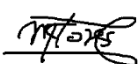




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## Investment Fund Risk Rating Methodology

Concept	First and Last Name – Position	Signature	Date of signature
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### 1. Objective

To describe the methods and criteria used by PCR to rate the risk of investment funds.

### 2. Scope

Investment funds are non-bank financial institutions that can be classified, among other factors, according to the nature of their investments and their participation mechanisms. Based on the nature of the permitted participation, investment funds can be classified as open-end or closed-end. Based on the nature of the investments, investment funds can have as many different names as there are types of assets in which they invest. Thus, one can find equity or variable-income investment funds, fixed-income investment funds, money market investment funds, real estate investment funds, real estate development investment funds, mixed investment funds, financial or real index investment funds, investment funds in developing companies, and direct investment funds, among others.

This document sets forth evaluation criteria that will enable PCR to assess and issue an opinion regarding the level of risk associated with various types of funds, including the evaluation of units in securitization transactions. The assessment approach is designed to provide an opinion regarding an investment fund's vulnerability to losses in the value of its obligations (i.e., participation units) based on the analysis underlying this methodology. Investment fund debt issuances will be assessed using securitization risk rating methodologies.

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### 3. Definitions

#### Issuer

The company that issues securities. *E.g.: issuer Security*

It is a document evidencing ownership of a claim against a company (stock, bond) or against a debtor (government debt, Treasury bills, check). It may be a registered security or a bearer security. *E.g.: instrument, security, issue, money market instrument* (short-term security)

#### Non-bank financial institution

It is a financial institution that does not hold a full banking license and cannot accept deposits from the public. However, these nonbank financial institutions provide alternative financial services, such as investments (collective and individual), *risk pooling*, financial consulting, brokerage, money transfers, and cash management. They provide services not necessarily offered by banks, serve as competition to banks, and specialize in specific sectors or economic groups. *E.g.: nonbanking financial institution*

#### Investment fund (includes mutual funds)

Institutions whose assets consist of a portfolio of financial assets (without the aim of acquiring a majority stake or taking control of the corresponding issuers), which is held by a number of investors and under the custody of a custodian; and which is managed and administered by a management entity, with the aim of achieving the highest returns for its participants, in accordance with appropriate risk diversification. The different forms it can take stem from its specialization in the financial assets comprising its assets. *E.g.: mutual fund or investment funds*

#### Share

The ownership interest held by an individual or legal entity in a company's capital, either directly or through another company in which it already holds an interest. // The minimum unit of an investment fund that can be sold to investors. *E.g.: capital share*

#### Stock market

A type of capital market operating worldwide where equities and fixed-income securities are traded in a structured manner through the buying and selling of negotiable securities. It facilitates the channeling of short-, medium-, and long-term capital from investors to users. *E.g.: securities and exchange market* **Over-the-counter (OTC) market or private trading**

*Over-the-counter* (OTC) market, unorganized parallel market, or customized contract market where financial instruments are traded directly between two parties. This type of trading takes place outside the scope of organized markets. *E.g.: over the counter*

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### **Public offering of securities (POS)**

This is the offering to the public of securities that have already been issued and are held in the portfolio of an investor or company. To carry it out, the same requirements as for a securities issuance must be met. *E.g.: public offering of securities*

### **Private placement**

A method used for the placement of custom-issued promissory notes or bonds, whether under a program or not. The issuer, either directly or through a financial intermediary, enters into an agreement with an investor for the sale of the security. *E.g.: private placement*

### **Credit risk / fundamental risk**

This is the probability that the interest and principal, or both, of a loan will not be repaid. There are two approaches to analyzing this type of risk: performance analysis and liquidation analysis. *E.g.: credit risk*

### **Foreign exchange risk**

This refers to the potential for losses in the value of assets, liabilities, or commitments—which are reflected in off-balance-sheet accounts—as a result of fluctuations in the exchange rates of the currencies in which they are denominated. *E.g.: exchange risk*

### **Liquidity risk**

This refers to the possibility of incurring losses due to a lack of sufficient liquid resources to meet one's financial obligations. In the case of banks, this risk is less significant today than in the past, due both to the development and integration of money markets and to the support provided by central banks as lenders of last resort. *E.g.: liquidity risk*

### **Market risk**

Arises when interest or exchange rates move in the opposite direction to what was anticipated at the time a financial swap contract was established. *E.g.: market risk*

### **Fiduciary**

A person who receives something from another, whom they trust to use it in accordance with the trust agreement. *E.g.: trustee*

### **Money market**

The financial market in which the object of trading is money. This term includes interventions by the Central Bank and the interbank market. *E.g.: money market*

### **Diversification**

The process by which companies expand their activities beyond the products and markets in which they normally operated. This leads to changes in sectoral structures, with significant implications for competitiveness and other factors. *E.g.: diversification*

### **Duration**

It is calculated as the weighted measure of the time periods during which a security generates some form of cash flow, with the weighting being the present value of each cash flow divided by the security's price. Mathematically, it is the derivative of the security's price with respect to the interest rate, and it varies with time and the level of the interest rate. Its importance lies in the fact that, when multiplied by small changes in interest rates, it gives us the change in the security's price. It is not useful for significant interest rate changes, due to the so-called convexity of fixed-income security prices. Because of the complexity of its calculation, an approximation called effective duration is often used. It is also known as "Macaulay duration," in honor of Frederick Macaulay, who formulated it in 1938. *E.g.: duration*

### **Modified duration**

A change in the calculation of duration, involving dividing it by a factor equal to one plus the yield to maturity, divided by the number of annual coupon payments. *E.g.: modified duration*

### **Convexity**

This is the change in a bond's price, beyond what modified duration predicts, when interest rates vary. Mathematically, it is the second derivative of the bond's price with respect to yield. It is greater for long maturities, when the linearity of the modified duration formula produces more errors. Due to the complexity of its calculation, an approximation called effective convexity is often used. *E.g.: convexity*

## **4. Basic Conditions**

Investment funds, through fund management companies (SAFI) as a vehicle, manage the resources of individual investors, distributing those resources across a potentially wide range of securities, commodities, or other assets. Each investor has a claim on the principal and the fund's return in an amount proportional to the resources invested in it.

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Closed-end investment funds are those in which, following an initial public offering, the shares are not redeemable and can be acquired by individual investors only by purchasing such shares from existing fund participants. Thus, the number of shares is expected to remain unchanged from the amount initially issued.

In contrast, open-end investment funds are those in which units can be purchased by individual investors without requiring that they be sold by existing fund participants. It should be noted that if any participant wishes to liquidate their units, they may sell them to the fund itself; that is, they are redeemable.

There are three pillars of investment fund risk rating (open-end or closed-end):

- Fundamental risk analysis
- Market Risk Analysis
- Fiduciary Risk Analysis

Fundamental risk analysis serves as the anchor for the comprehensive rating of investment shares; meanwhile, market and fiduciary risks can improve or worsen the comprehensive rating depending on the level of risk they pose and the investment fund's profile.

The following sections detail the rationale behind the assessment associated with each pillar, as well as the key indicators that must be developed and analyzed by the team of analysts and the rating committee in order to determine a reliable risk assessment regarding the fund's vulnerability. In addition to the analysis of the three pillars of the rating, the evaluation must consider the fund's growth rate, its short- and long-term objectives, and its investment horizon, in order to interpret the results of the analysis within the appropriate context.

## 5. 's Specific Conditions and Methodology

### a. **Fundamental Risk Analysis**

Based on the identification of the units of analysis and the estimation of individual fundamental risk, the weighted average fundamental risk (WAFR) will be estimated for fixed income, equities, and other portfolio assets, as applicable.

The analysis involves assessing the intrinsic risk factors present in the fund's equity, fixed-income, and other investments, with the aim of estimating the level of consolidated fundamental risk assumed by the portfolio. It is important to note that the fundamental risk analysis is based on the evaluation criteria developed for various types of investments as set forth in PCR's risk rating methodologies. However, this analysis follows the logic and sequence outlined in this section; that is, it begins by identifying the unit of analysis, then the individual risk of the investments will be estimated, and finally, the weighted average fundamental risk (WAFR) will be calculated for both equity (EQ) and fixed-income (FI) investments, as well as for investments in various assets, such as mortgage-backed securities, securitized securities, credit lines, project financing, among others.

It should be noted that investment institutions link their own risk level, directly or indirectly, to that of the institutions in which they commit resources. This risk linkage occurs when funds are allocated through debt or equity and may vary in degree depending on the hedging mechanisms, collateralization, or guarantees in place within the various financing structures.

