FitchRatings

Fund & Asset Managers
Fixed Income Funds
Global

Bond Fund Rating Criteria

Master Criteria

Scope

This criteria report applies to portfolios investing in debt and debt-like securities, including short- and long-term bond funds, loan funds, local government investment pools (LGIPs), debt security exchange-traded funds (ETFs) and privately managed pools. They may contain a variety of short- and long-term debt and debt-like instruments, such as commercial paper, certificates of deposits, bonds, loans, preferred securities, repurchase agreements, sovereign debt, structured finance securities and credit default swaps (CDS).

Bond Fund Ratings are assigned to a portfolio of assets, rather than an individual security. The rating is not assigned to debt issued by closed-end funds or investment trusts. Fitch Ratings has developed separate criteria for this analytical approach; see "Closed-End Funds and Market Value Structures Rating Criteria." However, the bond fund rating criteria can be used to rate closed-end fund and investment trust portfolios themselves.

Key Rating Drivers

Portfolio Credit Risk: The Fund Credit Quality Rating (denoted with an f suffix) measures vulnerability to losses as a result of credit defaults and is primarily influenced by a portfolio's weighted average rating factor (WARF).

Asset-Level Rating Factors: The WARF of the portfolio of assets is derived from Fitch-defined credit risk factors applied to each asset and/or counterparty based on their public ratings, credit opinions or other comparable measures of default risk, and their maturity.

Investment Manager Assessment: Fitch reviews the portfolio manager's capabilities to assess whether it is suitably qualified, competent and capable of managing the portfolio. Fitch will not rate portfolios from managers that fail to pass this assessment.

Legal and Regulatory Review: Portfolios must pass a legal and regulatory screening process, including the legal segregation and security of the portfolio's assets.

Market Risk Sensitivity: In certain circumstances, subject to market relevance or regulatory demand, Fitch may also assign a complementary Fund Market Risk Sensitivity Rating to express an opinion on a portfolio's sensitivity to market risk factors, such as interest-rate risk, spread risk, currency fluctuations and leverage.

Active Ratings Surveillance: Fitch requests periodic (typically monthly) portfolio holdings and relevant performance statistics to monitor the ratings.

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This report replaces the "Bond Fund Rating Criteria" report published on July 22, 2019.

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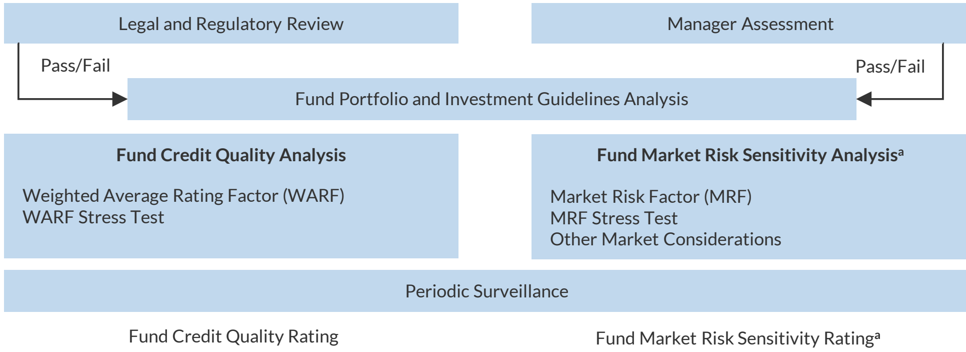
Global Bond Rating Criteria — Simplified Diagram



[a]Subject to market relevance or regulatory demand.
Source: Fitch Ratings.

Global Bond Fund Rating Criteria Framework

Fitch's global bond fund rating criteria are used to assign portfolios a Fund Credit Quality Rating. The ratings are expressed on the traditional 'AAA' scale, with the addition of an 'f' suffix to distinguish it from traditional credit ratings assigned to individual issues and issuers. In certain markets where there is market and/or regulatory demand, the criteria also may be used to assign a Fund Market Risk Sensitivity Rating. Fund Credit Quality and Fund Market Risk Sensitivity Ratings may be assigned alone or together to reflect the credit and market risks to which fund investors are exposed.

To qualify for International Scale Bond Fund Ratings, a fund or portfolio must demonstrate a minimum level of diversification, across five obligors or more, and no excessive concentration (>30%) with any of those obligors under these criteria, unless there are other relevant mitigating factors. These mitigants might include material exposures to high-quality sovereign, supranational and agency issuers, which are not covered by these diversification considerations.

Obligor exposures can be cash or synthetic, achieved through derivatives that reference a portfolio of securities or an index. For example, Fitch could assign Bond Fund Ratings to a portfolio or fund that engages in total return swaps (TRS), basing its analysis on the swap counterparty and the credit quality of the underlying portfolio of fixed-income securities referenced under the TRS. Limitations to Fitch's bond fund rating criteria are presented at the end of this report.

In certain markets, Fitch assigns National Scale Ratings where the rating scale may be determined by the local regulatory authorities. For more information on how Fitch adapts the criteria for National Scale Ratings, see Appendix A: National Scale Bond Fund Ratings.

- **Fund Credit Quality Rating:** an opinion on the overall credit profile and vulnerability to losses as a result of defaults within a fixed-income fund or portfolio. The ratings are based on the actual and prospective average credit quality of the underlying portfolio holdings. Fund Credit Quality Ratings have an element of rating momentum embedded and, therefore, address the likelihood that a portfolio maintains a given credit quality over time.

- **Fund Market Risk Sensitivity Rating:** an opinion on the relative sensitivity of a portfolio's total return and/or net asset value to assumed changes in credit spreads and interest rates as well as certain other market risk parameters, and taking into account the effects of leverage, where applicable. Fund Market Risk Sensitivity Ratings do not predict the direction or magnitude of changes in market conditions and, therefore, do not predict whether, or the extent to which, any particular fund or portfolio will perform favorably or adversely in the future. Fund Market Risk Sensitivity Ratings do not gauge the sensitivity of a portfolio to extreme risks that may result from reduced liquidity in secondary markets during certain periods.

Actively managed portfolios typically follow a set of investment guidelines. The agency considers whether investment guidelines that differ from the current portfolio should lead to more conservative ratings to reflect potential changes in the underlying portfolios over time. For example, Fitch may assign ratings to newly launched portfolios. In such cases, the initial portfolio may not be fully representative of the longer-term or target portfolio. Therefore, subject to a satisfactory legal and regulatory review and manager assessment, Fitch may base its ratings on a conservative analysis of the portfolio's investment guidelines and expected strategy based on discussions with the fund manager. In such cases, the agency may make additional adjustments in its analysis to better reflect potential risks that may affect the portfolio.

By comparison, passively managed portfolios are subject to a specific benchmark index's composition and rebalancing requirements. The agency considers the degree of replication, or optimization, for a given portfolio when assigning and monitoring ratings. In instances where new or existing portfolios seek to fully replicate a benchmark index, Fitch may couple its analysis of the portfolio holdings with either a concurrent or lookback analysis, or both, of the index. Conversely, Fitch's analysis for portfolios exhibiting a lesser degree of replication and more optimization, may focus more heavily on the current portfolio. In either instance, Fitch may base its ratings on a more conservative analysis of the portfolio and index's vulnerability to credit migration if monthly rebalancing does not remove underlying exposures below rating levels consistent with the current portfolio.

Fitch may impose qualitative caps on the Fund Credit Quality Rating and/or Fund Market Risk Sensitivity Rating, or elect not to rate portfolios that, in Fitch's opinion, use an excessive amount of leverage. Specifically, if a portfolio's Market Risk Factor (see: Criteria for Fund Market Risk Sensitivity Ratings, below) is well in excess of Fitch's upper bound due to leverage, then Fitch may decline to rate the fund. For example, if the calculated Market Risk Factor on a portfolio of five-year 'BBB' securities were 30, due to leverage (compared with around five without leverage), Fitch would judge the level of leverage excessive and would decline to rate the fund.

Legal and Regulatory Review

The legal frameworks in which funds and portfolio mandates are established are not uniform. Fitch reviews the legal environment in which a portfolio or fund operates as it relates to legal segregation of fund assets and valuation practices. This review considers the potential difficulties that may arise in identifying ownership of assets and, in particular, whether the assets are appropriately segregated and secure, such that the assets would be returned in a timely manner. Should Fitch identify material weaknesses in the segregation and security of a portfolio or fund's assets, it will not assign a rating.

