Credit Rating Agency

A NRSRO Rating*

Investment Funds Rating Methodology

Credit and Market Risk Ratings

August 2023

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Methodology for assigning Credit and Market Risk Ratings to Investment Funds

This methodology establishes the procedure and the main factors to be considered by HR Ratings to assign Credit and Market Risk Ratings to investment funds. The methodology incorporates a process that evaluates the factors that affect the Credit and Market Risk Ratings separately and includes an assessment of six additional factors which could impact either rating depending on the way they manifest on the investment funds.

In the evaluation process to determine the Credit Risk Rating, HR Ratings uses a matrix that assigns a risk factor to each instrument that forms part of the Investment Fund's portfolio considering its credit rating and its remaining term. This quantitative analysis weighs the risk factor according to the value of the instrument. The Credit Risk Rating of the Investment Fund will depend on the result of the weighted average of the credit ratings within the portfolio, as well as aspects such as whether the instruments are issued by government entities or if they are backed by a third-party.

For the Market Risk Rating, the quantitative analysis considers the duration of each instrument within the portfolio and weights it according to the value represented by each instrument in the portfolio. The Market Risk Rating will be assigned in one of two scales, which are associated with the term prospectus defined for each Investment Fund. The ST scale corresponds to the funds referred to as short- or medium-term funds, while LT corresponds to the funds referred to as long term funds. For funds without a defined investment horizon or discretionary funds, without an established investment horizon, HR Ratings will apply the ST scale.

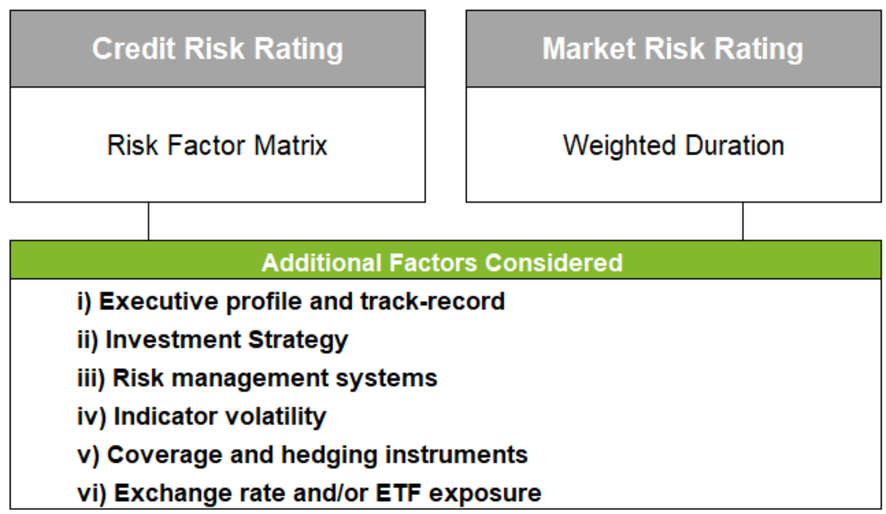
Once the quantitative credit and market evaluation is obtained, HR Ratings considers six additional factors which could lead to a direct qualitative adjustment, up to three notches in either direction, depending on the way they manifest themselves on the fund, on the fund’s final ratings. The factors considered in this section are: (i) executive profile and track-record, (ii) Investment strategy (iii), risk management systems, (iv) indicator volatility, (v) coverage and hedging instruments, (vi) exchange rate and/or ETF exposure.

Lastly, the methodology also incorporates the procedure for changes in the credit rating of an instrument of the fund, where HR Ratings will allow a grace period of up to three months in which the administrator may replace the instrument or carry out a strategy to rebalance the portfolio. The stated grace period may be extended in cases where the portfolio manager clearly defines a strategy where the effective recovery of the portfolio will occur after the standard three months.