With regard to the risk associated with fixed-income investments, the objective of the PCR analysis at this stage is to assess the consolidated probability of default on the credit obligations in which the fund has invested.

Meanwhile, regarding the risk associated with equity investments, the objective of the PCR assessment at this stage is to form an opinion regarding the consolidated future variability of the expected return on investments, based on the economic and financial fundamentals of the evaluated companies, as well as on the risk factors that particularly affect them (for example, for mining stocks, the opinion at this stage will incorporate the vulnerability of share prices to fluctuations in metal prices, as this affects them in a particular way).

In the case of new issues of participation shares, the assessment is conducted through the investment policy based on scenarios and the detailed risk profile of the instruments in which the fund will invest.

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Finally, regarding the risk associated with other assets or property, the objective of the PCR analysis at this stage is to assess the consolidated probability of default on the obligations, credit instruments, and assets in which the fund has invested.

It is essential to begin the fundamental risk assessment procedure by properly identifying the unit of analysis to which the techniques for estimating credit or equity risk will be applied.

### **1) Identifying the unit of analysis**

The degree of difficulty associated with identifying the subject of analysis varies depending on the nature of the fund's investments. In investments in stocks and bonds of companies with a public offering of securities, identifying the companies subject to risk analysis is relatively straightforward. In such cases, it is relatively clear that the risk of loss in the fund's value—and thus the PCR risk assessment—is associated with the risk of the companies that issued the stocks or bonds. Thus, the work will focus on estimating the credit or equity risk of these institutions and their combined impact on the portfolio's aggregate risk level. Cash holdings are also considered.

However, when an investment fund does not allocate its resources to the acquisition of debt or equity in companies that have publicly offered securities, identifying the unit of analysis can be relatively more difficult. The technique used to identify the subject of the risk analysis naturally begins by determining the type of asset acquired by the investment fund. That is, specifying whether the investment was made, for example, in mortgage-backed securities, securitized securities, lines of credit, deposits, project financing, or securitized instruments, among other publicly offered or privately placed assets.

Once the assets in which the fund invested have been specified, the next step is to identify which institution bears direct responsibility for the timely payment of principal and returns on those investments. Furthermore, if there are institutional arrangements that transfer ultimate responsibility for such payments to institutions other than the issuer of the securities or the originator of the assets, it must be determined which institution(s) bear(s) such indirect responsibility. The institutions identified as responsible, both directly and indirectly, will constitute the risk analysis units.

### **2) Estimating Individual Fundamental Risk**

Once the units of analysis have been established, the existing risk will be assessed under various scenarios, as well as the risk mitigation strategies applied by the fund managers to control the potential impact on the portfolio's value.

In this regard, PCR's risk ratings (or those of other agencies deemed reliable) serve as direct indicators for measuring the risk associated with investments in the fund's publicly offered securities. For international ratings or those from other markets, sovereign risk must be taken into account to ensure an accurate assessment. In the case of responsible institutions, both direct and indirect, the associated risk is based on their financial strength (solvency). However, PCR may not accept third-party risk ratings.

In cases where a reliable risk rating is not available, a risk estimate may be made using technical guidelines and evaluation criteria developed by the portfolio manager<sup>1</sup>, or, as a last resort, the highest risk factor prior to *default* may be considered. It is also permissible to group these types of instruments as a single category based on the economic sector in which they operate.

It is important to note that estimating the level of risk associated with investments that do not have a reliable credit rating is considerably less accurate than estimates based on existing ratings. In such cases, the primary source of uncertainty stems from the analyst's limited access to reliable, timely, and sufficiently detailed information regarding the company or institution under review.

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In the case of closed-end investment funds, when evaluating investments in other assets and property, the debt and equity structure of the institution responsible for the timely payment of principal and returns on such investments shall be taken into consideration; and where applicable, the unique conditions of the assets or property held by the fund, among other factors, must be included. It is also permissible to group these types of instruments into a single category based on the type of asset or property.

In addition, certain market indicators can be used to assess the risk associated with the securities held in the investment fund's portfolio. In this regard, it would be feasible to use the comparable interest rate faced by a "non-public" company as a reference for risk and compare it with a *benchmark* that has a public credit rating, in order to estimate relative risk. These types of tools should be used with caution and for reference purposes only, as the assumed interest rate (and other observable market indicators) reflect the risk perception of certain fund providers and could be affected by various factors external to credit or equity risk, leading to distortions in the assessment obtained.

Finally, the proper definition of a "comparable benchmark" plays a crucial role, as it enables the estimation of a relative risk level for the investment fund's public offering securities. This involves considering, among other factors, the economic sector of the benchmark companies, their level of economic activity, their relative size, and the source of financing (an interest rate obtained through a stock market or over-the-counter issuance is not comparable to one obtained through a bank loan), among others

### 3) Estimating the overall fundamental risk

Once a risk rating has been obtained for each investment in the fund (public and non-public), the next step is to estimate the aggregate risk level assumed by the fund through its investment portfolio, distinguishing between the consolidated risk of equities, fixed income, and other assets, as applicable.

An appropriate tool for estimating the aggregate risk level of the investment portfolio is the calculation of Weighted Average Fundamental Risk (WAFR) indicators. The calculation method consists of averaging, within each investment category, the different individual risk levels of the equity, fixed-income, and other assets acquired by the fund, weighted by their relative share of the total invested in each type of security.

Below is an example of the calculation of the weighted average risk level for fixed-income investments:

Example of RFPP-RF Calculation
<p>Suppose that an investment in Bond X represents 25% of the total portfolio value and that its credit risk level, derived from a reliable risk rating, is AAA. A simple way to calculate the RFPP-RF is to use a conversion table that transforms rating scales expressed in letters into scales expressed as whole numbers, starting at level 1 for the lowest risk level. In this way, numerical calculations can be performed to calculate the RFPP-RF, and at the same time, the numerical result obtained for the RFPP-RF can be converted into a reference letter.</p> <p>Under this scheme, the marginal contribution of bond X to the portfolio's consolidated credit risk level would amount to <math>0.25 \times 1 = 0.25</math></p> <p>Similarly, the marginal contributions to the portfolio's consolidated credit risk for the other securities acquired by the investment fund must be calculated. The RFPP-RF level will be obtained as the sum of all the marginal contributions calculated for the fund's various investments.</p> <p>The procedure for estimating the RFPP-RV will be carried out in a similar manner.</p>

The estimation of the investment fund's fundamental risk does not end with the calculation of the RFPPs. The assessment must also consider the dynamic nature of the investment fund's operations. In other words, it is not sufficient to evaluate and consolidate the quality of the portfolio as of a specific cutoff date, as there would be a considerable risk of selection bias. In this regard, it is necessary to mitigate potential bias by evaluating the portfolio on various dates throughout the period since the last review.

By evaluating the portfolio on different days, a more representative assessment of the risk associated with the investments will be obtained. The selection of evaluation dates may be discretionary in order to incorporate factors such as known seasonality, trends, structural changes in investment policies, and structural changes in market conditions, among others. However, it is also valid to select evaluation dates randomly, based on the Minimum Sample Size (MSS) required to achieve certain levels of statistical confidence and precision. The objective is to collect a sample that provides the greatest possible representativeness regarding the credit and equity risk associated with the investments.

**Table 1.1 Determination of a Random and Statistically Representative Sample**

<p>The suggested method for estimating the MSM involves a Z-distribution probability distribution for proportions.</p>	<p>If the minimum sample size is determined based on statistical criteria, the random selection must allow for conclusions that can be generalized to the entire period under analysis. Among the various possible statistical sampling methods, it is recommended that the procedure for determining the MSS consider a Z-probability distribution for proportions (developed by Cochran, 1963). This is because, assuming the highest possible volatility in the proportions (0.5), the calculation will yield a fairly conservative MSS. The variables required to calculate the MMR are: (i) the universe of days to be evaluated, which will vary depending on the frequency of the risk rating; (ii) the desired level of statistical confidence; and (iii) the desired level of statistical precision. Usually, variables (ii) and (iii) range between 90%–80% statistical confidence and 5%–15% precision. The applicable formula, if a random selection of the sample to be evaluated is chosen, is:</p>
$n_0 = \frac{Z^2 * p * q}{e^2} \qquad n = \frac{n_0}{1 + \frac{n_0}{N}}$	
<p><b>n:</b> MMM corrected for finite population  <b>z:</b> Z-table value for the desired level of statistical confidence  <b>p and q:</b> Represent the possible volatility in the population (the parameters p = q = 0.5 will be assumed, as this is the maximum possible volatility)  <b>e:</b> Desired precision level (i.e., the maximum tolerable percentage error resulting from sample selection, e.g., ±5%)  <b>N:</b> Universe of days in the period to be evaluated</p>	

On each selected date, the portfolio’s credit and equity risk will be estimated using the RFPPs. Once the RFPPs for each investment type have been obtained for the various dates evaluated, their simple average will be calculated. These values will represent the final level of credit and equity risk, respectively, for the portfolio during the evaluated period.