Investment Manager Evaluation

Fitch evaluates the investment manager responsible for managing portfolios. The agency seeks to establish that the investment manager is suitably qualified, competent and capable of managing the portfolio, with a distinct assessment between actively and passively managed portfolios. If this cannot be established, Fitch will not rate the fund. Multiple portfolios can be rated once the manager assessment process has been completed. Areas of focus include:

- The investment manager's business and financial stability, staffing and technology resources, controls and governance.
- Record in managing the asset class under review.
- The experience of key investment staff. For newly launched funds or investment managers, Fitch looks at the experience of such staff in managing comparable mandates or strategies.
- Risk controls in place, including for example exposure limits, stress testing, counterparty risk management (including authorized participants for ETFs), and/or compliance procedures.

Criteria for Fund Credit Quality Ratings

Fund Credit Quality Ratings are based on the actual and prospective weighted average credit quality of the underlying portfolio holdings. Fund Credit Quality Ratings are not point-in-time and, therefore, have an embedded element of rating momentum to address the likelihood that a portfolio maintains a given credit quality over time.

Fund Credit Quality Rating — Simplified Diagram

WARF
Based on portfolio securities' credit quality and maturity accounting for counterparty risk

WARF Stress Test
Fitch may conduct one or several broad types of stress tests that may include but are not limited to:

- Concentration Stress: An example would be to downgrade the credit ratings of the largest, top three and top five issuer exposures by one notch
- Credit Barbelling Stress: An example would be to downgrade all portfolio securities that are rated two categories or more below the non-stressed WARF
- Market-based Stress
- Transition Stress

Fund Credit Quality Rating

Source: Fitch Ratings.

Fund Credit Quality Ratings are principally driven by the WARF of the portfolio, factoring in securities on Negative Rating Watch where exposure is material, stress tests as defined in these criteria and other credit considerations, such as counterparty risk, concentration and derivatives. In addition, ramp-up periods for new funds and wind-down periods for finite life bond funds are rating considerations (see Appendix D for further detail).

Weighted Average Rating Factor

Fitch calculates the portfolio's WARF as the primary driver of the Fund Credit Quality Rating. The Fund Credit Quality Rating is largely guided by the rating implied by the WARF calculation, as detailed in the table at the bottom of this section. A portfolio's WARF is the market value-weighted sum of each portfolio security's credit rating factor, which takes into account the maturity of the instrument, based on legal final maturity dates in most cases. In limited certain circumstances, Fitch may consider a maturity date shorter than a portfolio security's legal final maturity date to determine each portfolio security's credit rating factor. For example, if a security benefits from an investor demand feature, such as a put option, Fitch will consider the exercise date as the maturity date. For certain structured finance securities with the potential for prepayments options, Fitch will look to each security's weighted average life (WAL), as this more accurately reflects the expected principal repayment.

Fitch will consider perpetual instruments on a case-by-case basis for those securities with a call option at the issuer's option when deciding on maturity terms. Fitch will apply a standard 30-year maturity for perpetual instruments without put or call options.

Fitch's rating factors can be found in the table below. They are derived from observed cumulative 10-year default frequencies, consistent with the approach taken in Fitch's Portfolio Credit Model. These factors may be updated periodically.

The rating factors applied or the approach to determining the applicable rating factors may differ in certain national markets to reflect the specific characteristics of that market as detailed in Appendix A. A portfolio's WARF is calculated based on the market value (notional for CDS or other comparable derivatives) of the portfolio's underlying assets. Consequently, the contribution of individual securities to the overall portfolio WARF will change with those securities' market values.

Short positions are not taken into consideration when calculating the agency's WARF. For holdings where credit risk is fully hedged using derivatives (e.g. with a matched notional and term), Fitch may calculate the position's WARF using the market value of the derivative position and the credit quality of the derivative counterparty, if the counterparty is rated. Appendix B contains an example of the WARF calculation.

Fund Credit Quality Rating – Credit Risk Factors

(By Underlying Security Rating Category and Remaining Maturity)

Residual Maturity	AAA	AA	A	BBB	BB	B	CCC	CC and Below
0–90 days	0.00	0.02	0.14	0.6	3.2	11.8	23.7	100.0
91–397 days	0.01	0.05	0.3	0.9	4.5	19.6	50.0	100.0
398 days–3 years	0.05	0.2	0.6	1.4	5.8	23.7	50.0	100.0
> 3 years	0.14	0.6	1.6	3.2	11.8	23.7	50.0	100.0

Source: Fitch Ratings.

The WARF is calculated at the category level (e.g. BBB), rather than the notch level (e.g. BBB+), which results in wider WARF ranges and allows for normal portfolio turnover while promoting ratings stability. The WARF represents a portfolio's average credit risk and helps in comparing intrinsic credit quality across different portfolios.

When calculating the WARF, Fitch assumes all securities subject to a Negative Rating Watch (or comparable nomenclature under other rating scales) are rated one notch lower than the assigned rating. This treatment only affects ratings on the cusp of falling into another rating category (for instance a AA- that could fall into the A category). No comparable adjustment is made for securities assigned a Positive Rating Watch or for securities subject to a Rating Outlook, whether Positive or Negative. For securities that only carry a short-term rating, Fitch uses the conversions detailed in the margin table on the left.

Calculating WARF

(Factors Applied to Securities with Only Short-Term Ratings)

ST Rating	Factor
F1+	AA
F1	A
F2	BBB
F3	BBB

Source: Fitch Ratings.

In cases of highly concentrated funds, or derivatives-based funds with a low number of counterparties, Fitch may credit-link the rating of the fund to that of the lowest rated obligor or counterparty. Specifically, if a fund has more than five but less than 10 obligor exposures, other than relating to high-quality sovereigns, supranationals and agencies, and any one of those exceeds 30% of the total portfolio, Fitch will credit link the Fund Credit Quality Rating to that of the lowest rated obligor or counterparty.

Fitch uses issue-specific ratings in its analysis, which take into consideration subordination and potential collateralization. Fitch starts with its own ratings, but where these ratings are not available, the lowest of other ratings assigned by recognized global agencies is applied. Where a fund materially invests in unrated diversified positions (such as CDS indices, funds or ETFs), Fitch will conduct a look-through analysis to the underlying exposures based on available information and use an estimate of the weighted-average rating (or WARF) of the position in its overall WARF calculation. If the diversified position is an unrated, regulated money market fund, Fitch will estimate the fund's portfolio credit factor to determine the fund's rating input in its WARF calculation. For a single name CDS, Fitch considers the rating of the reference entity.

For assets that are not publicly rated by any of the globally recognized rating agencies, Fitch will assume the asset is rated 'CCC' for the purpose of its WARF calculation. There are exceptions to this approach: first, if Fitch maintains, or asks the relevant analytical team at Fitch to provide a credit opinion, a privately monitored rating or an estimated minimum rating. Second, in limited circumstances, the agency may consider the fund manager's own credit assessments, if the Fitch rating committee judges them to be comparable to the agency's own internal credit assessment. This approach would, however, only be on a case-by-case basis, and the agency would expect securities with ratings obtained in this manner to make up in aggregate 10% or less of the portfolio. Third, Fitch may, in specific circumstances outlined in the appendices to this criteria and/or related bespoke criteria, impute reference ratings for unrated subsidiaries of rated parents, for the purposes of its WARF calculation.

Guideline WARF Ranges

WARF Range (>=, <)	WARF - Implied Fund Credit Quality Rating
0.0–0.3	AAA
0.3–0.9	AA
0.9–2.1	A
2.1–6.1	BBB
6.1–15.8	BB
15.8–32.4	B
32.4–100	CCC and below

Source: Fitch Ratings.

Counterparty Risk

Portfolios may be exposed to counterparty risk from different sources, including repurchase agreements, swaps or cash deposits. Non-cash counterparty exposures that are not subject to frequent margining and appropriate levels of collateralization are not eligible exposures in Fitch-rated funds. In the case of repurchase agreements where the fund is the lender, Fitch will employ the framework outlined below to evaluate a repurchase agreement based on the credit quality of the counterparty and underlying collateral.

(In repurchase agreements with unrated counterparties that are subsidiaries of rated financial institutions, Fitch will look to the ratings of the parent company, except in circumstances when the agency believes the credit profile of the unrated subsidiary would not be linked to its parent's rating.)

