Creditreform Rating AG Rating Methodology

Non-Financial Corporate Issue Ratings

Neuss, October 2016
Version 1.0

© Creditreform Rating AG Hellersbergstraße 11 D 41460 Neuss

Table of Contents

This rating methodology for non-financial corporate issues was newly developed to flesh out and amend the paper on the "Rating of Financial Instruments (Issue Ratings)" from July 2016. This document – including its introduction – will be applied to all current and future ratings of non-financial corporate issues and other creditor claims. The rating methodology laid out in the previously released paper on the "Rating of Financial Instruments (Issue Ratings)" shall no longer apply to issues of non-financial corporations once this rating methodology has come into effect.

1 Introduction

Creditreform Rating AG (“CRA“), established in 2000, is an officially recognized European rating agency and has, over the past 15 years, become one of the leading players on the market.

In this document, CRA discloses its system of rating non-financial corporate issues in order to provide the parties involved, the investors and the wider public with the opportunity of developing a deeper understanding of the mechanisms behind its ratings. The rating system will be upgraded from time to time to reflect any changes in our methods and philosophy. Every CRA rating is based on clearly defined principles and procedures (which outline the rating process, rating techniques, rating scales and restrictions / qualifications). This rating methodology, the CRA rating criteria and definitions, and the Code of Conduct can be freely accessed on our web page www.creditreform-rating.de.

2 Scope of Application

CRA **non-financial corporate issue ratings (“issue ratings“)** are performed for specific issues of economically active / operational companies or issuers under due consideration of the given corporate structures. The rating assesses the credit quality of (non-financial) corporate issues, i.e. corporate bonds, debentures, loans or other forms of borrowing. CRA does not use this rating methodology to perform issue ratings for equity-related financial instruments (for example preference shares). This rating methodology defines the general methodological framework for the performance of issue ratings.

3 Rating Method

CRA assessments are based on a rating method that takes into account company-specific and issue-specific risk factors, using both qualitative and quantitative approaches. The analysts compress their findings to a rating grade by adjusting the specific relevance of individual factors to the requirements and individual characteristics of the issue under review. CRA issue ratings take into account the following potential risk sources:

- Levels of seniority
- Collateralization
- Covenants, representations and warranties
- Structure of the issue
- Country-specific and industry-specific criteria

CRA applies standardized analytic processes for its issue ratings. Each rating for a specific financial instrument is based on an assessment of the underlying company’s financial strength (issuer rating). Based on such a corporate rating, CRA then performs a more specific issue rating by taking into account qualitative and quantitative criteria through a notching approach. Different rating categories are subject to different procedures. No notching is generally performed for financial instruments that have been issued by companies from rating categories AAA and AA. The notching for companies from rating categories A, BBB and BB reflect the issue's individual risk profile. For issues by companies with corporate ratings of B+ and lower, an additional six-category recovery rating is habitually performed which determines – based on the expected recovery rate – the issue's notching range in the event of a corporate default. The application of this rating methodology is obligatory for all issue ratings of non-financial corporates. Without applying this methodology of rating issues from non-financial corporates, it is not possible to simply derive an issue rating from the corporate rating of the issuing company.

3.1 Notching criteria

3.1.1 Levels of seniority

Contractual or legally mandatory levels of seniority determine how assets and the remaining cash resources of an enterprise are distributed among the creditors in the event of a default. The following waterfall of any such payments guides CRA and its analysts in the assessment of financial instruments:

1. All costs that are required to maintain business operations or insolvency proceedings, personnel costs and social charges, obligatory pension payments, taxes, other claims with contractual or legal priority excluding borrowed funds.
2. Borrowed capital with first priority, senior, or non-subordinated rights to participate in the collateralized assets (first lien)
3. Borrowed capital with lower priority, senior, or non-subordinated rights to participate in the collateralized assets (second lien)
4. Senior uncollateralized borrowed capital (super senior)
5. Non-subordinated, uncollateralized borrowed capital (senior unsecured)
6. Subordinated uncollateralized borrowed capital (subordinated)
7. Mezzanine / hybrid capital
8. Equity

Pursuant to the origin of the funds, CRA determines the ranking of the issued financial instrument within the possible categories of borrowed capital, establishing whether or not the instrument under review has been factually over- or undercollateralized. Returns from free assets can be used to satisfy creditor claims. This is why the analytic process needs to assess the rank and the maturities of receivables and liabilities. The results of this process provide the foundation for an establishment of the structural ranks of different financial instruments and creditors. Taking into account the aforementioned constellations, CRA thereby determines which proportions of the generated cash flow and of the existing assets are made available by the issue under review to service the contractual payment obligations of the issuer.

3.1.2 Collateralization

Collateral – independently from any specific level of contractual and legal seniority – strengthens the position of the creditors in the event of a default, increasing their expected recovery rate. CRA assesses the value of such collateral by using a range of qualitative and quantitative criteria – always taking into account the specific nature of the collateralized assets – and by performing different stress scenarios.