The level of credit and equity risk will be rated according to a scale of whole numbers, starting at level 1 for the lowest risk level, i.e., AAA.

It should be noted that, in addition to the RFPP analysis, PCR’s evaluation incorporates various concepts of investment concentration, including sectoral concentration of investment destinations, concentration by issuer or company, concentration by type of security, and other possible concentrations that impact the level of credit risk assumed. In this context, portfolio diversification, investment selection, and the establishment of concentration limits are part of the fundamental risk management that PCR takes into account in its analysis. Likewise, correlation indicators between investments are analyzed to assess the effects of diversification. Thus, for example, in the case of open-end investment funds, a concentration indicator of less than 10% of the portfolio will be considered low risk in terms of concentration per participant.

In this regard, the PCR analysis takes into account the investment fund’s credit and equity risk assessment system. It is important to examine the risk indicators the fund uses to determine the eligibility of its investments, including the use of public risk ratings. The assessment must consider the impact of changes in risk ratings on the fund’s investment decisions; the fund must have analysis reports, policies, and risk committees

to be considered low-risk; if none are in place, the fund will be deemed higher risk.

Finally, PCR will supplement the evaluation by analyzing the coefficient of variation of the share price and the standard deviation of the fund's return to measure the volatility of the selected portfolio and the impact of investment decisions. Indicators below the market average are considered low risk.

**b. Market Risk Analysis**

The market risk faced by an investment fund can be broadly classified into three types: interest rate risk, liquidity risk, and foreign exchange risk. Market risk depends on the classification of each type of risk, which can be high, moderate, or low exposure. If at least two of them are classified as high exposure, market risk will receive a maximum rating at Level 2, since the fund may have hedges in place. Similarly, if at least one of them is classified as high exposure, market risk may receive the maximum rating provided it has effective hedges in place.

The analysis focuses on assessing the impact of shifts in market supply and demand on the fund's vulnerability to a decline in value. These shifts give rise to various types of risk for the investment fund, which can be broadly classified into three categories:

- Interest Rate Risk
- Liquidity Risk
- Currency Risk

**1) Estimating Interest Rate Risk**

The analysis focuses on estimating the vulnerability of the portfolio's value to losses caused by volatility in market interest rates. The direct relationship between the interest rate and the opportunity cost of the fund's investments means that changes in the interest rate can result in potential losses in the portfolio's value.

First and foremost, it is important to assess the *maturity* indicators of the fund's investments; however, these estimates may be distorted by partial amortizations or prepayments of the investment. For this reason, PCR considers duration—whether Macaulay duration, modified duration, or convexity—to be the most representative indicator of interest rate risk. The calculation and analysis of at least duration (modified or Macaulay) will allow the rating committee to estimate the fund's exposure to potential interest rate volatility.

The "effective" duration of an investment can be represented by the weighted average of its cash flows.

Macaulay duration is based on the concept that the "effective" duration of an investment can be represented by the average of all the cash flows it generates, weighted by their relative importance to the total value of the investment. In other words, the weighting factor is the present value of each cash flow received divided by the total value of the fund. Table 2.1 shows the formal representation of Macaulay duration.

Using the duration indicator as a tool for measuring interest rate risk has two key advantages. First, it is a good measure of an investment's effective duration, as it incorporates the impact of partial payments into its calculation. Second, the indicator reflects the investment's sensitivity to changes in interest rates, which is essential information for the fund's risk management.

**Table 2.1 Macaulay Duration Formula**

$\text{Valor presentedel flujo ponderado (VPFP)} = \sum \frac{\frac{FC_t}{(1+i)^t}}{\text{Valorde Inversión}}$
$\text{de Macaulay (D)} = t * \text{VPFP}$

In practice, the Macaulay indicator is used through an adjusted measure, commonly known as modified duration. This indicator is obtained by dividing the Macaulay duration by the

yield to maturity. Table 2.2 presents the derivation of modified duration.

**Table 2.2 Modified duration formula**

It is known that:	$\frac{\Delta P}{P} = -D * \frac{\Delta(1+i)}{(1+i)}$
Where: P: The price of a security D: The Macaulay duration I: The discount rate	
Then:	$\Delta\%P = -D^m * \Delta(1 + i)$
And the modified duration:	$D^m = \frac{D}{(1+i)}$

Based on the information presented in Table 2.2, and after a simple algebraic rearrangement, it can be seen that the modified duration is proportional to the derivative of the security's price with respect to the interest rate (1 + i). Thus, modified duration is interpreted as reflecting the changes that will occur in the value of the investment in response to changes in the market interest rate, with an adjustment factor of (1/P).

Thus, a higher value for  $D^m$  implies that the investment is more vulnerable to a decline in value in response to changes in interest rates and, consequently, results in the fund being more vulnerable to losses. Regardless of the fund's strategy, the individual risk of instruments associated with their duration will be assessed, considering an inverse relationship between duration and risk; similarly, it will be considered whether the portfolio's duration exceeds or at least consistently approaches the limits established in the investment policy, as greater exposure to interest rate risk.

In certain cases and as a complementary measure, the portfolio's convexity may be assessed. As noted above, the duration indicator establishes that there is a linear proportional relationship between changes in interest rates and price. However, strictly speaking, the relationship is usually not linear; rather, it describes a convex curve associated, among other factors, with what is known as "spread risk." The convexity indicator allows for the precise identification of this non-linear relationship by estimating the rate at which the value of the securities changes in response to progressive variations in the interest rate.

Thus, the convexity indicator improves the approximation obtained through duration regarding the sensitivity of security prices to changes in the market interest rate. Table 2.3 presents the price sensitivity indicator that can be constructed by incorporating the concept of convexity.

**Table 2.3 Interest rate sensitivity, adjusted for convexity.**

It is known that:	$Convexidad = \frac{1}{P*(1+i)} * \sum \left[ \frac{FC}{(1+i)^t} \right] * (t^2 + t)$
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Convexity corresponds to the second derivative of the price with respect to the interest rate. Consequently, the indicator representing the price's sensitivity to changes in the interest rate, adjusted for the convexity factor, takes the following form:

$\Delta\%P = -D^m * \Delta(1 + i) + 0.5 * Convexidad * [\Delta(1 + i)]^2$
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The risk that can be assessed as a result of convexity analysis is known as "spread risk," or the risk associated with the asymmetric increase in the discount rates of higher-risk securities. *Spread* risk refers to the relatively larger increase in the interest rates demanded on higher-risk securities when the general level of interest rates rises. An example of this occurs with securities from emerging markets, which see their *spread* increase by, say, 1.5% when market interest rates rise by 1%. In this regard, the convexity indicator provides relevant information in that it quantitatively captures the price sensitivity of

higher-risk securities (associated with higher interest rates) to incremental changes in *yield*. Thus, the PCR analysis objectively assesses the spread risk in the fund's investments.

It is important to note that the interest rate risk indicators presented in this document constitute key information that is continuously reviewed by investment fund risk managers. Consequently, these indicators are expected to be provided by the fund itself, which is responsible for the accuracy of the information.

The PCR risk assessment incorporates, in addition to the static analysis of the aforementioned indicators, a sensitivity analysis that allows for quantifying the vulnerability of the fund's value to various scenarios of market interest rate volatility.

In this regard, it is essential that any reliable methodology for rating the risk of investment funds in liquid assets incorporate a Value at Risk (VaR) analysis for the portfolio. This is because VaR is one of the most widely used market risk management tools among investment fund managers internationally.

While it is true that VaR is a risk indicator that takes into account all sources of market risk to which the portfolio is exposed, it is possible to model VaR based on interest rate risk and use it as an input for this analysis (considering the instruments most likely to be sold and for which reliable, periodic, and publicly available information is available). If this is not possible, the analysis must be conducted using the comprehensive measure of market risk, that is, typical VaR. Table 2.4 presents a brief description of the rationale behind VaR.