Where the repo contract is fully backed by liquid collateral of higher credit quality than the counterparty (i.e. highly rated government securities), where there is substantial visibility on the collateral composition and the composition of the collateral is expected to remain consistent, and the repo contract is governed by a legal regime under which there is only a remote risk of any stay (as defined by standard developed-market convention; the ISDA U.S. Stay Protocol, for example) on repo collateral in the event of counterparty failure, then Fitch may look to the credit quality of the underlying collateral in its WARF and Market Risk Factor (MRF) calculations.

The table below illustrates Fitch's framework on repurchase agreements. Fitch will use either the collateral rating when the collateral is rated higher than the counterparty, or the counterparty rating when the collateral is rated lower. Similarly, Fitch will look to the maturity of the repo contract when the counterparty is investment grade, or the maturity of the underlying collateral when the counterparty is below investment grade or unrated.

Matrix of Assumed Credit Quality and Maturity for Repurchase Agreements

		Counterparty Ratings	
Collateral Credit Quality		Investment-Grade Counterparty, or Deemed Equivalent	Non-Investment-Grade Counterparty, or Deemed Equivalent
	Higher than Counterparty	Credit: Collateral Rating Maturity: Repo Contract	Credit: Collateral Rating Maturity: Collateral
	Lower than Counterparty	Credit: Counterparty Rating Maturity: Repo Contract	Credit: Collateral Rating Maturity: Collateral

For non-fixed-income collateral, a 'CCC' rating factor and duration of 30 years is applied to the WARF and MRF calculations.

Repo transactions not collateralized by high-quality collateral rated higher than the counterparty or exposed to the risk of a stay in bankruptcy are treated as direct unsecured credit exposure to the counterparty.

Cash

Funds may have cash balances, held in bank deposits or invested in money market instruments. Fitch treats such exposures as it would any other exposure in its rating analysis. For example, Fitch would use a rating factor of 0.01 for a 60-day time deposit with an 'A' rated bank.

Some funds may be able to leave cash uninvested at the fund's custodial bank. For such cases, Fitch uses the rating factor corresponding to the bank credit quality in its portfolio WARF calculation, unless there is full segregation of uninvested cash balances at the fund's custodian, and where such cash is legally and operationally ring-fenced from other bank creditors, such as under UCITS V legislation. In these cases, a rating factor of 0 is applied for the purpose of WARF calculation where Fitch has information to support such segregation.

Other funds, such as U.S. LGIPs, may sometimes invest in deposit programs sponsored by a given U.S. state and intended to allow public-sector entities to invest in collateralized or credit-enhanced deposits. Fitch will assess the credit quality of these programs based on their terms, which may include features like overcollateralization of deposits or joint and several guarantees amongst deposit institutions. In the case of joint and several guarantees, Fitch will impute a rating for the program based on the ratings of the two highest-rated banks participating in the program as shown in the following table. This imputed rating allows for a cushion relative to the banks' ratings in case the banks guaranteeing the deposits are downgraded or move out of the program. Fitch will periodically reassess the terms of these deposit programs and the participating banks.

Assumed Credit Quality for Joint and Several Deposit Programs

		Highest Rated Bank							
		AAA	AA+	AA	AA–	A+	A	A–	BBB+
Second Highest Rated Bank	AAA	AA+							
	AA+	AA	AA						
	AA	AA	AA–	AA–					
	AA–	AA	AA–	A+	A+				
	A+	AA	AA–	A+	A	A			
	A	AA	AA–	A+	A	A–	A–		
	A–	AA	AA–	A+	A	A–	BBB+	BBB+	
	BBB+	AA	AA–	A+	A	A–	BBB+	BBB	BBB

For deposit programs that benefit from a guarantee or a letter of credit (LOC) that is payable to the fund, Fitch will look to the rating of the guarantor and the stated maturity of the deposit. In other instances where a guarantee is not provided but deposits are collateralized, and the fund or a custodian has direct access to the collateral, Fitch will consider the rating of the deposit bank as well as the collateral, using the same criteria as described for repo agreements above.

Criteria for Fund Market Risk Sensitivity Ratings

Fitch may assign Fund Market Risk Sensitivity Ratings in certain instances, subject to market relevance or regulatory demand, in addition to the Fund Credit Quality Rating. Fund Market Risk Sensitivity Ratings are primarily based on an analysis of a fund portfolio's interest rate duration (modified/effective duration) and spread duration, and adjusted for the effects of leverage (where applicable), as measured by Fitch's market risk factor detailed below. Fund Market Risk Sensitivity Ratings are expressed on a scale ranging from 'S1' (very low sensitivity to market risk) to 'S6' (very high sensitivity to market risk).

Market Risk Sensitivity Ratings

Market Risk Sensitivity	Market Risk Sensitivity Rating	Market Risk Sensitivity Factor[a] (>=, <)
Very Low	S1	<2.0
Low	S2	2.0–4.0
Moderate	S3	4.0–7.5

Market Risk Sensitivity Ratings

Market Risk Sensitivity	Market Risk Sensitivity Rating	Market Risk Sensitivity Factor[a] (>=, <)
Moderate to High	S4	7.5–12.5
High	S5	12.5–17.5
Very High	S6	>17.5

[a]Different cutoff points may be applied in certain national markets to reflect regulatory and structural characteristics of that specific market as detailed in Appendix A.
Source: Fitch Ratings.

Fund Market Risk Sensitivity Rating – Simplified Diagram

Market Risk Factor
Based on portfolio securities' interest rate risk, spread duration and spread risk factors accounting for leverage

Market Risk Stress Test
Fitch may conduct one or several broad types of stress tests that may include but are not limited to:
- **Concentration Stress:** An example would be to downgrade the credit ratings of the largest, top three and top five issuer exposures by one notch
- **Credit Barbelling Stress:** An example would be to downgrade all portfolio securities that are rated two categories or more below the non-stressed WARF
- Market-based Stress
- Transition Stress

→ Fund Market Risk Sensitivity Rating

Source: Fitch Ratings.

Market Risk Analysis: Fitch's Market Risk Factor

An analysis of the portfolio's market risk factor serves as the primary tool used in assigning Fund Market Risk Sensitivity Ratings.

A portfolio's market risk factor is calculated by combining the portfolio interest rate duration and risk-adjusted spread duration of the securities in the portfolio, and adjusting the result for the effect of any leverage. The weight of a security is the proportion of the market value of a portfolio represented by that security. As a rule, the higher the portfolio's market risk factor, the higher the sensitivity to interest rate, spread and other market risk variables.

Other market risk factors that Fitch may factor into its analysis include concentration risk, currency risk, hedging strategies and other risks.

Interest Rate Risk

Fitch's primary measure of interest-rate risk is modified duration (i.e. the sensitivity of market value to changes in the levels of interest rates, assuming a parallel shift in the yield curve). Fitch evaluates interest-rate risk by analyzing modified duration at the individual security and portfolio levels. The agency may also calculate a portfolio's weighted-average maturity to interest-rate reset date (WAM) in its interest-rate risk analysis as a conservative proxy for modified duration. In cases where a fund's underlying holdings include securities with embedded options, such as mortgage-backed securities, Fitch may use effective duration to more accurately measure interest-rate risk. Where a fund invests in diversified positions (such as CDS indices, funds or ETFs), Fitch will conduct a look-through analysis to the underlying exposures and use the estimated weighted average duration and credit ratings of the position in its MRS calculation.

Spread Risk

Spread risk considers the portfolio's market value sensitivity to changing credit spreads. Credit spreads reflect a risk premium demanded by the market for holding securities of a "lesser" quality than "the highest quality" (usually government) securities — for credit, liquidity or technical reasons.

Spread risk can be measured by calculating a portfolio's spread duration (sensitivity to changing credit spreads) and adjusting that calculation according to a spread risk factor. Fitch may also calculate a portfolio's WAL in its spread risk analysis as a conservative proxy for spread duration. (*In the case of fixed-rate bonds and notes, the spread duration is the same as the first duration metric.)*

Fitch's spread risk factors, detailed in the table below, are based on the historic volatility of credit default swap (CDS) spreads, combined with an analysis of observed fixed-income index return volatility at each rating level as the breadth and availability of CDS spread data can vary. The analysis supporting the development of these factors therefore considers both the sensitivity to spread movements — as measured by the fund's spread duration — as well as the relative level of spread volatility observed historically.

Fitch applies no spread risk factor to "the highest quality" securities, i.e. those rated 'AAA', and an incremental spread risk factor at the 'AA' level. Fitch's spread risk factors increase as credit quality decreases.

