Structured Finance Rating Methodology – Trade Receivables

1. Introduction

This methodology needs to be evaluated as a whole with the document "General Structured Finance Rating Methodology" published in February 2023.

The structured finance instrument's rating, as it happens with other financial products or entities, refers to creditworthiness or solvency of instrument. The rating must be considered as a dynamic element in continuous review and predictive character because it is based on future default probabilities.

The structured finance instrument payments will depend mainly on the underlying portfolio asset's payments as well as those structural improvements designed to protect the instrument bonds payments. Therefore, the bonds' credit risk will be linked not only to the counterparty risk of the Securitization Fund's financial agents, also and especially to the collateral assets' quality and their structure.

Structured finance product's Credit rating scale: EthiFinance Ratings has a set of scales designed to determine the credit rating of an entity, using an alphanumeric system with different levels. The issued ratings range from top solvency levels to more degraded levels with the possibility of insolvency. The long-term credit rating scale and the definition of each of the rating categories can be found in the *"Credit Rating Scale & Definitions"* document that appears on the EthiFinance Ratings website.

2. Scope

The methodology described in this document applies to transactions backed by portfolios of accounts receivables. EthiFinance Ratings evaluates qualitative and quantitative factors to determine the final rating of the transaction.

The methodology applies to trade receivable transactions as a general guideline, whether they be term transactions or Asset Backed Commercial Paper (ABCP) with the application of the given assumptions based on specific idiosyncrasies of the country, industry, company and products. Furthermore, if required, the methodology may be adjusted by introducing any ad-hoc variables that are determined to be essential.

Trade receivables transactions may differ significantly due to industry, company and product characteristics. Receivables are non- interest bearing, short-term and unsecured claims on the debtors generated when a business sells goods or services. They are normally sold at discount. Debtors tend to be more concentrated than in Consumer ABS transactions, and the performance may be affected by underwriting criteria, servicing capabilities, financial conditions and relationships with sellers.

3. Trade Receivables Assessment

3.1. Collateral

3.1.1. Historical Performance Information

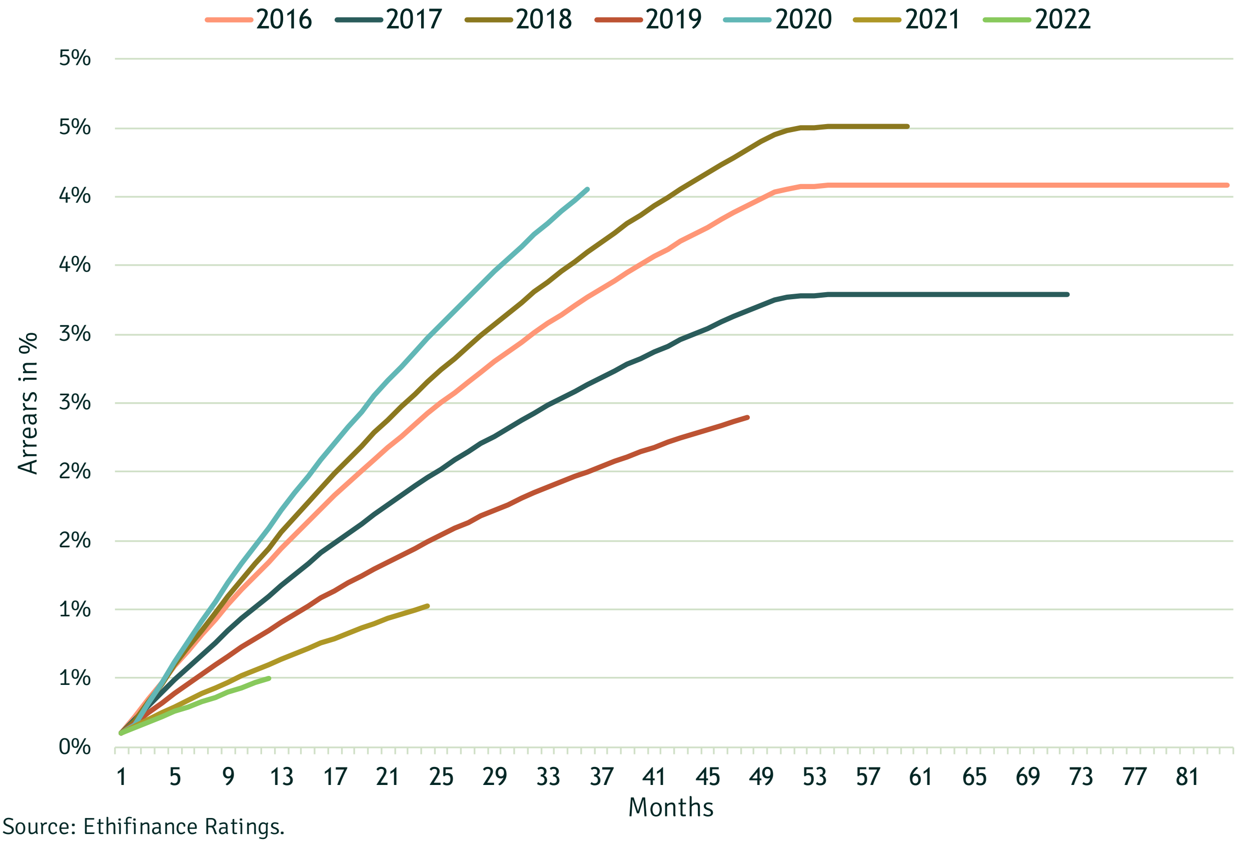
EthiFinance Ratings relies on the historical performance provided by the originator/arranger as a key input to form an opinion regarding future performance.