**Table 2.4 Rationale for VaR**

<p>VaR estimates the maximum expected loss in the value of a portfolio, as a result of its exposure to market risk.</p>	<p>The <i>Value at Risk</i> (VaR) indicator estimates the maximum expected loss in the value of an investment portfolio, subject to a set of market risk factors and a desired level of statistical confidence.</p> <p>The indicator is based on a probability distribution associated with the portfolio's market value, which depends on a set of risk factors (liquidity, interest rates, etc.). This relationship must be modeled in such a way as to algebraically represent the functional relationship between the portfolio's value and the various risk factors that affect it. This constitutes the first stage of VaR estimation.</p> <p>For their part, the risk factors considered also follow a probability distribution that must be characterized, from which estimates of their expected values can be obtained. This constitutes the second stage of VaR estimation.</p> <p>Finally, by linking the two previous stages, the level below which the portfolio value is not expected to fall will be estimated, subject to the various estimated risk factors and the chosen level of statistical confidence.</p> <p>Depending on the correlation method used, VaR estimates can be linear, quadratic, Monte Carlo, or historical. It should be noted that the practical estimation of VaR requires the use of specific software and IT infrastructure; therefore, fund managers will be required to provide this information to the analyst responsible for the risk rating.</p>
<b>Example: Interpreting VaR</b>	
<p>If the 90% confidence VaR for a trading day is US\$10 million, this can be interpreted to mean that, with a 90% Under normal market conditions, the fund's value loss will not exceed US\$10 million in a single trading day.</p>	

The worst-case scenario will be considered to be a one-day loss reaching 10% of the net asset value, and the best-case scenario will be a loss reaching 1%.

Additionally, the PCR analysis considers the vulnerability introduced into the fund's results by investments whose returns are linked to the performance of specific financial or real indices. Uncertainty regarding the evolution of these indicators may be incorporated into the VaR calculation. Similarly, it constitutes a factor to be considered in assessing the fund's exposure to market risk, as well as when evaluating its investment policies.

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Finally, as with credit risk assessment, selecting a single sample from the portfolio introduces a potential selection bias into the conclusions drawn regarding interest rate risk. For this reason, it is recommended to select a sample of dates on which the portfolio will be evaluated (either on a discretionary or random basis) following the guidelines presented in point 1.

## 2) Estimating Liquidity Risk

The analysis focuses on estimating the fund's vulnerability to suffering losses in value caused by illiquidity in its operations. Although liquidity risk is commonly perceived, depending on the type of fund, as a short-term factor, its implications could compromise long-term solvency depending on the extent of the erosion in the prices of the securities acquired, thereby affecting the consolidated value of the portfolio during the period of illiquidity.

The assessment of liquidity risk focuses on two aspects:

- i. On the asset side, through the analysis of the fund's investments; and
- ii. On the liability and equity side, through the analysis of investor concentration and their investment profiles, as well as the assessment of the impact of leverage. Additionally, the existence or recurrence of factors that could expose the fund to massive or significant redemptions of investment shares will be evaluated<sup>3</sup>.

It is essential to note that, with regard to the fund's assets, the analysis will be based on the development and examination of indicators that allow for estimating how quickly investments can be converted into liquid funds without suffering a significant loss in value. Among the indicators typically considered are:

- Trading frequency of securities.
- Total outstanding volume of securities.
- Percentage of assets in circulation, by security.
- Percentage of the fund's assets held in overnight deposits.
- Relative depth of the stock market in which the fund invests.
- Number of major market participants.

However, there is an indicator that is sensitive to the aforementioned factors, known as the market presence indicator. It is calculated based on the number of trading sessions in which the stock has been traded relative to the total number of sessions during the same period; for debt issues, market presence is determined by demand during the primary offering. When this indicator falls below 75%, the portfolio's liquidity risk is more exposed.

It is important to note that the credit quality of the fund's assets is related to the liquidity risk it faces. This is because, in "*flight to quality*" scenarios, assets with lower credit quality generally tend to lose liquidity at a faster rate than other securities. In this regard, credit risk is linked to liquidity risk; therefore, it should be considered at this stage of the analysis as a factor that could make the fund more vulnerable during periods of illiquidity.

With regard to the investment fund's liabilities and net assets, the liquidity analysis is based on:

- The assessment of concentrations by participant.
- An analysis of the investor profile.
- The existence of debt incurred by the fund.

A high concentration of the fund's resources among a small number of participants introduces significant liquidity risk into its operations, insofar as the investment decisions of a small group of participants can diminish the value of a large proportion of the fund's assets. In this regard, it is important to distinguish between the redemption mechanisms associated with an open-end fund and those associated with a closed-end fund, with the former typically linked to greater volatility in liabilities.

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<sup>3</sup>This feature applies primarily to open-end mutual funds, since investors can redeem their shares.

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In this regard, PCR uses the percentages of the fund's value represented by the shares held by the top 5, 10, 30, 50, or 100 participants as a tool to analyze the fund's concentration. Since higher concentration percentages imply a greater potential liquidity risk for the fund, high concentration should result in more conservative investment policies in order to adequately manage this risk.

With regard to investor profiles, the investment policies of different types of investors have varying effects on the liquidity risk faced by an investment fund. For example, an investment fund whose investor composition shows a dominant presence of investors such as *hedge funds* imposes a higher level of liquidity risk than that faced by a fund composed mainly of long-term investors, such as those linked to retirement pension management. Additionally, the assessment will consider recent historical evidence regarding the amounts and frequency of redemptions.

Furthermore, to the extent possible, estimates of percentages that capture the relative proportion of investors by type (retail, institutional, conservative, aggressive, etc.) may be considered, incorporating this risk factor into the assessment of the liquidity risk to which the investment fund is exposed.

The PCR analysis must, at a minimum, consider the performance of subscriptions and redemptions, and ensure that the net result of these (net subscriptions) is representative of the fund's net assets. When redemptions consistently and significantly exceed subscriptions, the portfolio's liquidity risk is at greater risk. If net subscriptions are always positive, the risk is low.

Additionally, if the investment fund has incurred financial debt, the expected maturity match must be evaluated to ensure that the obligations arising from liabilities do not necessitate inconvenient liquidations of investments to meet short-term liquidity requirements.

Finally, the fund's expected loss will be analyzed under different redemption scenarios, taking into account the investor's profile and the fund's concentration. For example, a scenario involving the redemption of shares representing 30% of the fund's assets would entail the sale of less liquid assets at low prices, resulting in a loss to the fund's value. The worst-case scenario will be considered to be a loss exceeding 10% of the unit value, and the best-case scenario will be a loss of 1%.

### 3) Estimating exchange rate risk

The analysis focuses on estimating the portfolio's vulnerability to losses in value caused by movements in market exchange rates, regardless of whether these changes stem from a sovereign economic policy decision or from spontaneous shifts in currency supply and demand. Setting aside the origin of the movement, the PCR analysis seeks to estimate how much value the fund may lose in the face of exchange rate volatility. In the case of investment funds that invest in various currencies, the reference point for loss or gain in value will be established in terms relative to the currency in which the shares are issued, as these constitute the unit of measurement and store of value chosen by the investors.

Organizations engaged in investment activities are constantly exposed to exchange rate risk in their operations. Typically, this type of risk is mitigated directly through appropriate currency matching between assets and liabilities. In the case of investment funds, currency matching between investments and shares limits the fund's vulnerability to incurring losses in value—in the currency of issuance of the shares—caused by the conversion of assets into liquid funds required to meet share redemptions.

Maintaining exchange-rate-indexed investments can play an important role in mitigating this risk; however, it should be noted that tools such as these essentially transform an interest rate risk into a credit risk, since the fund's income stream will depend, after indexation, on the financial strength of the counterparty, enabling it to absorb exchange rate volatility and make timely payments.

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However, exchange rate risk management may tolerate a certain level of currency mismatch between liabilities and assets as part of the fund's investment strategy when managers' expectations are associated with a low probability of loss in value due to conversion or a certain probability of gain resulting from the mismatch.

The PCR analysis considers the potential impact of the magnitude of the mismatches on the fund's value, given a probability of exchange rate volatility occurring. In this regard, it is also advisable to conduct a comprehensive Value at Risk (VaR) analysis for the portfolio. VaR is a tool that must be continuously reviewed by the fund managers; therefore, this variable is expected to be provided to the assigned analyst, under their responsibility.

For the VaR analysis, the worst-case scenario will be considered to be a one-day trading loss of 10% of the portfolio's value, and the best-case scenario will be a loss of 1%.

Additionally, the expected loss from foreign currency exposure can be compared to the portfolio's net asset value. If this expected loss is significant, foreign exchange risk will present greater exposure; conversely, when hedges are in place or the fund's policy permits exposure only in local currency, the risk is low.

Finally, as with the fundamental risk assessment, selecting a single sample from the portfolio introduces a potential selection bias in the conclusions drawn regarding exchange rate risk. For this reason, it is recommended to select a sample of dates on which the portfolio will be evaluated (either discretionally or randomly) following the guidelines presented in point 1.