Spread Risk Factors[a]

	AAA	AA	A	BBB	BB	B	CCC and Below
Spread Risk Factor	0.0	0.1	0.2	1.0	2.0	4.0	7.0

[a]Based on an analysis of Fitch Solutions non-financial corporate CDS spread volatility for the 2007 – 2022 period and Bank of America Merrill Lynch global fixed-income market index total return volatility for the 1997 -2022 period. Spread risk factors are based on volatility of observed CDS spreads relative to those observed at the 'AA' level.
Source: Fitch Ratings.

Spread risk is accounted for by multiplying the security's spread duration by the spread-risk factor corresponding to the credit quality of the security. This calculation is performed at an individual security level. An example of this calculation is presented in Appendix B.

Fitch recognizes that some asset classes may have spread risk sensitivities that differ from the assumptions incorporated in its core spread risk factors. Accordingly, as part of its rating analysis, Fitch reviews the asset class, geography and security type exposures of funds it rates. Should Fitch determine that the fund has more than approximately a quarter of the portfolio in securities for which the absolute and/or relative spread risk sensitivity exhibits markedly different volatilities from those observed in CDS spreads and fixed-income index volatilities from which the spread-risk factors are derived, then the agency will either apply a qualitative adjustment to the Market Sensitivity Rating implied from its core spread risk factors or adjust the spread-risk factors used in its rating analysis.

This treatment will be disclosed in the associated rating action commentary. Fitch will utilize the standard spread risk factors in markets where it is unable, because of a lack of data, to reliably determine that spread risk sensitivity is different.

Market Risk Factor = Duration + (Spread Duration x Spread Risk Factor)

Portfolios may be constructed with very low sensitivity to interest-rate risk and materially greater exposure to spread risk by heavily investing in floating-rate instruments. Given that floating-rate notes typically reset quarterly, a portfolio composed largely of such securities will have very low interest-rate risk – 90 days or less to be precise – but the final maturity of these instruments may be longer, resulting in higher spread risk. The market risk factor calculated for such funds, therefore, can be low, particularly for higher-rated portfolios. Fitch reserves the right to apply qualitative adjustments to its market risk factor calculation to recognize this barbelling of risks.

Currency Risk

Portfolios may include unhedged multicurrency assets and/or liabilities. The impact of currency risk is assessed relative to the base currency of the portfolio in which the investment is made. If Fitch considers a fund to have material foreign-currency risk, it may apply a qualitative adjustment to the market risk factor.

A portfolio composed of a pool of securities denominated in different currencies but which offers investors a choice of the currency in which their participation is denominated, may have different Market Risk Sensitivity Ratings for each currency class.

Any subsequent translation of returns into investors' own particular base (or accounting) currency from the currency in which the fund is denominated is not accounted for, and this risk remains for them to hedge — or not — accordingly.

Hedging

Some portfolios have the ability to use derivative instruments to hedge market risk or manage their risk exposures more dynamically. In its assessment, Fitch distinguishes between systematic hedging and discretionary trading/adjustment. Recognition for systematic hedging may be given in the Fund Market Risk Sensitivity Rating if the manager can demonstrate its ability to structurally reduce market risk sensitivity through these positions.

For example, a fund may use interest-rate swaps (or other instruments) to reduce a portfolio's sensitivity to interest-rate risk. If the manager in this example can demonstrate to Fitch that the hedging strategy is both effective and consistently applied and that the manager has proven hedge management capabilities, then Fitch will factor the results into its analysis. In this example, Fitch would base its market-risk-factor calculation on a lower duration than implied by the portfolio's actual holdings due to the effectiveness of the interest-rate hedging mechanism. Fitch considers counterparty quality as outlined in the Counterparty Risk section above.

Leverage

Portfolios may employ leverage to achieve their investment objectives. Many derivatives or structured securities can create *de facto* or economic leverage, offering investors higher yields with lower upfront investment, at the expense of greater price and total return volatility. In such cases, Fitch will factor such economic leverage into its analysis. For example, a fund may use interest rate swaps or long bond futures to increase the portfolio's sensitivity to changes in interest rates. In this scenario, Fitch would base its market-risk-factor calculation on a higher duration than implied by the portfolio's actual holdings due to the effect of such derivatives. Fitch considers counterparty quality as outlined in the Counterparty Risk section above.

Portfolios may also employ financial leverage to achieve their investment objectives. This is done typically through securitized lending arrangements (notably reverse repurchase agreements), bank lines, margin financing or other debt-like facilities.

When evaluating the impact of financial leverage on portfolios, Fitch applies a multiplier to its market risk factor in a linear manner. Building on the standard formula, the market risk factor calculation can be as follows:

Market Risk Factor = [Duration + (Spread Duration x Spread Risk Factor)] x Leverage.

Stress Tests

Unless it is judged to not be a meaningful exercise, such as in the case of a highly granular, high credit-quality, and actively managed portfolio, Fitch complements its overall portfolio analysis framework with principles-based stress tests. These stress tests focus on assessing portfolio sensitivity to negative credit migration (downgrades). Depending on the characteristics of a portfolio or the ratings headroom implied by a portfolio's base WARF and/or MRF calculations, Fitch may conduct one or several broad types of stress tests, typically at the time of initial and ongoing rating reviews and/or in response to market developments. The types of stresses and examples of the forms they may take include, but are not limited to, the following.

Concentration Stress: Fitch may develop assumed downgrade scenarios based on specific issuer exposure(s), particularly where the issuer(s) represent(s) a relatively large share (5% or more for one issuer, if uncollateralized, for example) of the fund's holdings and/or in relation to larger longer-dated exposures. Examples of such stress tests would be to downgrade the credit ratings of the largest, top three and top five issuer exposures by one notch.

Credit Barbelling Stress: Fitch may develop assumed downgrade scenarios based on the ratings distribution in order capture the effect of credit "barbelling". An example of such a stress test would be to downgrade all portfolio securities that are rated two categories or more below the (non-stressed) WARF-implied fund rating level by one notch and recalculate the WARF.

Market-Based Stresses: If issuers in one particular jurisdiction, or from one particular sector, are experiencing adverse credit developments, Fitch may assume downgrades (potentially of differing magnitudes if considering multiple stress scenarios) to relevant issuers in that jurisdiction or sector.

Transition Stresses: Fitch may assume portfolio-level downgrade scenarios representing potential downward ratings migration, informed by historical transition data, for passively managed portfolios, which may be unable to actively sell or remove downgraded exposures date, or where potential rebalancing would not sufficiently address credit migration.

Upon applying any of these stresses, Fitch would then recalculate the portfolio's WARF and MRF scores taking into consideration these assumed downgrades. Individual rating committees will judge the appropriateness of the scenarios in determining materiality to a portfolio's Fund Credit Quality Rating and Fund Market Risk Sensitivity Rating. The committee will take into consideration the severity of stresses applied and the results under different scenarios (if more than one is considered). Fitch will use the stress test results as an input into its overall assessment of the risk of a fund's portfolio and ability of fund management to mitigate credit migration risk.

In the case of funds whose WARFs are particularly sensitive to the stress tests, or where potential rebalancing would not sufficiently address credit migration, Fitch may assign lower ratings, including through the application of rating modifiers (+ and −) to the Fund Credit Quality Rating to reflect the relative risk of the fund within the rating category. (*As a general practice, Fitch does not apply rating modifiers [+ and -] in issuing Fund Credit Quality Ratings, but may do so in limited circumstances such as to reflect the relative weakness of a fund within its rating category due to weak stress test results, or other reasons [i.e. to reflect a country rating ceiling], which will be disclosed in Rating Action Commentaries.)* This would also apply to passively managed strategies, such as index-tracking ETFs, which may be unable to actively sell or remove downgraded exposures. Similarly, in the case of funds whose MRFs are particularly sensitive to the stress tests, Fitch may adjust the ratings to reflect higher market risk sensitivity than otherwise implied by the MRF.

Additionally, where the results of Fitch's stress testing suggest material weakness in a fund's credit profile, Fitch may place the ratings of the fund on Rating Watch Negative (RWN) or Rating Outlook Negative (RON), or downgrade it, barring any remedial action planned by the investment manager or other mitigating factors. Ultimately, individual rating committees will determine the relevance of any given stress testing scenario and results to ratings.

Surveillance

Fitch reviews current and historical information on rated funds as part of its process for updating and maintaining its ratings.