It is expected to receive three years of historical data that is representative and provides a good reference for the transaction. The assumptions may be more conservative than the historical information observed, especially when the data supplied is volatile or where gaps in data exist.

EthiFinance Ratings expects to receive the historical performance information in the form of static and dynamic defaults, delinquencies, write-offs and dilution ratios distributed by aging buckets (0-30 days, 31-60 days…) of origination/default, usually on a monthly basis. It means that the amounts/number of delinquencies, defaults and diluted receivables in any month are compared with the originations in the month when the receivables were generated.

EthiFinance Ratings may assume an expected one-year PD or annualised default rate. This PD can be obtained through the originator information and the default vintages provided.

Arrears information by Vintages



Source: Ethifinance Ratings.

Some adjustments can be made, as EthiFinance Ratings has a proprietary database to complement and enrich the information provided. EthiFinance Ratings may use its database and/or rely on public ratings of recognized rating agencies to estimate the credit quality of the debtors and sellers.

In addition, if necessary, EthiFinance Ratings Corporate Ratings team or any other teams in the rating agency may carry out a private credit assessment. Furthermore, EthiFinance Ratings may use other public market information or from other transactions rated by EthiFinance Ratings as a source of information to calibrate the initial estimations. In cases where the information is insufficient, EthiFinance Ratings may apply a rating cap or decline to rate the transaction.

3.1.2. Debtor Default Risk

Receivables are originated in the normal course of business activity of the seller. There are different factors that can vary widely across industries and companies. If possible, consultation with the relevant analyst in the Corporate Ratings team will be carried out to better understand how the dynamics of the industry and the position of the relevant company could affect receivable performance.

In some industries, debtors have the market power to manage their cash flows at the expense of their suppliers by delaying payment on receivables. Slow payment reduces the cash flow to the transaction and may increase the risk of default.

We generally believe that historical information is the best indicator of portfolio credit quality. For this purpose, EthiFinance Ratings typically uses a formula ratio approach to evaluate credit risk. In other cases, there may be a need to enrich the historical information received using EthiFinance Rating's database or when EthiFinance Ratings considers more appropriate to conduct the credit analysis by calculating the loss distribution based on EthiFinance Ratings Corporate Default Rates Idealized Curve.

In our opinion, it may be difficult to predict losses that are embedded in a portfolio of receivables because most sellers do not have a formal charge-off policy. The default date definition is usually defined by sellers according to their business practices and it is stipulated in the transaction documents. This is the first step to define when a receivable will be deemed ineligible. Typically, this definition may be set at 90 days past the receivable's original due date, bankruptcy or similar cases and written off receivables. The definition used will depend on the specific characteristics of each transaction.