#### **4) Counterparty Risk**

The presence of counterparty credit risk, generated as a result of the transformation of a different initial risk, is not exclusive to exchange rate risk. On the contrary, such transformation can apply to market risk through specific financing and hedging structures. These risk conversion mechanisms are identified and evaluated by PCR in its analysis, estimating the impact they will have on the fund's vulnerability.

Similarly, investing in derivative instruments introduces the consideration of counterparty credit risk, along with the regular assessment of market risk that is factored into the expected value of the portfolio. Furthermore, the presence of derivatives associated with fixed-income securities (e.g., call options) introduces prepayment or repurchase risk into portfolio management, affecting the expected generation of cash flows and, consequently, their value. The impact of such risk on the expected value of the fund's portfolio must also be assessed, and may even be incorporated by fund managers into the VaR calculation as an additional risk factor.

The financing and hedging mechanisms mentioned above should be evaluated with an emphasis on the counterparty's financial strength, along with the market risk introduced, as the primary factors underpinning the associated risk assessment. Table 2.5 provides an overview of the credit and market risks involved.

#### **5) Other Types of Risk**

Operational and legal risks of the portfolio are also analyzed, as well as the functioning of the back office, to verify that all transactions carried out by the fund are completed effectively.

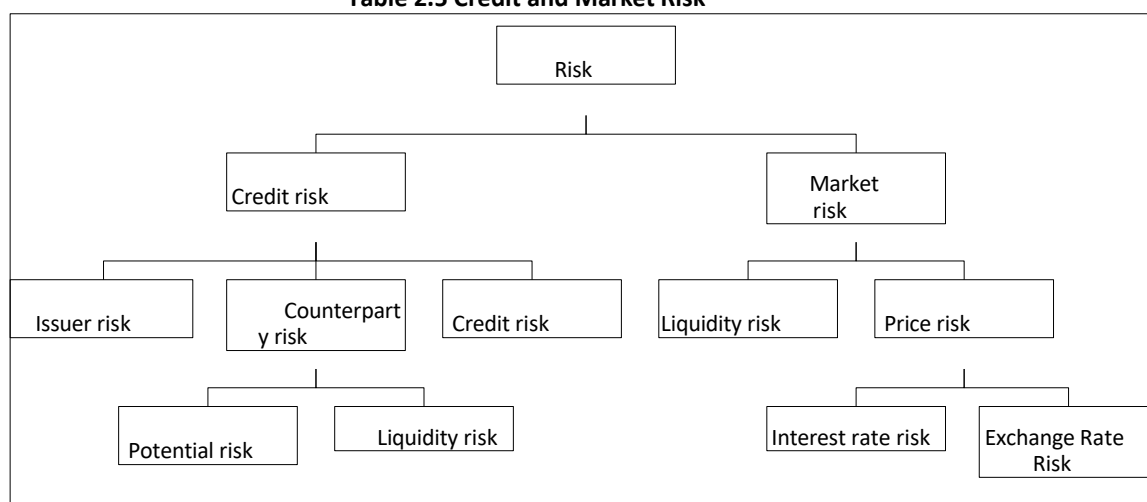
Investments in publicly offered securities must be registered and approved by the securities regulator; and in the case of non-public companies, they must be listed in public registries and not be in the process of liquidation.

Likewise, potential administrative proceedings involving the entity and legal contingencies to which the management company might be exposed under various circumstances are analyzed as legal risk.

At a minimum, all loss events (operational and legal) are expected to be recorded and subject to monitoring and control, which will allow the portfolio to demonstrate low exposure; however, if such records cannot be substantiated with documentation, the portfolio will be deemed to have higher exposure.

Finally, the services of the contracted custodian will be evaluated, including its experience in providing custodial services—as measured by years of operation and the number of investment funds under custody—as well as the independence and management of conflicts of interest between the custodian and the management company.

**Table 2.5 Credit and Market Risk**



**c. Fiduciary Risk Analysis**

Fiduciary risk is broadly linked to four elements: the management entity, organization and processes, the quality of human resources, and the information systems of Investment Fund Management Companies (SAFI), with the solvency and professional competence of the personnel involved in the investment process being decisive factors for the rating.

In this regard, the analysis focuses on evaluating the management of the fund manager within the organizational structure, as well as the human and technological resources of the SAFI, and the risk of losses in the value of the investment fund’s portfolio.

For investment funds in the formation and initial operating stages, the analysis will focus on the SAFI’s management capacity, experience, and competencies in accordance with the nature of the fund; the clarity and precision of the objectives; documents containing the investment fund regulations and prospectus; investment policies, among other factors that PCR deems necessary to consider and that enable it to issue an appropriate opinion regarding the risk and asset class that the fund will incorporate once its investment process begins.

**1) Analysis of the Management Entity**

The following points are considered in the qualitative analysis of the company:

- Financial solvency. The entity’s solvency is analyzed in accordance with the necessary capital requirements, with an additional 50% above the regulatory minimum being considered exceptional.
- Policies for transparency and the management of conflicts of interest. In addition to codes of ethics and conduct, the review will examine whether the entity has policies and mechanisms in place to prevent conflicts of interest and whether these are well-known and institutionalized within the organization.
- Policies for the management of marketing and sales of investment funds. The entity’s sales policies will be analyzed to ensure the fund’s sustainability.

**2) Analysis of the organization and its processes**

The analysis of the organization and its processes is primarily aimed at evaluating the policies and procedures associated with the investment process required by the regulation, such as

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procedures related to the custody, clearing, and settlement of asset subclasses, ensuring proper control over the settlement of funds and/or securities. The existence of procedures and mechanisms that ensure due diligence in investment decisions, as well as the existence of a procedure for alternative valuation of investments and price challenges, will be considered exceptional.

With regard to processes related to investment decision-making, the analysis examines the design and implementation of formal investment and risk management policies, in accordance with internationally accepted standards in these areas. In this regard, the analysis assesses the existence of policies regarding investment limits and controls by activity, issuer, maximum acceptable risk level, type of security, and other factors. Depending on the nature of the fund, this criterion may include an analysis of policies related to the purchase of repos (money market investment funds) and indexed bonds (mixed investment funds), among others. Transparency in the execution of *trading* operations is evaluated, considering, among other factors, the existence of potential conflicts of interest. Additionally, the organization's commitment to and credibility regarding compliance with policies and regulations are assessed.

On the other hand, it is important to analyze whether the portfolio valuation methods used by the back office are accurate and transparent (NPV, *mark-to-market*, *benchmarks*, among others). It is important that the SAFI have a robust back-office unit, independent of the trading units, with the capacity to develop appropriate portfolio performance indicators. Furthermore, the evaluation will consider past evidence regarding potential issues encountered in these types of activities.

SAFI's organizational structure must allow for the clear identification of its employees' duties, rights, and responsibilities. The duties to be performed by the various employees—particularly those related to investment management—must be described in detail and with precision, in order to avoid organizational gaps that could hinder efficient decision-making. Responsibilities must be clearly defined and assigned to each employee, and supervised within a framework of accountability and ongoing transparency.

SAFI's organizational structure must provide for the development and maintenance of adequate periodic and non-periodic communication channels with the participant, so that the participant can make decisions regarding the maintenance, increase, or withdrawal of participation shares based on accurate and timely information provided by the managers.

Additionally, the organizational structure must be committed to maintaining a high level of analytical rigor, as well as conducting necessary or fund-related research.

It is essential that the organizational structure include the formation of an Investment Committee and a Supervisory Committee, responsible for establishing investment management policy guidelines and continuously monitoring portfolio performance.

Finally, it is important that SAFI's organizational structure include an internal audit unit capable of conducting periodic audits of the management of various areas of the institution.

### 3) Analyzing Human Resources

The analysis focuses on examining:

- i. The professional capacity and competence of staff in the fund's strategy, negotiation of asset subclasses, *due diligence*, and *ongoing diligence* activities in accordance with the fund type, considering experience of more than 5 years managing funds with similar characteristics as exceptional, as well as postgraduate studies related to investment activities or recognized international certifications.
- ii. The transparency of personnel selection processes.
- iii. Systems designed to ensure an adequate succession plan for key positions.
- iv. A precise description of the profiles required for the positions.
- v. The effect of compensation and incentive schemes on staff, with a compensation scheme that encourages prudent behavior

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prudent behavior aligned with the Fund’s long-term interests, taking into account the Fund’s risk appetite and tolerance levels. Furthermore, that said policy incentivizes and promotes the retention of qualified staff.

It is essential to evaluate the staff selection and hiring methods used at SAFI. The existence of transparent processes will promote effective risk management. The absence of such criteria could compromise the institution’s performance, as it could lead to errors in selection and hiring.