Fitch requires rated funds to provide the agency with periodic information on the fund's holdings. In most cases, Fitch requires this information at least monthly, barring situations in which regulatory restrictions mean that the frequency of information provision is reduced. If the historical composition of the portfolio and the framework and nature of the fund provide evidence of stability (e.g. pension funds with buy and hold strategies), Fitch might require information less frequently. The agency will evaluate such instances on a case-by-case basis.

The source of surveillance information can be the fund manager, a custodian or an administrator typically.

As a minimum, Fitch requires the following portfolio holdings information:

- Security name and relevant identifiers (such as ISIN or CUSIP numbers, where applicable).
- Current market value exposure (notional for CDS) in fund's base currency.
- Fitch may also request additional information to aid its analysis, such as:
    - Expected maturity (WAL for ABS, put date if put held by investor).

- Legal final maturity.
- Next reset date.
- Current issue-specific ratings (including Rating Watches and Outlooks, where applicable).
- Currency.
- Asset type.

At its periodic meetings with managers of rated funds, Fitch will discuss hedging strategies where applicable.

Fitch recognizes that, in limited circumstances, changes in key portfolio metrics may moderately and temporarily move outside the agency's rating criteria for its assigned ratings. For example, an underlying asset downgrade or outflows may moderately increase the portfolio's WARF above the limit for the portfolio's current rating category. While material and/or continuous deviations from rating criteria will have rating implications, there is often a reasonable basis for a short grace period, provided the investment manager has proposed credible and achievable near-term remedial actions to resolve or mitigate the risks. Fitch will evaluate such instances on a case-by-case basis to determine whether the changes are material to the ratings.

Variations from Criteria

Fitch's criteria are designed to be used in conjunction with experienced analytical judgment exercised through a committee process. The combination of transparent criteria, analytical judgment applied on a transaction-by-transaction or issuer-by-issuer basis, and full disclosure via rating commentary strengthens Fitch's rating process while assisting market participants in understanding the analysis behind our ratings.

A rating committee may adjust the application of these criteria to reflect the risks of a specific transaction or entity. Such adjustments are called variations. All variations will be disclosed in the respective rating action commentaries, including their impact on the rating where appropriate.

A variation can be approved by a ratings committee where the risk, feature, or other factor relevant to the assignment of a rating and the methodology applied to it are both included within the scope of the criteria, but where the analysis described in the criteria requires modification to address factors specific to the particular transaction or entity.

Limitations

Analysis and rating decisions are based on relevant public and non-public information. The main sources of this information are the issuer and/or fund administrator and the public domain. This includes publicly available information pertaining to the fund, such as audited and unaudited (e.g. interim) financial statements and regulatory filings. The rating process may incorporate information provided by third-party sources. The relevant source of information material to the rating is disclosed in every rating action commentary.

Fitch conducts a reasonable investigation of the factual information it relies on, in accordance with its rating methodology, and obtains reasonable verification of that information from independent sources, to the extent such sources are available for a given security or jurisdiction. Issuers may choose not to share certain information with external parties, including rating agencies, at any time. While Fitch expects each issuer that has agreed to participate in the rating process, or its agents, will supply promptly all information relevant for evaluating both the ratings of the issuer and all relevant securities, Fitch neither has, nor would it seek, the right to compel the disclosure of information by any issuer or any agents of the issuer.

This is a global master non-credit criteria report addressing the agency's international and national rating scales. Not all rating factors in these criteria may apply to each rating action. Each specific rating action commentary or rating report will discuss those factors most relevant to the individual rating action.

The primary focus of this criteria report is on portfolios of debt securities, such as bond and loan funds, short-term bond funds, LGIPs, fixed-income debt security ETFs and managed pools of fixed-income debt securities. These funds may contain a variety of debt instruments, such as bonds and loans, bank capital, sovereign debt and structured finance securities. In general, Fitch rates money market funds under its "Money Market Fund Rating Criteria."

This report does not address the ratings of debt issued by U.S. and non-U.S. leveraged closed-end funds regulated under the Investment Company Act of 1940, as amended. These funds are specifically addressed in the agency's criteria report: "Closed-End Funds and Market Value Structures Rating Criteria."

Fund Credit Quality Ratings measure the aggregate credit risk of a portfolio and do not measure expected risk of default for a fund itself. Funds generally cannot default but, rather, experience changes in their total return and/or net asset value available to fund investors.

Another limitation to Fitch's bond fund ratings includes event risk. This is defined as an unforeseen event, which, until the event is known, is not included in the existing ratings. Prominent event risks for funds include sudden, dramatic and unexpected changes in financial market prices or liquidity, adverse regulatory decisions, litigation and massive redemptions, driven by the abovementioned factors or otherwise. Ratings may already include a reasonable assumption that a fund is vulnerable to financial market events or regulatory pressures, but the specifics of the event and its effect will not be known until the event is announced or completed, at which point the effect on ratings can be ascertained. Fitch does not give an opinion on the redemption risk investors may face for open-ended funds.

Additional limitations:

- The ratings do not predict a specific level or range of performance of a portfolio over any given time.
- The ratings do not offer opinions on the suitability or otherwise of a portfolio for investment or any other purposes.
- Fund Credit Quality Ratings do not provide an opinion on any quality related to a portfolio other than the actual and prospective average credit quality of the invested portfolio.
- Fund Market Risk Sensitivity Ratings only offer opinions on certain matters such as the sensitivity of a portfolio's total return and/or changes in net asset value to assumed changes in credit spreads and interest rates. They also give views on certain other market risk parameters, and take into account the effects of leverage where applicable.
- Fund Credit Quality Ratings do not opine on the redemption risk of any rated fund. Accordingly, the ratings do not consider the possibility that rated funds may suspend redemptions or apply other extraordinary liquidity management measures.

Fund Market Risk Sensitivity Ratings do not predict the direction or magnitude of changes in such market conditions and, therefore, do not predict whether, or the extent to which, any particular fund or portfolio will perform favorably or adversely in the future. Fund Market Risk Sensitivity Ratings do not gauge the sensitivity of a portfolio to extreme risks that may result from reduced liquidity in secondary markets during certain periods or, in the case of closed-end funds, the effects of secondary market prices on the fund's shares.

For Fund Credit Quality Rating and Fund Market Risk Sensitivity Rating definitions, refer to the Fitch Ratings website: https://www.fitchratings.com/creditdesk/public/ratings_defintions/index.cfm.

Appendix A: National Scale Bond Fund Ratings

Fitch assigns National Scale Bond Fund Ratings to funds operating in countries where, for some rating factors, a comparison with international ratings may not be applicable. In such instances, those factors are evaluated relative to local market features. Each national rating scale is unique and is defined to serve the needs of its local market. Comparisons between different national scales, or between an individual national scale and the international rating scale, are inappropriate and potentially misleading.

Consequently, National Bond Fund Ratings are identified by the addition of a special identifier for the country concerned, such as 'AAf/S1(mex)' for National Bond Fund Ratings in Mexico. In certain countries, the national bond rating scale may follow specific market standards as defined by the local regulator. Fitch publishes these rating scales on local Fitch websites to serve those specific markets. Linked here are the websites where local scales and rating definitions can be found for Brazil, Colombia and Mexico.

National Fund Credit Quality Ratings

For National Scale Fund Credit Quality Ratings where funds may invest cross-border, the portfolio or fund's credit quality is evaluated on the basis of country-specific fund credit quality rating factors to derive the WARF. These country-specific factors are derived by mapping the international fund credit quality rating factors to national scale equivalencies, according to the National Ratings Correspondence Tables.

Conversely, in jurisdictions where funds are domestic only, Fitch applies the international scale factors directly to the national market in question. For example, in Taiwan, China, Fitch would use the same 'AA' 91-397 day factor as it would use for International Scale Ratings (0.1); however, the Fund Credit Quality Rating itself is expressed on the Taiwan national rating scale, which anchors the 'AAA(twn)' point at the level of the Taiwan sovereign.

Additionally, when providing Fund Credit Quality Ratings on a national scale — and when Fitch or other globally recognized rating agency ratings are not available for securities within a portfolio — Fitch may consider credit ratings provided by local credit rating agencies in assessing portfolio credit risk. Fitch may adjust such ratings if Fitch considers it to be appropriate taking into consideration a review of the track record and outputs of the agency in question, when possible, and/or taking into account differences in rating methodologies with those of Fitch to ensure a consistent assessment of credit risk across the portfolio. Fitch would expect, however, that the majority of the assets within a portfolio would be rated by a globally recognized rating agency, and that a minority of the portfolio would be subject to this treatment.