1. Introduction

The HR Ratings Investment Funds Methodology establishes the procedure and the main factors to be considered by HR Ratings to assign credit and market risk ratings to investment funds. The quantitative analysis determines the credit and market risk ratings for the fund. Additionally, HR Ratings may use a qualitative adjustment of up to three notches for cases where some of the additional factors, described in this methodology, are identified. Figure 1 shows the structure for the rating process:

Figure 1: HR Ratings' Rating Process



Source: HR Ratings

2. Credit Risk Rating Quantitative Analysis

This process uses a credit risk matrix to assign a risk factor to every debt instrument in the portfolio based on its credit rating and remaining term. These factors will be weighted considering the percentage that each instrument represents in the portfolio's total value to obtain a score. The last step is to assign a rating with that score. The matrix shown in figure 2, shows the risk factor assigned to debt instruments based on their credit rating and remaining maturity. The risk factor increases for instruments with lower credit ratings and higher remaining maturity. For the lower levels of credit rating, the matrix maintains a constant risk factor regardless of the instruments' remaining maturity since ratings in these ranges usually show an elevated risk in the short-term.

HR Ratings LLC. (HR Ratings), is a HR Ratings de México, S.A. de C.V. subsidiary, a Credit Rating Agency registered by the Securities and Exchange Commission (SEC) of the United States as an NRSRO for this type of rating. HR Ratings' recognition as an NRSRO is limited to the ones described in section 3 (a) (62) (A) and (B) subsection (i), (iii) and (v) of the US Securities Exchange Act of 1934.

Figure 2: Risk factor matrix

Ratings	[0,1) year	[1,2) years	[2,3) years	[3,∞) years
Government	0	0	0	0
HR AAA	1	2	5	10
HR AA+	5	10	15	25
HR AA	5	20	35	50
HR AA-	5	40	65	85
HR A+	15	70	105	130
HR A	15	110	155	185
HR A-	15	160	215	250
HR BBB+	75	220	285	325
HR BBB	75	290	365	410
HR BBB-	75	370	455	505
HR BB+	550	623	712	888
HR BB	921	1,044	1,193	1,487
HR BB-	1,542	1,748	1,998	2,490
HR B+	2,583	2,927	3,345	4,170
HR B	4,325	4,901	5,601	6,983
HR B-	7,242	8,207	9,380	11,693
HR C+	13,440	13,440	13,440	13,440
HR C	15,449	15,449	15,449	15,449
HR C-	17,757	17,757	17,757	17,757
HR D	20,411	20,411	20,411	20,411

Source: HR Ratings

This matrix shows that an instrument with an HR AA- rating, with a remaining term of one to two years, will be assigned a 40 points factor. While the risk associated with instruments with an HR BB- rating and a maturity term between two and three years corresponds to a 1,998 points factor. The matrix also considers a risk factor for government instruments and for instruments that have received an explicit or implicit guarantee from the federal government.[1] These instruments, as it may be seen, will receive a risk 0 points risk factor.

HR Ratings applies an adjustment to the quantitative process for funds with defaulted debt instruments in their portfolios. Whenever the defaulted debt instruments represent less than 10% of the portfolio's total value, and the remaining assets generate enough return to comply with the portfolio's required minimum or stated goals, then HR Ratings will analyze the portfolio without considering the defaulted instruments. This approach allows HR Ratings to focus its analysis on the strength generated by the portfolio's remaining debt instruments. Whenever the percentage of defaulted instruments crosses the 10% threshold the losses in terms of revenues cannot be compensated in the short or medium term. For these cases, HR Ratings includes the impact of the defaulted instruments onto the

[1] For the Mexican case, the governmental instruments refer to several Federal Government instruments, such as BONDES, UDIBONOS and UMS, among others. The treatment of these instrument is based on their strength on local markets due to their high liquidity.

portfolio's credit risk rating. The analysis report will mention the portfolio's percentage of defaulted instruments, their evolution and the analytical approach used for the portfolio's rating.