In this regard, job postings must include a precise description of the required profile for applicants, specifying professional qualifications, years of experience, and necessary skills and competencies.

Likewise, it is important for the human resources department to conduct periodic performance evaluations of staff to identify and correct potential inefficiencies in fund management caused by human resources, and to incorporate these results into staff renewal and replacement mechanisms.

Furthermore, it is very important for SAFI to maintain a succession plan for its human resources. The existence of such a plan will reduce SAFI’s vulnerability to management disruptions caused by the departure or turnover of key personnel. This constitutes a crucial risk factor that requires the preventive implementation of permanent mechanisms for knowledge transfer and the systematization of management processes.

Finally, when analyzing the impact of human resources on SAFI’s strength, it is essential to evaluate the incentives generated by compensation and remuneration schemes on employee behavior. It is important to ensure that these schemes do not create perverse incentives or incentives that are misaligned with the objectives of the fund’s participants.

#### **4) Analyzing information systems**

Information systems consist of interconnected technological equipment and processes that support SAFI’s operations. In this regard, the quality of this technological infrastructure is evaluated, as well as the ability of these processes to facilitate the generation and flow of reliable and timely information to fund managers.

Given that decision-making based on inaccurate or untimely information, provided by deficient information systems, would have a critically negative effect on the institution’s vulnerability to suffering losses in value, it is essential to consider the quality of the technology used when conducting a comprehensive risk analysis.

Technology plays a fundamental role in various processes carried out by SAFI. The presence of *front-office*, *middle-office*, and *back-office* systems will be taken into account, with a high weighting assigned if these systems are integrated through automated interfaces and if they incorporate authorizations, access controls, and restrictions based on user profiles to ensure the independence and/or segregation of duties among staff. Additionally, the presence of systems for managing legal limits and autonomy limits based on the level of responsibility, experience, and/or competence, as well as systems for risk analysis, investment decision-making, transmission of investment decisions, trading, VAR, investment monitoring, and, finally, portfolio valuation, will be considered.

In this regard, it is essential that the institution have integrated technological infrastructure (hardware and software) that is appropriate for the nature and pace of its activities. Furthermore, it is important that SAFI have a unit responsible for continuously evaluating the performance of its information systems, in order to propose improvements to the systems, equipment upgrades, process redesigns, and other measures.

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### **Complementary Risk Analysis:**

#### **Real Estate Investment Funds**

##### a. Loss risk

The analysis of property quality is based on the property's characteristics and location; PCR may require the expert opinion of professionals in engineering or related fields to obtain technical validation. The risk assessment includes risks arising from events such as earthquakes, floods, volcanic eruptions, avalanches, hurricanes, tsunamis, fires, vandalism, and terrorist acts, among others.

PCR evaluates the property's characteristics as determining factors for maintaining the property in optimal condition. Engineering and design conditions, as well as construction materials, are considered; for this purpose, expert opinion may be sought. The following are assessed: design, natural light, spatial layout, and the property's management and maintenance plan. Within the scope of safety conditions and standards, the following are evaluated: evacuation systems, fire alarms, HVAC systems, and the design and dynamics of the plumbing system.

The location allows for an assessment of the profile of tenants or lessees and the social impact on the community, which could result in increased expenses or future complications such as compensation payments or financial settlements to residents. The socioeconomic conditions offered by the property's location are evaluated, which helps identify the profile of tenants, lessees, or future buyers. The Fund should have considered all these factors to define: target market, rental rates, and revenue projections.

PCR evaluates the track record of the real estate agency or construction company. Its legal standing with the relevant regulatory bodies is reviewed, as well as its market history; at this stage, market recognition and positioning, years of experience, quality certifications, social responsibility practices, environmental stewardship, and impacts on the local community are assessed.

PCR views the existence of insurance policies covering the property favorably. It examines the terms of the policies, the insurance company issuing the policy, and the legal mechanisms for enforcing the policy in the event of a claim. It is important to note that each of these factors depends on the type of property in question: offices, warehouses, or retail spaces.

PCR may consider other factors, if deemed relevant, to assess the likelihood that the property will remain in optimal condition and that the necessary measures will be taken to manage any event that could put the property at risk. The normal wear and tear that properties undergo over time is evaluated, as well as the actions planned to prevent incidents of any kind.

Each of the factors—property characteristics, property location, the real estate agency's track record, and insurance policies—is initially evaluated independently and subsequently analyzed collectively.

##### b. Vacancy Risk

For PCR, vacancy risk is a key factor in assessing the stability of the fund's income; it is crucial to maintain occupancy levels consistent with the property's characteristics. Therefore, it is essential to understand historical performance, determine occupancy and vacancy rates, and be aware of the terms of lease agreements.

PCR evaluates mitigants for vacancy risk, such as the establishment of reserves or provisions to cover potential declines in income flow. To establish reserves optimally without affecting results, it is important to understand historical performance in order to forecast the amount of provisions and the time required for their replenishment.

PCR assesses the quality of leases; the longer the lease term, the lower the likelihood of vacancy. Leases must include provisions that facilitate action in the event, for example, of unilateral termination by the tenant. If leases include clauses imposing penalties for breach of contract, this is considered a mitigating factor.

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c. Concentration Risk

In this regard, PCR assesses concentration by both property and tenant. PCR considers that high levels of concentration can weaken the fund's cash flow stability; therefore, in the presence of high concentrations, the rating will tend to be lower compared to portfolios that demonstrate broad diversification across properties and tenants. Diversification by tenants or owners could serve as a mitigating factor in the face of adverse events or circumstances, thereby reducing a negative impact on income.

To measure concentration, PCR considers, in addition to the number of tenants or owners, the geographic location, the economic sector of the tenants or owners, and the type of property. The contribution to the fund's cash flow from each tenant or owner is evaluated.

**Real estate development investment funds**

a. Loss Risk

The analysis of property quality is based on the property's characteristics and location; PCR may require the expert opinion of professionals in engineering or related fields to obtain technical validation. The risk assessment includes risks arising from events such as earthquakes, floods, volcanic eruptions, avalanches, hurricanes, tsunamis, fires, vandalism, and terrorist acts, among others.

PCR evaluates the property's characteristics as determining factors for maintaining the property in optimal condition. Engineering and design conditions, as well as construction materials, are considered; for this purpose, expert opinion may be sought. The following are assessed: design, natural light, spatial layout, and the property's management and maintenance plan. Within the scope of safety conditions and standards, the following are evaluated: evacuation systems, fire alarms, HVAC systems, and the design and dynamics of the plumbing system.

The location allows for an assessment of the profile of tenants or lessees and the social impact on the community, which could result in increased expenses or future complications such as compensation payments or financial settlements to residents. The socioeconomic conditions offered by the property's location are evaluated, which helps identify the profile of tenants, lessees, or future buyers. The Fund should have considered all these factors to define: target market, rental rates, and revenue projections.

PCR evaluates the track record of the real estate agency or construction company. Its legal standing with the relevant regulatory bodies is reviewed, as well as its market history; at this stage, market recognition and positioning, years of experience, quality certifications, social responsibility practices, environmental stewardship, and impacts on the local community are assessed.

PCR views the existence of insurance policies covering the property favorably. It examines the policy terms, the insurer issuing the policy, and the legal mechanisms for enforcing coverage in the event of a claim. It is important to note that each of these factors depends on the type of property: offices, warehouses, or commercial spaces.

PCR may consider other factors, if deemed relevant, to assess the likelihood that the property will remain in optimal condition and that the necessary measures will be taken to control any event that could put the property at risk. The normal deterioration that properties undergo over time is evaluated, as well as the actions planned to prevent incidents of any kind.

Each of the factors—property characteristics, property location, the real estate agency's track record, and insurance policies—is first evaluated independently and then analyzed collectively.

b. Location risk

The location allows for an assessment of the profile of tenants or lessees and the social impact on the community, which could result in increased expenses or future complications such as compensation payments or financial settlements to residents. The socioeconomic conditions offered by the property's location are evaluated, which helps identify the profile of tenants, lessees, or future buyers. The Fund should have considered all these factors to define: target market, rental rates, and revenue projections.

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The assessment of this type of risk is associated with the geographic area where the property is located or being developed and the changes that location may face. Certain areas may experience a decline in property values, infrastructure deterioration, reduced demand for developments, etc.

This risk will be assessed through market studies, feasibility studies, and other technical studies aimed at identifying a suitable location for the project.

c. Financing Risk

This risk arises from the possibility that the fund may face difficulties in securing the necessary resources to meet the liquidity needs of the development project, thereby preventing construction from proceeding according to schedule.