Minimum portfolio size: in local markets where, as a result of regulation or standard market practice, fund structures are commonly used as pass-through structures, Fitch will not apply the minimum number of assets required for International Scale Ratings, and instead apply the standard WARF calculations on a look-through basis.

When considering repurchase agreements in the context of National Scale Ratings, Fitch applies the treatment outlined in the Counterparty Risk section within the "Matrix of Assumed Credit Quality and Maturity for Repurchase Agreements" table by considering the National Scale Ratings of the underlying collateral relative to the National Scale Rating of the repurchase agreement counterparty.

National Scale Market Risk Factors

Fitch adjusts the market-risk-factor ranges at each rating level for National Scale Ratings to account for factors specific to national markets, such as independent interest-rate movements, the range of investment options in terms of duration, or the stage of capital market development. To make full use of the rating scale in national markets, the ranges for each market risk factor level are tighter than for International Scale Ratings. An example is provided below.

Fund Market Risk Sensitivity Ratings

Market Risk	Market Risk Sensitivity Rating	Market Risk Factor (>=, <)
Very Low	S1	<0.6
Low	S2	0.6–1.0
Moderate	S3	1.0–2.25
Moderate to High	S4	2.25–3.5
High	S5	3.5–6.0
Very High	S6	>6.0

Note: Market Risk Factor levels may vary by country.
Source: Fitch Ratings.

Liquidity and Other Risk Factors

The spread risk factors used to calculate the Market Risk Sensitivity Factors already reflect a risk premium for liquidity, credit and technical reasons that are inherent to the individual securities. However, in certain national markets, regulators require the assessment of additional variables not mentioned in the body of this methodology to be included in the analysis of funds. For example, Fitch may be required to address specific aspects of liquidity. In such cases, Fitch complements its analysis with other elements that could impact the overall liquidity profile of a fund, such as investor concentration, fund structure, the percentage of the portfolio invested in short-term assets, among other variables.

This assessment can result in an adjustment to the Market Risk Sensitivity Rating to reflect greater market risk sensitivity if Fitch perceives any one element, or a combination of elements, to be contributing to greater liquidity risk relative to the investment objective of the fund.

As another example, Fitch may be required to review the historical returns of a fund in its overall assessment. In all such cases, Fitch will consider the additional required factors as part of its methodology for ratings in that particular country and make adjustments to the Fund Credit Quality Rating or Fund Market Risk Sensitivity Ratings as appropriate. Fitch will detail these rating adjustments in Fitch's communications with the market, such as rating action commentaries and/or rating reports.

Fitch Fund Credit Quality and Market Risk Sensitivity ratings do not incorporate an opinion about the probability of extraordinary liquidity management measures nor redemption risk.

Non-Fixed Income Investments

While the scope of this methodology is to rate debt portfolios, in certain jurisdictions or regulatory frameworks, pension funds are also rated under these criteria. In such cases, the Fund Credit Quality Rating reflects only the portion of the portfolio in debt and excludes other investments. Fitch shall disclose in its communications when this practice is applied. In all other cases, Fitch expects the exposure to such investments that are not debt to be small. Apart from such cases, where the portion of assets that is not debt exceeds 10%, Fitch will consider not rating the portfolio under this methodology.

Fitch will reflect the small exposure to non-debt securities in the Fund Market Risk Sensitivity Rating by assuming that the proportion of investments that is not debt to be subject to the highest market risk factor range, treating such exposure as 30 year duration, and including this in the overall calculation of the Fund Market Risk Sensitivity Rating.

Appendix B: Example Calculations

Fund Credit Quality Rating

Sample Portfolio 1: Diversified Long-Term Portfolio

Credit Quality	Residual Maturity	Market Value % in Portfolio	Related Rating Factor
AAA	> 3 years	30	0.2
AA	> 3 years	30	0.6
A	> 3 years	30	1.6
BBB	> 3 years	10	3.2

Source: Fitch Ratings.

WARF: [(30% X 0.2) + (30% X 0.6) + (30% X 1.6) + (10% X 3.2)] = **1.01**

- This falls within the 'A' WARF guideline range of 0.9–2.1.
- Indicative Fund Credit Quality Rating category: **'A'.**

Sample Portfolio 2: Diversified Short-Term Portfolio

Credit Quality	Residual Maturity	Market Value % in Portfolio	Related Rating Factor
AAA	91 to 397 days	20	0.01
AA	91 to 397 days	20	0.05
A	91 to 397 days	30	0.3
BBB	91 to 397 days	30	0.9

Source: Fitch Ratings.

WARF: [(20% X 0.01) + (20% X 0.05) + (30% X 0.3) + (30% X 0.9)] = **0.37**

- This falls within the 'AA' WARF guideline range of 0.3 – 0.9.
- Indicative Fund Credit Quality Rating category: **'AA'.**

Fund Market Risk Sensitivity Rating

Market Risk Factor = {Duration + Spread Duration x Spread Risk Factor} x Leverage

Sample Portfolio 3: Diversified, Long-Term Portfolio

Credit Quality	Security Type	Residual Maturity	Market Value % in Portfolio	IR Duration	Spread Duration	Spread Risk Factor
A	Fixed-rate bonds	3 years	10	3	3	0.2
BBB	Floating-rate bonds	4 years 6 months to reset	40	0.5	4	1.0
BBB	Fixed-rate bonds	4 years	40	4	4	1.0
BB	Fixed-rate bonds	4 years	10	4	4	2.0

Source: Fitch Ratings.

Weighted average interest rate duration:
[(10% X 3) + (40% X 0.5) + (40% X 4) + (10% X 4)] = **2.50**

Risk-adjusted weighted average spread duration:
[(10% X 3 X 0.2) + (40% X 4 X 1.0) + (40% X 4 X 1.0) + (10% X 4 X 2.0)] = **4.06**

Market Risk Factor = weighted average interest rate duration + risk adjusted weighted average spread duration.

Market Risk Factor = 2.50 + 4.06 = 6.56

Indicative Fund Market Risk Sensitivity Rating: **'S3' (**Range: **4.0 to 7.5)**

Appendix C: Rating Process Description

The rating process goes through the following stages:

1. Initial contact between the fund manager and Fitch.
2. Initial information request and preliminary review of the requested information.
3. Initial meeting with relevant personnel.
4. Analysis of all information, preparation and distribution of committee package.
5. Rating committee decision and assignment of rating.
6. Communication of the rating decision and rationale to the fund manager.
7. Dissemination of the rating in the case of public ratings.
8. Surveillance and monitoring of the rating, except for point-in-time ratings.

This last stage is characterized by regular portfolio surveillance and communication with the fund manager. Fitch holds a formal meeting with each fund manager periodically, where topics such as long-term plans or strategies are discussed.

Appendix D: Fund Risk Analysis and New Funds or Changes in Investment Objective, and Finite Life Funds

Fitch performs a prospective analysis to ensure that the ratings provide a forward-looking view and exhibit stability over time. As part of this analysis, Fitch considers other risk factors inherent to the fund, specifically how the composition of the fund may vary according to market conditions, taking into account the risk limits stipulated in its prospectus.