The score determined, after calculating the weighted average of the risk factors of the instruments of the portfolio, will correspond to a score according to what is established in Figure 3, which is shown below:

Figure 3: Scores and Ratings

Score	Rating	Score	Rating
0.0	HR AAA	696.5	HR BB+
17.5	HR AA+	1,187.5	HR BB
37.5	HR AA	1,988.5	HR BB-
67.5	HR AA-	3,330.0	HR B+
107.5	HR A+	5,576.5	HR B
157.5	HR A	9,338.0	HR B-
217.5	HR A-	12,566.5	HR C+
287.5	HR BBB+	14,444.5	HR C
367.5	HR BBB	16,603.0	HR C-
457.5	HR BBB-	19,084.0	HR D

Source: HR Ratings

This figure shows that if the portfolio obtains a score of less than 17.5 points, it is assigned an initial credit risk rating of HR AAA, or if the score is greater or equal to 367.5 and less than 457.6 points the rating of the fund would correspond to HR BBB.

However, several factors must be considered after performing the quantitative analysis. For example, if HR Ratings has not assigned a rating to any instrument, it may use the rating assigned to the counterpart. However, if HR Ratings has not assigned a rating to the instrument or to the counterpart, it may use the rating assigned by another rating agency, in accordance with the provisions of the section on Influential Ratings in the HR Ratings General Methodological Criteria. If there are multiple ratings in the market, the rating that best represents the market consensus will be used.

The methodology also incorporates the procedure for changes in the credit rating of an instrument of the fund, where HR Ratings will allow a grace period of up to three months in which the administrator may replace the instrument or carry out a strategy to rebalance the portfolio. The stated grace period may be extended in cases where the portfolio manager clearly defines a strategy where the effective recovery of the portfolio will occur after the standard three months.

For cases where it is identified that the Investment Fund has a cash balance in a bank deposit, HR Ratings will apply the corresponding credit rating to the custodian bank.

Regarding derivatives, HR Ratings analyzes the credit quality of the underlying assets to which the instrument is attached. The credit rating of the underlying assets will be considered for the rating process of the portfolio.

3. Quantitative Analysis of the Investment Fund's Market Rating

HR Ratings analysis of the specific market risk measures the sensitivity of the assets of the Investment Fund with respect to its term and to possible changes in the market interest rate. In contrast with the Credit Risk Rating, the Market Risk Rating is measured by a range of 1 to 7, and the nomenclature "ST" is incorporated in case the Investment Fund is referred to as Short- or Medium-Term Fund and "LT" if the Investment Fund is referred to as Long Term Fund. If the Investment Fund Prospectus does not specify the investment horizon for the investors, or if it is a discretionary fund without a stated investment horizon, HR Ratings will use the ST scale in its analysis.

HR Ratings measures the sensitivity of the portfolio by using the Macaulay duration, or simply called duration. This type of duration assumes that the value of the bond will be covered by the periodic flows paid, and the rate at which all of these flows are discounted (including the nominal value) is the yield to maturity of the instrument (Yield to Maturity or YTM).

Duration has the advantage of reflecting the sensitivity of the price of an asset during its term and regarding the type of market rate to which it is associated. In other words, this type of duration provides a measure of the sensitivity of the price of a security to a variation of the interest rate. The calculation of portfolio's duration is made from the duration of each one of the instruments that comprise such portfolio. Finally, a weighted average duration of a portfolio is calculated. In this sense, the longer the duration of the portfolio, the lower the rating (in terms of risk level).

To obtain the duration, the present value of each flow is calculated in the first place. Then, the contribution of the present value of each payment to the total present value of the instrument (equivalent to its dirty price) is calculated. Finally, these contributions are weighted by time, multiplying each one by the number of days (or fractions of years) remaining for payment. The sum of these is the number of years in which the present value of the bond will be received. In this sense, a bond with a shorter duration may be preferable.

Fixed rate debt instruments have an inverse relationship between their coupon payments and their duration. For example, when comparing two debt instruments with the same remaining maturity and payment frequency, the instrument with the higher coupon rate will have a smaller duration. The sensitivity of a debt instrument's price increases as its duration increases.

In the case of instruments with a variable rate, the duration is shorter because it is calculated with respect to the payment of the following coupon. This is since these instruments are assets that adjust their price based on the change in interest rates, so the ratio between duration and change in asset price before changes in this rate has no validity. Keeping all variables constant, a change in the market interest rate only affects the present value of the next coupon payment; however, the additional flows will adjust their present value before the change of rates.