PCR assesses this risk through sensitivity analysis of the various variables involved in real estate development, as well as through diversification of project financing sources, such as presales, contributions from participating entities, and studies conducted, among others.

d. Risk of construction failures or delays

The risk is associated with delays that may arise due to unforeseen circumstances at various stages of the project's development. These delays can stem from a variety of sources, such as errors in studies or completion time estimates, issues or failures on the part of suppliers and contractors, general shortages of materials, weather or natural factors, and setbacks in the permitting process, among others.

PCR evaluates the construction company's track record. Its legal standing with the relevant regulatory bodies is reviewed, as well as its market performance; at this stage, market recognition and positioning, years of experience, quality certifications, social responsibility practices, environmental stewardship, and local impacts are assessed.

e. Risk of a decline in real estate demand

This risk is linked to the possibility that, once the project is completed, it cannot be sold or rented due to conditions in the real estate market, the preferences of the expected buyers or tenants for the property, among other factors, preventing the fund from meeting its expectations.

PCR will evaluate the feasibility studies conducted by the institutions involved in the project to determine the level of acceptance of the project, and will review the key economic indicators of the country in which the real estate investment fund is being developed, based on the sovereign risk report issued by PCR.

f. Risk related to obtaining permits and authorizations from the relevant authorities

PCR will assess the risk that the permits required for the project's operation—such as environmental and municipal permits, among others—will not be approved by government authorities.

In assessing this risk, PCR will evaluate the track record of the project developer, verify its compliance with relevant regulatory bodies, and review its market performance. This includes assessing its market recognition and positioning, years of experience, quality certifications, social responsibility practices, environmental stewardship, and impacts on the local community.

**Determination of the Risk Rating**

PCR has categorized its risk rating scales according to the investor profile targeted by an investment fund: conservative, moderate, and aggressive. The determination of the risk rating is the result of a joint assessment of the three pillars of PCR's evaluation: credit risk, market risk, and fiduciary risk. Finally, these pillars are consolidated into a comprehensive investment fund rating scale. Table 4.1 presents, in outline form, the main elements that underpin an investment fund's risk rating.

**Table 4.1 Summary of the key factors underlying the rating**

Credit risk	Market risk	Fiduciary risk
<ul style="list-style-type: none"> <li>• Credit risk ratings</li> <li>• Equity risk ratings</li> <li>• RFPP</li> <li>• Concentration analysis</li> <li>• Market <i>benchmarks</i></li> <li>• Credit risk assessment system</li> <li>• Equity risk system</li> </ul>	<ul style="list-style-type: none"> <li>• Correlation Analysis</li> <li><b>Interest rate</b></li> <li>• Duration</li> <li>• Modified Duration</li> <li>• Convexity</li> <li>• Spread</li> <li>• Value at Risk</li> <li>• Index-linked returns</li> <li><b>Liquidity</b></li> <li>• Trading frequency</li> <li>• Outstanding volume</li> <li>• Liquid funds</li> <li>• Market participants</li> <li>• Market depth</li> <li>• Participant profile</li> <li>• Concentration per participant</li> <li>• Debt incurred</li> <li><b>Exchange rate</b></li> <li>• Currency matching</li> <li>• Value at risk</li> <li><b>Other types of counterparty risk</b></li> <li>• Financing and hedging structures</li> <li>• Derivative instruments</li> </ul>	<ul style="list-style-type: none"> <li><b>Organization and processes</b></li> <li>• Investment policies and processes</li> <li>• Back-office policies and processes</li> <li>• Portfolio valuation</li> <li>• Organizational structure</li> <li><b>Human Resources</b></li> <li>• Professional Professional of staff</li> <li>• Processes for staff personnel</li> <li>• Succession plans</li> <li>• Description of profiles by position</li> <li>• Organizational Charts of compensation and incentives</li> <li><b>Information Systems</b></li> </ul>

In general, the fund's overall rating will depend primarily on fundamental risk, while market and fiduciary risks will adjust the overall rating upward or downward. Therefore, the following table shows the possible adjustments relative to the anchor rating (fundamental risk):

		Fiduciary Risk Exposure		
Level		High (<= BB+)	Moderate (>BB+ and <A-)	Low (>= A-)
Market risk exposure	Higher (<= 4+)	Between 2 and 4 <i>notches</i>	Between 1 and 3 <i>notches</i>	Between 0 and 2 <i>notches</i>
	Moderate (>BB+ and <A-)	Between 1 and 3 <i>notches</i>	Between 1 and 2 <i>notches</i>	Between 0 and 2 <i>notches</i>
	Low (>= 2-)	Between 0 and 2 <i>notches</i>	Between 0 and 1 <i>notches</i>	0 <i>notches</i>

**a. Fund Profile Classification**

Based on the analyzed elements, rating scales have been established distinguishing between the three types of investors for whom the fund is intended: conservative, moderate, and aggressive. Table 4.2 presents the three types of fund profiles.

**Table 4.2 Fund profiles according to the type of investor they are aimed at<sup>4</sup>**

C	These mutual funds are designed for investors with a conservative investment profile who seek returns but with a minimal risk of capital loss or very low levels of risk.
M	These investment funds are designed for investors with an investment profile characterized by moderate risk-taking, aiming for higher returns with a low probability of unexpected losses or low severity levels.
A	These investment funds are aimed at investors with an aggressive investment profile, who are willing to accept risk to achieve higher returns, but with a higher probability of unexpected losses or with considerable levels of severity.

These categories may not be supplemented with the symbols (+/-). Additionally, local scales will be identified by adding a prefix in accordance with the identification assigned to each market<sup>5</sup>.

<sup>4</sup> In the PCR, codes are established for each methodology and rating category used. For fund profiles, depending on the type of investor they are targeted toward, the code is PCR-MET-P-551.

<sup>5</sup> The nomenclature used corresponds to the international coding system based on ISO 3166-1 alpha-2, a two-letter code system.

**b. Market Risk Rating Scale**

PCR has established a rating scale that provides an opinion solely regarding the market risk to which an investment fund is exposed. Table 4.3 presents the scales related to the level of market risk.

**Table 4.3 Market Risk Rating Scale<sup>6</sup>**

1	Within its profile, this corresponds to investment funds with low volatility in response to changes in market conditions.
2	Within its profile, this corresponds to investment funds with moderate volatility in response to changes in market conditions.
3	Within its profile, it corresponds to investment funds with acceptable volatility in response to changes in market conditions.
4	Within its profile, this corresponds to investment funds with considerable volatility in response to changes in market conditions.
5	Within its profile, this corresponds to investment funds with high volatility in response to changes in market conditions.

This scale should not be interpreted in isolation but rather as a complement to the fund's prior profile scale: C, M, or A.

These categorizations may be supplemented, if applicable, using the (+/-) signs to improve or downgrade, respectively, the rating achieved within categories 1 through 4 inclusive. Additionally, local scales will be identified by adding a prefix according to the identification assigned to each market<sup>7</sup>.

<sup>6</sup> The code for the Market Risk Rating Scale is PCR-MET-P-552.

<sup>7</sup> Based on ISO 3166-1 alpha-2, a two-letter code system.

**c. Fiduciary Risk/Management Rating Scale**

PCR has established a fiduciary risk/management rating scale, which is presented in Table 4.4

**Table 4.4 Fiduciary/Management Risk Rating Scale<sup>8</sup>**

AAA	The fund’s management has the capacity to carry out exceptional management of the resources under its charge. Fiduciary risk is minimal as a result of the professional competence of the managers, the exceptional organizational and process design, the rigorous execution of these processes, as well as the use of the highest quality.
AA	The fund’s management team has the capability to manage the resources under its responsibility very effectively. Fiduciary risk is considerably low due to a combination of factors, including the professional competence of the managers, the excellent organizational and process design, the effective execution of those processes, as well the use of very high-quality information systems.
A	The fund’s management has the capacity to effectively manage the resources under its charge. Fiduciary risk is low as a result of at least the combination of the professional competence of the managers, sound organizational and process design, the proper execution of those processes, as well as the use high-quality information systems.
BBB	The fund’s management has the capacity to satisfactorily manage the resources under its responsibility. Fiduciary risk is acceptable as a result of, at a minimum, the professional competence of the managers, the satisfactory design of the organization and its processes, the execution of those processes, as well as the use of information systems of acceptable quality.
BB	The fund’s management has less than satisfactory capacity to manage the resources under its charge. Fiduciary risk is higher than acceptable as a result of at least the combination of the professional capacity of the managers, inadequate organizational design, inappropriate design or execution of processes, as well as the use of information systems of substandard quality.
B	The fund management team’s capabilities lead to inadequate management of the resources under its control. Fiduciary risk is high due to a combination of factors, including the professional competence of the managers, poor organizational design, inappropriate process design or execution, and the use of .
CCC	The fund management’s capacity leads to poor management of the resources under its charge. Fiduciary risk is considerably high as a result of at least the combined factors of the professional competence of the managers, very poor organizational design, poor process design or execution, as well as the use of information systems.
D	This applies to management companies that are in liquidation or are about to enter liquidation.