3.1.3. Dilution Risk

Certain receivables are more exposed to dilution. The sources of dilution risk vary greatly from industry to industry. Dilution comes about when the amount payable on a receivable is reduced for a non-credit reason.

Assets churn rapidly, typically within 30 to 90 days. Receivables may be diluted for reasons other than payment or default; this may be through returns, refunds, incorrect invoice amounts, rebates, warranty claims and disputes.

3.1.4. Payment Terms

EthiFinance Ratings will review the payment terms extended to the underlying debtors and any factors that may result in an extension of such payment terms. A transaction will typically limit the payment terms that can be extended, and this limit is considered in the analysis.

3.1.5. Portfolio Composition

EthiFinance Ratings analyses the portfolio composition of the transaction. Given the fact that the composition can change over time, concentration limits must be specified in the documents.

Debtor concentrations are usually present in most portfolios. To ensure that losses or disputes from large debtors do not impact substantially on the portfolio, concentration limits are set. Limits can be set by region and industry or any other risk aspects and generally include limits on the rating levels or credit estimate of debtors.

3.2. Structure Analysis

In the most common financial structure, the credit enhancement usually takes the form of overcollateralization (OC) where the notes will be capped to a percentage of the eligible receivables, the advance rate (the purchase price paid, less than par). Each advance rate equals 100% minus the sum of reserves for credit losses, dilution, senior expenses and interest costs.

The borrowing base is the eligible receivables balance available for financing. It will determine whether the transaction will continue revolving or go into early amortization in cases when eligible receivables are not replaced as they pay down.

Credit enhancement is typically expressed as a percentage of eligible receivables. The vast majority of trade receivable transactions uses dynamic credit support that resets weekly or monthly (each purchase date), based on the portfolio performance.

3.2.1. Credit Enhancements

EthiFinance Ratings expects total credit enhancement (dynamic or static) to be sufficient to cover credit losses, dilutions, senior expenses and interest costs at the corresponding rating level requested. A dynamic credit enhancement approach is usually adopted. CE adjusts based on portfolio performance and reductions in terms of CE are not achieved until a complete year has occurred, ensuring that the improved performance is sustainable.

The following approach usually applies to transactions where the originator is a single corporate company and receivables are originated in the normal course of business with its clients. The rating multipliers required are lower compared to stress factors used for other asset classes in the same rating levels based on the following rationale:

- Given the nature of accounts receivables, assets will turn over in a short period of time (30-90 days), the exposure to credit and dilution risk is lower when compared to other asset classes.
- Dynamic credit support. Portfolio performance will be addressed each purchase date (week/month) during the life of a transaction.
- Extra collections. EthiFinance Ratings does not give credit to recoveries, or the cash collected from ineligible receivables (if those are sold to the SPV), however these collections will benefit the transaction.

EthiFinance Ratings may require higher multipliers in certain cases. Examples include debtors that are concentrated in a single or small number of industries, particular industry characteristics, quality of the seller, longer credit terms (greater than 90 days from the invoice day), cases where the turnover rate of the portfolio is significantly longer than the credit terms and in cases that the historical data is not a good indicator.

Please note that the formula ratio approach below is indicative and serves as guideline. EthiFinance Ratings will ensure that formulas defined in the documentation to calculate the reserves are commensurate with the rating required.

1. **Dynamic Credit Reserve**: Max (Concentration Reserve Floor; Loss Reserve)

Concentration Reserve Floor: EthiFinance Ratings will assess the concentration risk of the portfolio using the table below as guideline.

Transaction Rating		Debtor Rating AAA AAA (sf)	AA AA (sf)	A A (sf)	BBB BBB (sf)	BB BB (sf)	B B (sf) or below*
AAA	AAA (sf)	0	1	2	3	5	6
AA	AA (sf)	0	1	1	2	4	5
A	A (sf)	0	0	1	2	3	5
BBB	BBB (sf)	0	0	0	1	2	4
BB	BB (sf)	0	0	0	0	1	3

* Unrated debtors are also classified in this category.