Finally, the ranges to establish the Market Risk Rating from the weighted average duration of a portfolio can be seen below, in Figure 4. The range changes depending on the duration level and the investment horizon.

Figure 4: Market Risk

Period		Long Term	Short Term
Days	Years		
28	n/a	n/a	1CP
91	n/a	n/a	1CP
182	n/a	n/a	2CP
365	1	1LP	3CP
913	2.5	2LP	4CP
1,278	3.5	3LP	5CP
1,643	4.5	4LP	6CP
2,008	5.5	5LP	7CP
3,833	10.5	6LP	7CP
Over 10.5 years		7LP	7CP

Source: HR Ratings

Figures 4 shows that for a short-term fund with a weighted duration less than or equal to 91 days the resulting rating would be 1CP, for a fund with a weighted duration greater than 1643 days the rating would be 7CP. For long-term funds, a weighted duration lesser than or equal to one year will result in a 1LP rating, while more than ten and a half years will result in a 7LP rating.

Another adjustment made to the calculation process of the weighted duration refers to the repurchase agreements or any other instrument with a one-day maturity. HR Ratings will consider that the duration for this type of assets and / or financial instruments is equal to one day. Although this is not restrictive to instruments with a one-day maturity, because if there is a repurchase agreement with a longer maturity in the portfolio, the calculation can be adjusted.

4. Additional Factors Considered

This section defines six risk factors that could have an effect over the credit and/or market risk quality of an investment fund depending on the way they manifest for each portfolio.HR Ratings will analyze their presence and potential impact considering the context of the funds being analyzed. The evaluation of these factors uses information given by the entity that establishes the portfolio or, when available, relevant public information. The results from this evaluation may lead to a qualitative adjustment of up to three notches to the fund's credit and/or market risk rating.

4.1. Team's profile and track-record

The profile and track-record of the team in charge of defining and implementing a portfolio's investment strategies can be used as an indicator of the expected stability and compliance with the portfolio's goals and requirements. The applicable general guidelines must clearly define the responsibilities for everyone involved in the portfolio's operation.

4.2. Investment Strategy

HR Ratings will evaluate the portfolio's investment strategy and the flexibility it may give to face everchanging market conditions with effective short-term strategies. The strategy must clearly define its goals and establish parameters that allow for an efficient implementation and periodical revision.

4.3. Risk Management

An effective risk management strategy reduces operating risks, conflicts of interest, risk from information mismanagement amongst others. HR Ratings may evaluate the established information management systems, the technology used in operation, the size and profile of the risk management team and the back office teams, and any other relevant considerations for effective risk management.

HR Ratings evaluates the establishment and track-record of any risk management mechanisms applicable to the portfolio. This evaluation will consider any audits or other reports generated by an independent third-party.

4.4. Indicator Volatility

Investment funds use a wide range of indicators to inform their stakeholders about the portfolio's financial health and goal compliance. Constant volatility, above a preestablished level, for any of these indicators may lead to short-term losses and loss of confidence from investors. Volatility may also lead to an increase in administrative costs from a constant need to rebalance the portfolio.

4.5. Coverage and hedging instruments

Portfolios with instruments meant to hedge against possible risks or contingencies may be considered as having a lower risk profile. For cases in which the coverage instruments cover the value of certain portfolio assets, HR Ratings may assign the credit rating of the entity that backs the coverage instruments to the percentage of covered assets in the portfolio.

4.6. Exchange rate and/or ETF exposure

Portfolios may be subject to exchange rate risk whenever they include assets denominated in foreign currency or are strongly related to it. Similarly, portfolios may include Exchange-Traded Funds (ETF) instruments which could have greater volatility when compared to traditional debt instruments. When a significant portion of the portfolio is exposed to these risks, HR Ratings may use a qualitative adjustment that reflects the proper risk level.