The letter “fi” will be added as a suffix to investment fund rating scales to avoid comparisons.

These ratings may be supplemented, where appropriate, with the symbols (+/-) to indicate an upgrade or downgrade, respectively, of the rating assigned within the range of AA through B, inclusive. Additionally, local rating scales will be identified by adding a prefix in accordance with the designation assigned to each market<sup>9</sup>.

For companies with less than three years of sufficient information, due to having been present in the market for less than that period, the letter “n” (for new rating) will be added to the rating category.

<sup>8</sup> The code for the Fiduciary Risk/Management Rating Scale is PCR-MET-P-553.

<sup>9</sup> Based on ISO 3166-1 alpha-2, a two-letter code system.

**d. Fundamental Risk Rating Scale**

**Table 4.5 Credit Risk Rating Scale<sup>10</sup>**

Outstanding	AAA	The protective factors identified through the assessment of the portfolio’s asset quality and diversification are outstanding. The investment funds in this category invest in securities, real estate, and other assets of high and outstanding credit quality and demonstrate a high degree of flexibility in adapting their portfolios to potential changes in market conditions. The quality of their assets is consistent and low-volatility.
High	AA	The protective factors, as determined by the assessment of the quality and diversification of the portfolio’s assets, are high. This category includes investment funds that consistently and predominantly invest in securities, real estate, and other assets of high credit quality. The portfolio profile must be characterized by holding well-diversified securities and prudent liquidity.
Good	A	The protective factors, as determined by an assessment of the quality and diversification of the portfolio’s assets, are favorable. The mutual funds classified at this level hold balanced portfolios whose securities and/or asset quality range from outstanding to satisfactory credit ratings, with the aim of capitalizing on opportunities for
Satisfactory	BBB	The protective factors derived from the assessment of the quality and diversification of the portfolio’s assets are acceptable. The investment funds grouped at this level have a reasonable risk profile. Under unfavorable market conditions, their financial flexibility could be reduced, as the portion of securities with lower credit quality or higher-risk assets is usually more affected than the high-quality portion, which hinders their operation. Volatility in the asset quality of this type of investment fund is high.
Not Eligible for Investment	BB	The protective factors, as determined by the assessment of the quality and diversification of the portfolio’s assets, are low. Investment funds included in this category face uncertainty regarding their ability to meet their investment objectives. This rating encompasses investment funds that carry risk exceeding acceptable levels, requiring fundamental changes to their portfolios and, general, in their investment policy.
	B	The protective factors, as determined by an assessment of the quality and diversification of the portfolio’s assets, are minimal. Investment funds in this category face high uncertainty regarding the achievement of their investment objectives. The portfolio carries a high risk of default and may contain a significant concentration of securities or assets with high risk. The volatility of its assets is high.
	CCC	The protective factors, as determined by the assessment of the quality and diversification of the portfolio’s assets, are deficient. The management quality of the investment funds included in this category is deficient; the investment portfolio carries a very high risk of default, and the volatility of its assets is very high.

This scale should not be interpreted in isolation but rather as a complement to the preceding fund profile scale: C, M, or A. The letter “f” will be added as a suffix to investment fund rating scales to prevent comparisons. These categorizations may be supplemented, if applicable, with the symbols (+/-) to respectively improve or downgrade the rating achieved within the categories AA through BBB inclusive. Additionally, local scales will be identified by adding a prefix in accordance with the identification assigned to each market<sup>11</sup>.

<sup>10</sup> The code for the credit risk rating scale is PCR-MET-P-554.

<sup>11</sup> Based on ISO 3166-1 alpha-2, a two-letter code system.

**e. Comprehensive Credit Risk Rating Scale for Investment Funds**

PCR has established a comprehensive rating scale that reflects an assessment of the probability of loss of value for the investment fund, based on a comprehensive and integrated analysis of credit, market, and fiduciary risk. Table 4.6 presents this scale.

**Table 4.6 Comprehensive Credit Risk Rating Scale for Investment Funds<sup>12</sup>**

1	Within its profile, this corresponds to investment funds with a low vulnerability to suffering losses in value.
2	Within its profile, this corresponds to investment funds with moderate vulnerability to a decline in value.
3	Within its profile, it corresponds to investment funds with acceptable vulnerability to losses in value
4	Within its profile, this corresponds to investment funds with considerable vulnerability to losses in value.
5	Within its profile, this corresponds to investment funds with a high vulnerability to suffer losses in value.

This scale should not be interpreted in isolation but rather as a complement to the fund's prior profile scale: C, M, or A.

The letter "f" will be added as a suffix to the investment fund rating scales to avoid comparisons.

These categorizations may be supplemented, if applicable, using the signs (+/-) to improve or lower, respectively, the rating achieved within categories 1 through 4 inclusive. Additionally, local scales will be identified by adding a prefix according to the identification assigned to each market<sup>13</sup>.

<sup>12</sup> The code for the comprehensive risk rating scale of an investment fund is PCR-MET-P-555.

<sup>13</sup> Based on ISO 3166-1 alpha-2, a two-letter code system.

**f. Comprehensive Investment Fund Rating Scale (Alternative Scale)**

**Table 4.6 Comprehensive Investment Fund Rating Scale<sup>14</sup>**

Outstanding	AAA	The protective factors, derived from the assessment of the quality and diversification of the portfolio's assets, the strengths and weaknesses of management, and operational capacity, are outstanding. Investment funds in this category invest only in securities of high and outstanding credit quality and demonstrate high flexibility in adapting their portfolio to potential . The quality of their assets is consistent and low-volatility.
High	AA	The protective factors—derived from an assessment of the quality and diversification of the portfolio's assets, the management's strengths and weaknesses, and operational capacity—are high. This category includes investment funds that consistently invest primarily in securities with high credit quality. The portfolio profile must be characterized by holding well-diversified securities with prudent liquidity.
Good	A	The protective factors, which are derived from an assessment of the quality and diversification of the portfolio's assets, the strengths and weaknesses of management, and operational capacity, are strong. The investment funds grouped at this level hold balanced portfolios whose securities range from outstanding to satisfactory credit quality, with the aim of to take advantage of opportunities for higher returns.
Satisfactory	BBB	The protective factors, derived from the assessment of the quality and diversification of the portfolio's assets, the strengths and weaknesses of management, and operational capacity, are acceptable. The mutual funds grouped at this level have a reasonable risk profile. In unfavorable market conditions, their financial flexibility may be reduced, since the portion of securities with lower credit quality is typically more affected than that of high-quality securities, which hinders their operation. Volatility in the asset quality of this type of investment fund is high.
Not suitable for investment	BB	The protective factors—derived from an assessment of the quality and diversification of the portfolio's assets, the strengths and weaknesses of management, and operational capacity—are low. The investment funds included in this category face uncertainty regarding their ability to meet their investment objectives. This rating applies to investment funds that carry risk exceeding acceptable levels, require fundamental changes to their portfolios, and, in general, to their investment policy .
	B	The protective factors, derived from the assessment of the quality and diversification of the portfolio's assets, the strengths and weaknesses of management, and operational capacity, are minimal. The investment funds grouped in this category face high uncertainty regarding the achievement of their investment objectives. The portfolio carries a high risk of default and may exhibit a significant concentration of high-risk securities. The volatility of its assets is high.
	CCC	The protective factors—derived from an assessment of the quality and diversification of the portfolio's assets, the strengths and weaknesses of management, and operational capacity—are deficient. The management quality of the investment funds included in this category is poor, the investment portfolio has a very high risk of default, and the volatility of its assets is very high.
Default or	E	This category applies to investment funds that do not have sufficient information or that the information is not representative, which does not allow for an opinion to be issued regarding their risk.

The letter “P” will be added as a suffix to investment fund rating scales to prevent comparisons. These categories may be supplemented, if applicable, with the symbols (+/-) to respectively improve or downgrade the rating achieved within the categories AA through B, inclusive. Additionally, local scales will be identified by adding a prefix in accordance with the identification assigned to each market<sup>15</sup> .

<sup>14</sup> The code for the Investment Fund Rating Scale (Summary Scale) is PCR-MET-P-550.

<sup>15</sup> Based on ISO 3166-1 alpha-2, a two-letter code system.