.hrratings.com/docs/metodologia/3.2.2.%20Rating%20Methodology%20for%20Subordinated%20Debt.pdf">https://www.hrratings.com/docs/metodologia/3.2.2.%20Rating%20Methodology%20for%20Subordinated%20Debt.pdf</a>
12	Rating Methodology for Non-Bank Financial Institutions ( <i>Long Term and Short Term Local Rating Scales</i> ).	<a href="https://www.hrratings.com/docs/metodologia/3.2.3.%20Non%20Bank.pdf">https://www.hrratings.com/docs/metodologia/3.2.3.%20Non%20Bank.pdf</a>
13	Addendum - Rating Methodology for Credit Unions ( <i>Long Term and Short Term Local Rating Scales</i> ).	<a href="https://www.hrratings.com/docs/metodologia/3.2.4.%20Rating%20Methodology%20for%20Credit%20Unions.pdf">https://www.hrratings.com/docs/metodologia/3.2.4.%20Rating%20Methodology%20for%20Credit%20Unions.pdf</a>
14	Addendum - Rating Methodology for Leasing Companies ( <i>Long Term and Short Term Local Rating Scales</i> ).	<a href="https://www.hrratings.com/docs/metodologia/3.2.5.%20Leasing%20Agents.pdf">https://www.hrratings.com/docs/metodologia/3.2.5.%20Leasing%20Agents.pdf</a>
15	Rating Methodology for Brokerage Firms ( <i>Long Term and Short Term Local Rating Scales</i> ).	<a href="https://www.hrratings.com/docs/metodologia/3.2.6.%20Brokerage%20Firms.pdf">https://www.hrratings.com/docs/metodologia/3.2.6.%20Brokerage%20Firms.pdf</a>

16	Rating Methodology for Investment Funds ( <i>Credit and Market Rating</i> ).	<a href="https://www.hrratings.com/docs/metodologia/Investment%20Funds%20Methodology%202019.pdf">https://www.hrratings.com/docs/metodologia/Investment%20Funds%20Methodology%202019.pdf</a>
17	Addendum – Rating Methodology for Bonded Warehouses ( <i>Long Term and Short Term Local Rating Scales</i> ).	<a href="https://www.hrratings.com/docs/metodologia/HR290816NP%208.%20Adendum%20AGD3%200(eng).pdf">https://www.hrratings.com/docs/metodologia/HR290816NP%208.%20Adendum%20AGD3%200(eng).pdf</a>
18	Partial Guarantees for Structured and Unsecured Debt Issues .	<a href="https://www.hrratings.com/docs/metodologia/Partial%20Guarantees%20Methodology.pdf">https://www.hrratings.com/docs/metodologia/Partial%20Guarantees%20Methodology.pdf</a>
19	Water Operating Agencies: Debt Evaluation Methodology for Mexican Entities (Long Term and Short Term Local Rating Scales).	<a href="https://www.hrratings.com/docs/metodologia/Mexican%20Water%20Operating%20Agencies%20Methodology.pdf">https://www.hrratings.com/docs/metodologia/Mexican%20Water%20Operating%20Agencies%20Methodology.pdf</a>
20	Special-Tax Bonds Methodology (Long Term and Short Term Global Rating Scales).	<a href="https://www.hrratings.com/docs/metodologia/Special-Tax%20Bonds%20Methodology%20(MP).pdf">https://www.hrratings.com/docs/metodologia/Special-Tax%20Bonds%20Methodology%20(MP).pdf</a>
21	Debt backed by Federal Transfers to the Municipalities Addendum (Structured Finance Rating Scale).	<a href="https://www.hrratings.com/docs/metodologia/Federal%20Transfers%20Backed%20Debt%20Addendum%20(Municipalities).pdf">https://www.hrratings.com/docs/metodologia/Federal%20Transfers%20Backed%20Debt%20Addendum%20(Municipalities).pdf</a>
22	Debt backed by Federal Transfers to the States (Structured Finance Rating Scale)	<a href="https://www.hrratings.com/docs/metodologia/Federal%20Transfers%20Backed%20Debt%20Methodology%20(States).pdf">https://www.hrratings.com/docs/metodologia/Federal%20Transfers%20Backed%20Debt%20Methodology%20(States).pdf</a>
23	Revenue Sharing Obligations for Mexican States and Municipalities: Debt Backed by Sub-National Entities Own Revenues (Structured Finance Rating Scale).	<a href="https://www.hrratings.com/docs/metodologia/Own-Revenues%20Backed%20Debt%20Addendum%20(States%20and%20Municipalities).pdf">https://www.hrratings.com/docs/metodologia/Own-Revenues%20Backed%20Debt%20Addendum%20(States%20and%20Municipalities).pdf</a>