5. Current Rating Evaluation, Monitoring, Surveillance and Withdrawal

Once the Investment Fund's Ratings have been issued, HR Ratings will carry out a monthly review of the possible changes in its conditions. The rating control, surveillance, and withdrawal measures to which the funds will be exposed are the following:

a) HR Ratings will review information relevant to the assets of the investment portfolio. HR Ratings will be based on information obtained by the Investment Fund operator and by the available public sources.

b) HR Ratings will request at least monthly reports from the Investment Fund specifying the last scheme of the portfolio. In addition, an annual review will be carried out detailing the source of the fund's resources and to verify that the instruments included in the fund correspond to the assets subject-matter of investment established by the fund.

c) HR Ratings will evaluate, at least monthly, that the risk score of the assets included in the portfolio is maintained within the rating bands established for the rating assigned to the Investment Fund.

d) If the fund obtains a risk score that is not within the bands of its rating, the administrator will have a maximum term of three months to rebalance the assets of their portfolio and thus return their risk score to the pertinent rating bands. Otherwise, the commissioned analyst will perform an evaluation to establish if the rating can go up or down, depending on the case of the specific Investment Fund.

For those Investments Funds that are yet to start operating, HR Ratings will do its evaluation basing its analysis upon the prospectus and the assets available to the Fund. HR Ratings will continue to monitor the Fund as it acquires its instruments to asses if they comply with the prospectus and the expected portfolio. By the end of the third month, and if HR Ratings identifies that the Investment Fund has deviated from what was stipulated in search for a new strategy, it will adjust its rating to reflect the corresponding credit and market rating.

Annex. Rating Scales for Investment Funds

Credit Rating Scales	
Rating Scales	**Definition**
HR AAA	The Investment Fund with this rating is considered to have the **highest credit quality**, and has a credit risk similar to an instrument with the **minimum credit risk**.
HR AA	The Investment Fund with this rating is considered to have **high credit quality**, and has a credit risk similar to an instrument with a **very low credit risk**.
HR A	The Investment Fund with this rating is considered to have an **adequate credit quality**, and has a credit risk similar to an instrument with a **low credit risk**.
HR BBB	The Investment Fund with this rating is considered to have **a moderate credit quality**, and has a credit risk similar to an instrument with a **moderate credit risk**.
HR BB	The Investment Fund with this rating is considered to have an **inadequate credit quality**, and has a credit risk similar to an instrument with a **high credit risk**.
HR B	The Investment Fund with this rating is considered to have a **low credit quality**, and has a credit risk similar to an instrument with a **very high credit risk**.
HR C	The Investment Fund with this rating is considered to have a **very low credit quality**, and has a credit risk similar to an instrument with an **extremely credit risk**.
HR D	The Investment Fund with this rating is considered to have the **lowest credit quality**, and has a credit risk similar to an instrument in **default**.

Source: HR Ratings.

Short-Term Market Risk Scale	
Rating Scales	**Definition**
1CP	The asset portfolio has extremely low sensitivity to changes in market conditions.
2CP	The asset portfolio has low sensitivity to changes in market conditions.
3CP	The asset portfolio has low to moderate sensitivity to changes in market conditions.
4CP	The asset portfolio is moderately sensitive to changes in market conditions.
5CP	The asset portfolio has moderate to high sensitivity to changes in market conditions.
6CP	The asset portfolio is highly sensitive to changes in market conditions.
7CP	The asset portfolio is extremely sensitive to changes in market conditions.

Long-Term Market Risk Scale	
Rating Scales	**Definition**
1LP	The asset portfolio has extremely low sensitivity to changes in market conditions.
2LP	The asset portfolio has low sensitivity to changes in market conditions.
3LP	The asset portfolio has low to moderate sensitivity to changes in market conditions.
4LP	The asset portfolio is moderately sensitive to changes in market conditions.
5LP	The asset portfolio has moderate to high sensitivity to changes in market conditions.
6LP	The asset portfolio is highly sensitive to changes in market conditions.
7LP	The asset portfolio is extremely sensitive to changes in market conditions.

Source: HR Ratings.

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