Source: Ethifinance Ratings.

The concentration matrix would be equal to the largest exposure at the corresponding rating level requested. It represents the number of debtor concentrations that should be covered for highly diversified portfolios, dominated by small exposures to a large number of debtors. For portfolios that exhibit greater levels of concentration, a higher coverage requirement may be required. It must be noted that the concentration matrix serves as a guideline and may be adjusted upward or downward based on the characteristics of the transaction (portfolio composition, debtors, industry concentration…).

Example for AA rating scenario

The concentration reserve floor has to cover; the largest AA debtor, the largest A debtor, the two largest BBB debtors, the four largest BB debtors and the five largest B or below debtors that would also include unrated debtors. More often than not, trade receivable transactions set debtor limits based on their ratings. The higher the debtors rating, the greater the debtor concentration limit. To the extent that a debtor exceeds its specified limit for a transaction, the excess balance should become ineligible for borrowing base calculations.

Debtor Rating	AAA AAA (sf)	AA AA (sf)	A A (sf)	BBB BBB (sf)	BB BB (sf)	B B (sf) or below*
Number of Debtors (Coverage)	0	1	1	2	4	5
Max % Concentration	10%	8%	6%	4%	2%	1%
Concentration Reserve Floor	0%	8%	6%	8%	8%	5%

* Unrated debtors are also classified in this category.

Source: Ethifinance Ratings.

Given the parameters indicated above, the minimum concentration coverage percentage will be the highest result obtained by multiplying the number of debtors required to be covered for each debtor rating and the allowable concentration percentage defined in the transaction documents. As a result, the concentration reserve floor required for AA (sf) is 8% (the highest result of 0%,8%,6%,8%,8%,5%).

1. **Loss Reserve:** Loss Ratio * Loss Horizon Ratio* Rating Multiplier
2. **Loss Ratio**: Monthly defaulted receivables + write-offs / Total sales in the month in which defaulted receivables/write-offs were generated. This ratio expresses an indication of the expected losses that would occur on a month's sales.

   EthiFinance Ratings will then calculate the loss ratio for the portfolio as the greatest three-month rolling average default ratio over the previous 12 months. For example, 12 months of good performance will be required to adjust the ratio upwards, and it will ensure that any seasonal performance problems are addressed.

3. **Loss Horizon Ratio:** Cumulative sales over the loss horizon / current month's eligible balance. (i.e., if a receivable is not considered eligible after being 60 days delinquent, and the seller offers 30-day payment terms, the loss horizon would be three months (30 days +60 days).

4. **Rating Multiplier:**

Rating Multiplier		
AAA	AAA (sf)	2.5x
AA	AA (sf)	2.25x
A	A (sf)	2.0x
BBB	BBB (sf)	1.75x
BB	BB (sf)	1.5x

Source: Ethifinance Ratings.

Example:

- Weighted average payment term: 30 days.
- Default definition: >60 days.
- Loss Ratio: 1% is expected to be lost.
- Sales in the first month: 60M
- Sales in the second month: 100M
- Sales in the third month: 75M
- Cumulative sales over the loss horizon (30+60=90 days = 3 months): 235M
- Current month's eligible balance: 100M
- Loss horizon ratio: 235/100=2.35
- Loss Reserve for a rating AA (sf): 1*2.35*2.25 = 5.28%
- Dynamic Credit Reserve= MAX (Concentration Reserve Floor; Loss Reserve)
- Dynamic Credit Reserve = MAX (8%; 5.28%) = 8%

Dynamic Dilution Reserve

1. **Dilution Reserve:** [(Dilution Ratio* Rating Multiplier) + Volatility Factor] * Dilution Horizon Ratio.