## Update versions of previously sent methodologies.

24	Methodology for Rating Banks ( <i>Long Term and Short Term Local Rating Scales</i> ).	<a href="https://www.hrratings.com/docs/metodologia/03.2.1.%20Banks.pdf">https://www.hrratings.com/docs/metodologia/03.2.1.%20Banks.pdf</a>
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## MODELS

### Current versions of qualitative and quantitative Models

#### a) Non-Bank Financial Institutions (IFNBs) / Bonded Warehouses

- *Version: Jul.20*
- *File Names: IFNB\_(Entidad\_Año).Jul.20*
- *Approved (Model): July 15, 2020.*
- *Methodology: Rating Methodology for Non-Bank Financial Institutions, May 2009. Rating Methodology for Bonded Warehouses, March 2010.*
- *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

#### b) Credit Unions

- *Version: Jul.20*
- *File Names: Uniones de Crédito (Entidad\_Año).Jul.20*
- *Approved (Model): July 15, 2020.*
- *Methodology: 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 with a qualitative analysis of the industry risk, the management, operational and regulatory aspects. In the quantitative analysis the model considers de historical information of the balance sheet, the income statement, and the cash flow to produce its projections.

#### c) Brokerage Firms Model

- *Version: Jul.20*
- *File Name: Casa de Bolsa (Entidad\_Año).Jul.20*
- *Approved (Model): July 15, 2020.*
- *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: Jul.20*



- *File Name: Calculadora de Fondos de Inversión (Fondo\_Año).Jul.20*
- *Approved (Model): July 15, 2020.*
- *Methodology: Rating Methodology for Investment Funds, May 2019.*
- *Approved (Methodology): February 2019.*
- *Developed by: HR*

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

## e) Pure Leasing Companies Model

- *Version: Jul.20*
- *File Name: Arrendadoras Puras (Entidad\_Año).Jul.20*
- *Approved (Model): July 15, 2020.*
- *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: Jul.20*
- *File Name: Sovereign Debt (Country\_Year).Jul.20*
- *Approved (Model): July 15, 2020.*
- *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

### 1. States

- *Version: Jul.20*
- *File Name: Estados (Entidad\_Año).Jul.20*
- *Approved (Model): July 15, 2020.*
- *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.

## 2. Municipalities

- *Version:* Jul.20
- *File Name:* *Municipios (Entidad\_Año).Jul.20*
- *Approved (Model):* July 15, 2020.
- *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 U.S. General Obligations Ratings

### 1. Local Governments

- *Version:* Nov.13
- *File Name:* *GOLocal\_Blank (Entidad\_Año).Nov13*
- *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.

### 2. States

- *Version:* Mar.13
- *File Name:* *GOStates\_Blank (Entidad\_Año).Mar.14*
- *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.

## i) Models used for Corporate Debt Ratings

- *Version: Jul.20*
- *File Name: Corporativos (Entidad\_Año).Jul.20*
- *Approved (Model): July 15, 2020.*
- *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.

## j) Models used for Charter Schools ratings

- *Version: Feb.15*
- *File Name: CharterSchool (Entidad\_Año).Feb.15*
- *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.

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

- *Version: Jul.20*
- *File Name: Concesion\_Peaje (Proyecto\_Año).Jul.20*
- *Approved (Model): July 15. 2020.*
- *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.