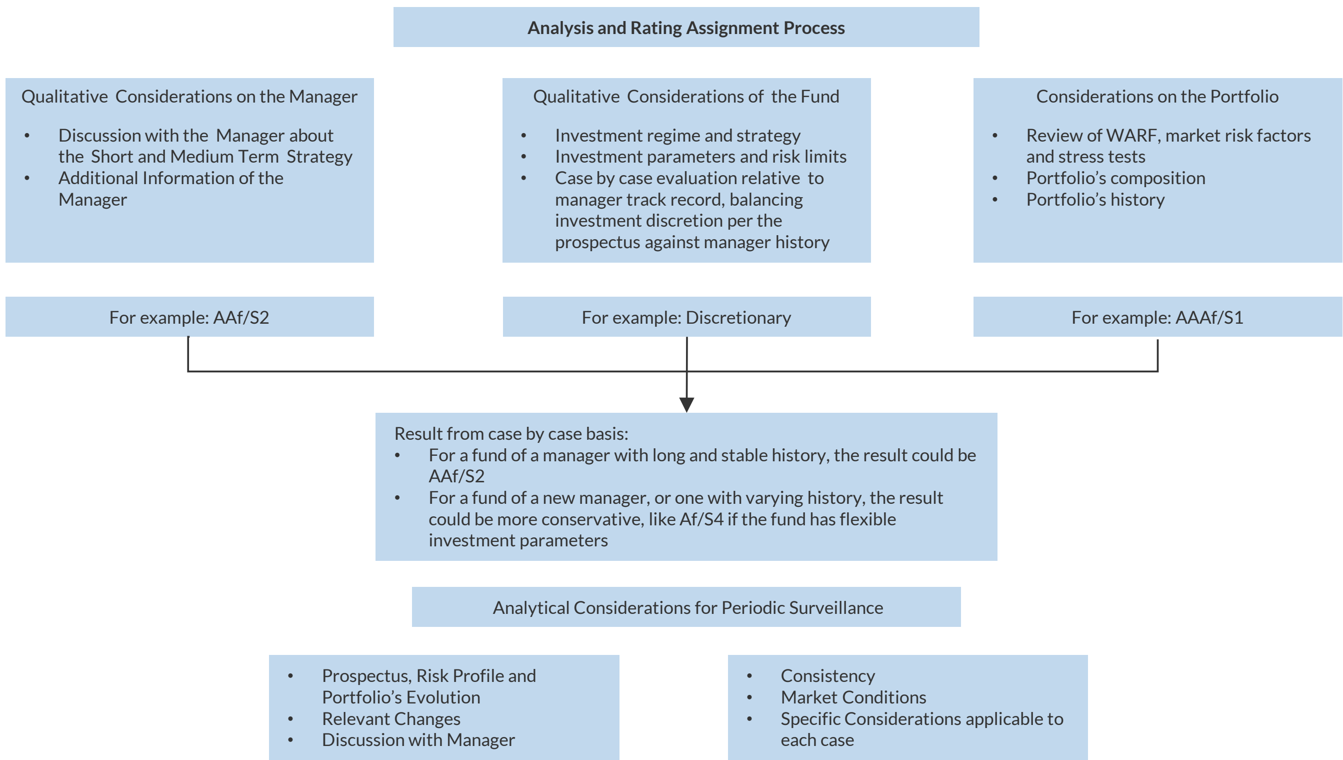
Fitch also takes into account the fund's record (if applicable), as well as its investment regime and strategy as discussed with fund management, along with any changes or shifts in these strategies relative to market conditions. These elements inform the possible qualitative adjustments that could apply to the quantitative indicators of the actual or model portfolio. The magnitude of the qualitative adjustments depends on each case.

To ensure that ratings maintain a prospective view, Fitch maintains regular contact with managers to understand the development of the fund's investment strategy, and to gather information on relevant changes in the composition of the portfolio that may affect key rating elements as part of its surveillance process. Fitch will take rating actions to reflect new information when necessary. The Rating Action Commentary will contain all specific considerations applicable to the ratings in each case.

New Funds or Changes in Investment Objectives

An understanding of the fund management's intended strategy is particularly important in the case of new funds or where funds have changed their investment objective. When evaluating such funds Fitch requests:

- A current or model portfolio that reflects the strategy (or new strategy) to be applied.
- A draft prospectus.
- A discussion with relevant personnel on future strategy, plans, projections and other aspects.
- Manager information (for new funds).



Source: Fitch Ratings.

In evaluating such funds, Fitch takes into account the current or model portfolio, fund limits and incorporates information learned on the investment strategy from discussions with the fund's management to reflect these elements.

For example, a new fund (or a fund that has widened its investment objective) may have a very high quality and short-term investment portfolio that would otherwise be consistent with 'AAAf' WARF or an S1 market risk sensitivity factor. However, if the new investment mandate indicates that the manager has substantial flexibility on the composition of the portfolio, and if fund management indicates to Fitch that it intends to use this flexibility, then the rating assigned to the fund may be adjusted to indicate a higher credit risk and market risk sensitivity than that implied by the current portfolio alone. For example, the fund may be rated 'AAf'/'S2'.

Finite Life Funds

Fitch may be asked to rate funds with defined, finite lives (i.e. a fund with a scheduled termination date by which point assets will all have matured or been liquidated and proceeds returned to investors). Such funds will typically have ramp-up, stable state and wind-down periods. Conceptually, Fitch can rate such funds with the Bond Fund Rating Criteria; but the fund lifecycle provokes additional analytical considerations, notably relating to concentration risk and potential for WARF volatility during the ramp-up and wind-down periods.

Factors enabling a rating on such a fund would include factors that support the likelihood of achieving the targeted portfolio composition in a smooth and reasonable timeframe, such as committed capital from high quality investors.

Conversely, Fitch will not rate funds with extended ramp up periods or material indication that the target portfolio will not be readily achieved. In rating such a fund at inception, Fitch would take into account a target or model portfolio, as well as the fund's investment policy and risk limits. A case-by-case analysis would be required to determine the appropriate level of qualitative adjustment to account for the execution risk of achieving the targeted portfolio composition, and the concentration risk that the portfolio will experience during the ramp up phase.

Fitch will similarly take into account any execution and concentration risk related to the wind-down phase, which may also include concentration of cash positions with a custodian, and could ultimately create a credit linkage between the fund's rating and the concentrated positions. Fitch will detail additional rating considerations for such funds in the associated rating action commentary.

Non-Bond Portfolios

Fitch may rate portfolios comprising fixed income interests other than the bonds or loans considered in the core rating criteria framework. For example, the agency may rate portfolios of mortgages (residential or commercial) or portfolios of trade finance or supply chain receivables (see Appendix F). Conceptually, such portfolios may be addressed under the Bond Fund Rating Criteria alone, or in conjunction with other rating criteria maintained, for example, by Fitch's applicable Structured Finance rating groups. Any such enquiry will be addressed on a case-by-case basis and will likely be addressed through criteria variations or bespoke rating criteria.

Appendix E: Assigning Ratings Based on a Portfolio Including International and Nationally Rated Securities

Criteria for assigning new International Scale Bond Fund Ratings to funds that invest in a mixture of securities rated on an international rating scale and securities rated on national rating scales.

Indian Bond Fund Rating Criteria

Bespoke Credit risk Factors: Fitch uses the following bespoke Credit Risk Factors for securities rated 'AAA' on a national scale in India by domestic rating agencies it has identified as meeting consistent minimum rating standards. The bespoke 'AAA' India national scale credit risk factors correspond to Fitch's international scale 'BBB' category' (relating to entities rated BBB+, BBB and BBB−) credit risk factors included in this criteria.

The bespoke credit risk factors are based on an analysis of the transition and default (T&D) performance of Indian National Scale Ratings compared with Fitch's transition and default studies for International Scale Ratings. Fitch will periodically review these factors, particularly if the India sovereign rating changes. These factors are expected to be updated if and when the 'BBB' category credit risk factors are updated to ensure consistency with the global criteria. In the event a fund holds securities rated below 'AAA' on a national scale, Fitch will adopt conservative risk factors aligned with the 'BB' category and lower rating factors.

Fund Credit Quality Rating — Bespoke Credit Risk Factors

Rating/Residual Maturity	0–90 days	91–397 days	398 days–3 years	>3 years
AAA (India national scale)	0.6	0.9	1.4	3.2

Source: Fitch Ratings.

Consistent Minimum Rating Standards: Fitch uses ratings provided by domestic rating agencies in India that consistently satisfy Fitch's minimum rating standards. These domestic rating agencies have a large and established market presence within India, have practices that are consistent with accepted international standards, and are affiliated with companies that have a global presence and are subject to global regulation.

In addition, T&D rating performance data should support the use of National Scale Ratings published by eligible rating agencies in India. T&D data will support the use of national ratings when these data demonstrate:1) a ratings distribution that is broadly consistent with international norms and that Fitch does not consider aggressive; 2) ratings stability; and 3) default experience that compares well with Fitch's own experience. Fitch has determined that India Ratings, CRISIL and ICRA meet these standards. Fitch will treat securities rated only by other local rating agencies as 'CCC' for the purpose of its rating analysis.

Country Ceiling: Fitch applies its Country Ceilings criteria to Indian bond funds rated on the international scale. The relevant Country Ceiling is that of India, irrespective of the fund's domicile, given that these funds are mainly exposed to economic conditions in India. Moreover, the Country Ceiling incorporates foreign-currency transfer and convertibility risk present in bond funds that have share classes denominated in currencies other than the Indian rupee.

Rating Sensitivities Ratings of Indian bond funds assessed using these bespoke criteria face an asymmetric sensitivity to changes in India's Country Ceiling. If the Country Ceiling is lowered, Fitch would expect to downgrade rated Indian bond funds to no higher than the applicable Country Ceiling. Conversely, Fitch would not expect to upgrade the ratings if the Indian Country Ceiling is upgraded, unless changes are warranted to the agency's applicable bespoke credit risk factors.