2. <u>**Dilution Ratio:**</u> Diluted receivables balance / Total sales in the month in which diluted receivables were generated. (This ratio is a 12-month average that indicates the dilution of the portfolio over the previous 12 months).
3. <u>**Volatility Factor:**</u> 0.852 * (the second highest percentage of dilution ratio – the second lowest percentage of dilution ratio). The second highest percentage of dilution ratio: Diluted receivables balance / Total sales in the month in which diluted receivables were generated. (The second highest percentage of dilution observed over the previous 12 months). The second lowest percentage of dilution ratio: Diluted receivables balance / Total sales in the month in which diluted receivables were generated. (The second lowest percentage of dilution observed over the previous 12 months).
4. <u>**Dilution Horizon Ratio**</u>: Cumulative sales in the dilution horizon / Eligible receivables balance. It is the weighted average of time from the sale until the dilution is recognised.

Example for AA rating scenario

Dilution ratio: 1%

The second highest dilution ratio: 2.0%

The second lowest dilution ratio: 0.5%

Example 1: (1 month)

- Sales in the first month: 60M
- Cumulative sales in the dilution horizon:60M
- Eligible receivables balance: 100M
- Dilution horizon ratio: 60/100=0.6

Example 2: (2 months)

- Sales in the first month: 60M
- Sales in the second month: 100M
- Cumulative sales in the dilution horizon:160M
- Balance of the eligible portfolio: 100M
- Dilution horizon ratio: 160/100=1.6

In this example, we assumed (1 month since the sale until the dilution is recognised = example 1).

Dynamic Dilution Reserve: [(1*2.25) + (0.852*(2.0%-0.5%))] * 0.6= 2.11%.

<u>Dynamic Interest and Expense Reserve</u>

<u>Dynamic Interest and Expenses Reserve</u>: Expenses Reserve + Interest Reserve.

<u>Expenses Reserve:</u> (Annual Expenses * Days of sales outstanding * Rating Multiplier) / 360 days.

<u>Days of sales outstanding (DSO):</u> This is the turnover rate of the receivables.

Example for AA rating scenario

Assumptions

- Annual expenses: 1.5% (p.a) - Floor 1%.
- Days of sales outstanding (DSO): 30 days
- Expenses reserve: (1.5*30*2.25)/360=0.28%.

Interest Reserve: (Annual Interest * Days of sales outstanding * Rating Multiplier) / 360 days.

Annual interest: Reference Interest Rate + Margin + Volatility Factor

Example for AA rating scenario

Assumptions

- Reference interest rate: Fixed interest 2%
- Margin: 0%.
- Volatility factor: 0%. If the interest rate is variable, the factor is 1.5%.
- Days of sales outstanding (DSO): 30 days
- Annual interest: 2%+0%+0%= 2%
- Interest reserve: (2%*30*2.25)/360=0.38%

Dynamic Interest and Expense Reserve: 0.28%+0.38%=0.66%

Total Dynamic Credit Enhancement: 8%+2.11%+0.66%=10.77%

Despite the aforementioned formula approach, EthiFinance Ratings may use the asset model described below to calculate the credit reserve. Although this approach is usually applied to transactions when the information is enriched by EthiFinance Ratings's database, this does not prevent EthiFinance Ratings to apply this approach for other cases.

Collateral performance is unknown and can differ significantly from expectations. The volatility of expected default rates depends on the portfolio composition. Diversified portfolios are expected to exhibit lower volatility and default rates that are closer to the expected case. On the other hand, concentrated portfolios are expected to exhibit higher volatility of expected default rates. All these factors will be considered when modelling correlations.

Depending if the portfolio is homogenous or not, EthiFinance Ratings will decide if the Monte-Carlo-Model or Granular Model will be used.

As described in the *"General Structured Finance Methodology"* in the Annex III: Granular Model and Monte-Carlo Simulation, we can see that the characteristics that will be evaluated in the Monte-Carlo Model include: the individual portfolio risk characteristics derived from the loan data tape, the weighted average life, the PD assumption based on historical and EthiFinance Rating's credit risk information and the two-correlation factor to capture concentrations in debtors and/or industries.

	AAA AAA (sf)	AA AA (sf)	A A (sf)	BBB BBB (sf)	BB BB (sf)	B B (sf)
Correlation Intra-Industry	28%	26%	25%	22%	20%	18%
Correlation Inter-Industry	12%	11%	10%	9%	8%	6%

Source: Ethifinance Ratings.