## l) Models used for Water Operating Agencies for Mexican entities

- Version: *Jul.20*
- File Name: *OOA (Entidad\_Año).Jul.20*
- Approved (Model): *July 15, 2020*
- Methodology: Water Operating Agencies: Debt Evaluation Methodology for Mexican Entities July 2019
- Approved (Methodology): July 2019
- Developed by: HR

**Description:** This model has two principal aspects: The operating metrics of the WOA, that measure efficiency in terms of charging customers and delivering water to residences, industrial complex, or local business. The second aspect measures the financial performance of the WOA based on coverage metrics, the years that would take the free cash flow to cover the debt net and the weight of non-debt liabilities.

## m) Models used for Ratings of Partial Guarantees

### 1. Infrastructure

- Version: *Jul.20*
- File Name: *Garantías Parciales\_Infraestructura (Entidad\_Año).Jul.20*
- Approved (Model): *July 15, 2020.*
- Methodology: Partial Guarantees for Structured and Unsecured Debt Issues: Debt Methodology.
- Approved (Methodology): March 2019.
- Developed by: HR

### 2. Unsecured

- Version: *Jul.20*
- File Name: *Garantías Parciales\_Quirografarias (Entidad\_Año).Jul.20*
- Approved (Model): March 2019.
- Methodology: Partial Guarantees for Structured and Unsecured Debt Issues: Debt Methodology.
- Approved (Methodology): March 2019.
- Developed by: HR

**Description:** For infrastructure, the partial guarantees model measures the average number of debt services that could be paid by using the guarantee, providing strength in terms of liquidity. Depending on the estimated average, certain number of notches will be awarded to the rating. For unsecured ratings, the model measures the percentage of the outstanding debt covered by the guarantee; however, the model controls for the Credit Rating of the entity providing the guarantee. According to certain values of coverage, notches will be awarded to the rating.

## n) Model used for Rating Special-Tax Bonds of U.S.A. Local Entities

- Version: *Jul.20*
- File Name: *Special-Taxes Model (Entity\_Bond).Jul.20*
- Approved (Model): *July 15, 2020*
- Methodology: Special-Tax Bonds Methodology.
- Approved Methodology: April 2020.
- Developed by: HR Ratings

**Description:** The model rates Special-Tax Bonds of U.S.A. Local entities with four set of key factors. The first one consists in an economic analysis of the elasticities of the taxed goods & services, and the concentration and strength of the tax base. The second set studies the historical performance of the trend and volatility of the pledge. The third set measures two coverage metrics and the fourth the Additional Bond Test and the Debt Service Reserve Fund requirements. Lastly, the model allows qualitative adjustments based on very specific factors and limited by concepts.

## **o) Models used for Mexican Structured Credit ratings.**

### **1. States and municipalities (Federal Income)**

- Version: *Jul.20*
- File Name: *Deuda Estructurada (Entidad\_Banco\_Clave).Jul.20*
- Approved (Model): July 23, 2020.
- Methodologies: Structured Debt of Mexican States: Federal-Transfers Backed Debt Methodology (September 2020); Structured Debt of Mexican Municipalities: Addendum to the Federal-Transfers Backed Debt Methodology (September 2020).
- Approved (Methodology): August 5, 2020.
- 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.

### **2. Municipalities (Own income, FEFOM)**

- Version: *Jul.20*
- File Name: *DE Programa Especial FEFOM (Entidad\_Banco\_Clave).Jul.20*
- Approved (Model): July 23, 2020.
- Methodology: Structured Debt of Subnational Entities and OPDs: Addendum to the Own-Revenue Backed Debt Methodology (September 2020)
- Approved (Methodology): August 5, 2020.
- 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.

## **Updated Methodologies**

## **p) Banks / SOFIPOS / SOCAPS Model**

- Version: *Nov.20*
- File Name: *Bancos (Entidad\_Año).Nov.20*
- Approved (Model): *November 24, 2020.*

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- *Methodology: Methodology for Rating Banks, February 2021.*
  - *Approved (Methodology): December 8, 2020.*
  - *Developed by: HR*

**Description:** The model identifies two areas of risk, the first one through the Financial Model that provides a quantitative analysis of the main metrics of efficiency, profitability, solvency, and liquidity. The second area is regarding a qualitative analysis of Environmental, Social and Governance (ESG) factors.