The ratings are also highly likely to be sensitive to the Indian sovereign rating, both to the extent that changes in the sovereign rating and Country Ceiling are likely to be correlated, and because Indian bond funds may have significant exposure to Indian government bonds.

All other rating sensitivities described in these global criteria also apply.

Appendix F: Assigning Ratings to Trade Finance Funds

Additional analytical considerations which may be relevant when assessing trade finance funds include the use of trade credit insurance, exposure to unrated obligors and structures with notes backed by trade finance assets.

The Bond Fund Rating Criteria is only applicable to trade finance funds where there is full recourse to the obligor, for example ‘accepted’ invoices. Trade finance assets that are subject to performance or dilution risk are not addressed in this criteria.

Trade Credit Insurance

Trade finance funds commonly use trade credit insurance contracts to hedge against the risk of losses due to non-payment by the underlying obligors.

For a given exposure covered by trade credit insurance, Fitch will recognize the protection provided by an insurer (via the insurer’s Insurer Financial Strength rating) to determine the exposure’s credit rating factor, subject to a qualitative review of policy terms and other conditions that can affect the enforceability of the insurance contract.

The qualitative review will consider:

- The ultimate beneficiary of the policy
- The maximum liability of the policy
- The expected timing for claim pay-outs
- Any relevant policy exclusions
- The fund manager’s underwriting and legal review process with respect to insurers and policy terms
- The track record of the insurer in the asset class
- The degree of the fund manager’s and insurer’s visibility into the underlying obligor exposures (frequency of disclosures and granularity of information)

Trade finance asset exposures will be split between those covered by insurance and those where the risk relates to the underlying obligor. Fitch will treat the former portion as credit exposure to the insurance company if the insurer is rated higher than the obligor.

For example, in a hypothetical portfolio in which an insurance company assumes 80% of the risk of non-payment, Fitch will apply the insurer’s IFS rating for 80% of the WARF calculation and the weighted average rating of the underlying obligors for the remaining 20% of the WARF calculation.

Unless the policy states otherwise, Fitch will adopt this treatment up to the maximum policy liability amount stated in the insurance contract, assuming the exposures with the lowest credit quality are covered by the insurance first.

Example Portfolio with Trade Credit Insurance:

Assumptions

- Insured portion of the portfolio: 80% [of each individual obligor default]
- Maximum Policy Liability amount: EUR 350m
- Maximum expected claims pay-out timing: 0.5years
- Insurer Financial Strength rating: ‘AA’

Obligor credit quality	Insurer credit quality	Residual maturity (years)	Maturity including pay-out	Market value (EUR)	Portfolio weight	Insured amount (EUR)	Uninsured amount (EUR)	Insurance Adjusted Credit Risk Factor	Weighted Credit Risk Factor	Market Risk Factor	Weighted Market Risk Factor
AA	AA	0.08	N/A	400m	40%	0m	400m	0.01	0.004	0.09	0.036
BBB	AA	0.32	0.82yrs	400m	40%	190m	210m	0.57*	0.228	0.77**	0.308

BB	AA	0.74	1.24yrs	100m	10%	80m	20m	2.16	0.216	1.67	0.167
B	AA	0.08	0.58yrs	100m	10%	80m	20m	4.08	0.408	0.65	0.065
						Portfolio Level Factors (Sum)			**0.856 (‘AAf’)**		**0.576 (‘S1’)**

*Credit Risk Factor Calculation for ‘BBB’ rated obligation = (‘AA’ risk factor * insured portion) + (‘BBB’ risk factor * uninsured portion) = (0.1 * (190m/400m)) + (1.0 * (210m/400m)) = (0.1 * 47.5%) + (1.0 * 52.5%) = 0.5725

Insured portion calculated as:
‘BBB’ obligor insured portion = (Maximum Policy Liability – ‘B’ obligor insured amount – ‘BB’ obligor insured amount) / market value of ‘BBB’ obligor = (350 – (80% of 100) – (80% of 100)) / 400 = (350 – 80 – 80) / 400 = 190 / 400 = 47.5%

**Market Risk Factor Calculation for ‘BBB’ rated obligation = ({Insured duration + (Insured spread duration x Insured spread risk factor)} * insured portion) + ({Duration + (Spread Duration x Spread Risk Factor)} * uninsured portion)
Market Risk Factor = (0.82yrs + (0.82yrs * 0.1) * 47.5%) + (0.32 + (0.32 * 0.6) * 52.5%) = 0.77

Insured duration calculated as: duration + maximum expected claims pay-out timing = 0.32yrs + 0.5yrs = 0.82yrs

Changes in the net asset value available to fund investors are sensitive to, among other things, any time lag between when an obligation is first due and when an insurer may pay out a claim should the obligor default. For the insured portion of an exposure Fitch will add the expected timing for a claim pay-out to the maturity date to reflect the additional market risk sensitivity of the insured exposure.

Unrated Obligors

Trade finance funds may have receivables exposure to unrated subsidiaries of rated entities. In such circumstances, and for the purposes of WARF and MRF calculations, Fitch may apply a credit rating factor to the unrated subsidiary of three notches below the parent’s rating provided:

1. The parent is rated by a nationally recognized statistical rating organization,
2. The subsidiary is at least 75% owned by the parent, and
3. The parent and subsidiary have shared branding

In limited circumstances where the above conditions are met, but Fitch deems that the business carried out by the subsidiary is not strategically important to the parent, this treatment will not apply.

Fitch will use its Issuer Default Rating of the parent for the WARF and MRF calculations. If the parent is not rated by Fitch, then the lowest equivalent rating from other nationally recognized statistical rating organizations may be used.

Fitch will limit any such exposure to unrated obligors to 5% of the fund’s net asset value per obligor. In addition, Fitch will not apply a rating higher than the Country Ceiling for the country where the subsidiary is domiciled to reflect potential transfer and convertibility risk.

For example, if a wholly owned subsidiary of an ‘A’ rated entity with shared branding accounts for 7% of a fund’s net asset value, Fitch will apply the ‘BBB’ credit rating factor (i.e. three notches below the parent rating) for 5% of the fund’s net asset value, and the standard assumption for unrated exposure of a ‘CCC’ credit rating factor for the remaining 2% of the fund’s net asset value related to the exposure.

Structures with Notes Backed by Trade Finance Assets

For trade finance funds which invest in unrated notes backed by trade finance assets, as opposed to the trade finance assets themselves, Fitch may look through to the underlying trade finance assets and associated obligors for the purposes of its WARF calculation.

The look-through treatment is subject to a review of documentation addressing whether the economic gains and losses of the underlying assets are effectively transferred to the fund through the note (i.e. the note cannot default, but rather can only experience changes in value equivalent to the net asset value of the receivables backing the transaction). In addition, Fitch will review the benefit assignments, applicable laws, legal opinions and the forms of receivable.

If, on the other hand, the note is rated by a nationally recognized statistical rating organization, Fitch will simply apply the rating to its WARF and MRF calculations.

Counterparty Risk in Trade Finance Funds

Fitch will reference its Structured Finance and Covered Bonds Counterparty Rating Criteria, and consult its Structured Finance group to classify the level of linkage between a trade finance fund structure and a counterparty, into one of four categories: Direct linkage, high dependency, moderate dependency or immaterial.

Counterparty risk is assessed across a continuum, with direct linkages at one end, including structures reliant on guarantees, or where there is infrequent margining or transfer of collected funds. At the other end of the continuum, counterparty risk may be deemed immaterial to a structure, for example where a counterparty acting as collection agent for trade receivables transfers collections to the fund within two business days.

The highest achievable FCQ rating, as a function of the degree of counterparty risk linkage, is set out in the table below:

Counterparty Risk Linkage	**Highest FCQ Rating**	
Direct Linkage	Assume counterparty credit rating for WARF calculation	
High dependence	**Highest FCQR**	**Minimum counterparty Rating**
	AAAf	A or F1
	AAf	A- or F1
	Af	BBB or F2
	BBBf	BBB- or F3
	BBf	BB-
	Bf	B-
Moderate dependence	**Highest FCQR**	**Minimum counterparty Rating**
	AAAf	BBB or F2
	AAf	BBB or F2
	Af	BBB or F2
	BBBf	BBB- or F3
	BBf	BB-
	Bf	B-
Immaterial	No impact on FCQR	

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