As said before, the agency relies on a Monte Carlo simulation and as a result the portfolio default rate for each rating level is determined as percentiles of the loss distribution based on EthiFinance Ratings Corporate Default Rates Idealized Curve.

Account receivables are typically unsecured and have expected recoveries that are usually very low or zero. However, the recovery rates used will take into consideration the industry, the type of product, the bankruptcy regime and the characteristics of the debtors.

3.2.2. Funding Level

Some sellers may be required to maintain a determined % of extra eligible receivables balance (different from the eligible balance purchased by the SPV). These extra eligible receivables are available to the SPV to replace ineligible receivables purchased by the SPV. These receivables are available only to substitute ineligible receivables and are not used to cover credit losses.

3.2.3. Credit Insurance

Generally, sellers tend to insure their receivables against their clients/debtors in case of default. However, due to operational risk, dilution risk or any other risk not related to credit risk, some receivables might be excluded from eligibility under the insurance policy.

Therefore, depending on the terms and conditions established in the insurance policy (contract disputes, notice periods) may lead to the denial of claim. These limitations have typically been the main barriers to relying on insurance as a full substitute for credit enhancement.

EthiFinance Ratings will review the terms, conditions and limitations of the insurance policy on a case-by-case basis. The amount of credit depends on the coverage of the insurance policy, the insurer's rating, historical track record of claim payments and the nature of debtor risk. The detailed process of analysing the Credit Insurance/Policy is in the Annex IV: Credit Risk Insurance Review of the "General Structured Finance Methodology".

3.2.4. Eligibility Criteria

The seller represents and warrants that the accounts receivables comply with the eligibility criteria of the documentation. If receivables do not meet with the eligibility criteria, the seller will be obligated to repurchase such receivables at face value or substitute eligible receivables of an equivalent amount into the SPV. EthiFinance Ratings relies on the eligibility criteria set in the documents.

Some of key eligibility criteria are as follows:

- The receivables exist, are valid and enforceable.

- The receivables are related to goods that have already been delivered and/or services that have already been rendered in full.
- The receivables are payable in full, are not subject to offset rights, arises under a legal, valid, and binding contract and is fully assignable by the seller.
- The receivables are not the subject of any disputes, counterclaims, or repurchase obligations.
- The receivables are owned by the originator/seller and properly documented, and can be sold, assigned or transferred free of any charge, and in respect of which all legal requirements for enforceability, creation and completion of the sale/assignment/transfer have been complied with
- The receivables are not delinquent or defaulted.
- The receivables are denominated in a specified currency or currencies.
- The receivables have a seller that has complied with its representations and warranties.

3.3. Cashflow and Sensitivity

We expect that the notes/commercial paper would be able to withstand relevant stress to a particular rating level.

The analysis performed will focus on current portfolio information but also consider potential variations that may take place in the future composition.

In case of a revolving transaction, adding new loans can result in portfolio credit deterioration if riskier assets are added. It is expected to be partially mitigated by tight eligibility asset criteria, concentration limits and early amortization triggers. On this specific case, the Agency would assume the worst-case scenario for loans added to the portfolio.

Modelling the transaction, we aim to capture the main structural features described in the transaction documentation. Cash flow analysis reflects how principal and interest collections are allocated according to the priority of payments established throughout the life of a transaction under different stress scenarios. For this purpose, EthiFinance Ratings relies on the scheduled amortization, the default rates, the default timing distribution, the recovery rates, the recovery lag, prepayment rates and interest rates scenarios to estimate the cash flows for each rating level.

Cash flow analysis lets the Agency test the ability of the issuer to make timely interest and principal payments on the notes. Elements such as payment frequency, reference rate and structural features would be essential to determine the default risk of the notes.

For more detail consult the sections Qualitative Assessment, Quantitative Assessment and the section Review and Monitoring from the "General Structured Finance Methodology".

This document updates the previous version while preserving its original methodological criteria; therefore, all existing ratings remain unchanged. In this version, the format has been updated and includes a higher level of detail.