The following issues need to be cleared up for the purposes of rating financial instruments:

- Is the collateral provided by the issuer itself or a third party?
- How is the value of the collateral affected by a range of stress scenarios?
- How exclusive and resilient are the collateralized assets?
- Does the collateral generate an independent cash flow?
- What are the temporal and legal constraints / conditions of an enforced sale through the creditor?
- Does the agreement or the nature of the collateral provide the possibility of liquidating the asset in question separately from other assets?

The type of collateral can therefore provide the issue under review with a so-called credit enhancement, which – taking into account structural aspects – leads to a more favourable assessment of its credit quality when compared to issues with no or low-quality collateral.

Financial instruments that are not collateralized and for which no third party or substitute collateral has been provided, rely on the cash flows generated from operating business activities or from the recovery rates of the issuer alone to meet their contractual payment obligations. In such cases, corporate ratings have a specifically high relevance for any assessment of the issue since they are the main indicator of the credit risk.

In addition to their collateral, issues can provide various “credit enhancements“ to protect investors from credit risks. Common credit enhancements include the following:

- Credit insurance
- Interest rate and currency swaps
- Letters of credit / liquidity facilities
- Overcollateralization
- Letters of comfort / guarantees

CRA determines the quality and the dimensions of the securitization mechanisms provided and assesses whether or not they are appropriately designed to alleviate the credit risks. The rating grade will reflect the results of this analysis.

3.1.3 Covenants, representations and warranties

If the contractual agreement for the financial instrument includes covenants, representations and warranties, the CRA issue rating will establish to what extent these elements serve to strengthen the position of the creditors. Covenants can affect either the issue alone or the corporate rating as well. A given covenant's impact on the issue rating is determined by the extent to which the creditors acquire rights in the event that the covenant in question has been violated (for example, a right to cancellation).

Agreements often define certain events that would trigger the provision of more creditor rights or a premature redemption of their capital. These so-called "trigger events" are designed to protect the investors against falling levels of financial strength of the debtor. From these defined trigger events, scenarios may be derived whose results can provide the foundation for quantitative analyses.

3.1.4 Structure of the issue

By analyzing the structures of the transaction and the redemption process, CRA establishes the essential structural characteristics of the issue that are liable to affect its performance (positively as well as negatively) and thereby its value for the investors. Key criteria – in addition to the aforementioned levels of seniority, collateralization, credit enhancements and covenants – include the agreement's contractual design, the local jurisdiction (see also 4.1.5), the possibility of partial redemptions ("sinking funds") and the intervals of interest and redemption payments.

Based on this analysis of the transaction structure, CRA establishes the issue's level of structural complexity, identifying in a second step any structural deficiencies and risks by scrutinizing the transaction's contractual foundations (terms and conditions of the issue, secondary / additional / supplementary agreements, professional evaluations etc.). Agreements, terms and conditions and/or evaluations are typically drafted by specialized solicitors and will be checked as well as analyzed by CRA, sometimes sampled on a random basis. If the CRA analysts detect structural deficiencies and/or risks, their assessment will reflect any such discovery. Any assessment of legal aspects by CRA does not, however, represent a legal opinion, and CRA does not commission second legal opinions for internal purposes. CRA establishes its view of the documents in question, but does not subject them to a professional level of legal scrutiny. In addition to transaction-specific legal risks, issue ratings also check (and account for) regulatory risks in a wider sense.

Terms and conditions of issues often include option rights. Common options include the right of the issuer to prematurely redeem the bond or the right of the creditors to return their notes to the issuer before the date of maturity (respectively rendering the bond "callable" or "putable"). Another common provision is the right of the creditors to demand a conversion of their investment into shares instead of receiving their nominal capital in cash ("convertible bonds"). CRA categorizes these and similar options as investment risks rather than as credit risks, which means that their presence or absence has no impact on the rating grade. The possible consequences of the exercise of any such option on the company's financial strength are a matter for the respective corporate rating. By contrast, options that are explicitly introduced to protect the interests of the creditors – for example the right to cancel (to "put") the agreement in the event of a covenant violation or the occurrence of defined trigger events – are under consideration for the purposes of the rating and do have an influence on the rating grade.

The structural features as described in the above are assessed for their effectiveness and their performance. The results of this assessment are reflected by the notching of the issue under review.

3.1.5 Country-specific and industry-specific criteria

Corporate ratings take into account country-specific and industry-specific risks of the issuer as part of the issuer's business risks. Assessments of specific issues consider additional criteria such as possible currency risks, legal conditions (for example the jurisdiction's insolvency and securities laws as well as the legal provisions to protect creditors and their rights) and the special economic as well as regulatory characteristics of the industry in question.

3.2 Notching of issuers with ratings of BB- and higher

Notching criteria are applied based on the corporate rating of the issuing company. Depending on the individual construction of the issue under review, issue ratings can be identical with such underlying corporate ratings, higher or lower. The following table illustrates the notching guideline for companies with corporate ratings of BB- and higher.

Rating category	Senior secured	Senior unsecured	Subordinated
AAA / AA	Generally no notching performed	Generally no notching performed	Generally no notching performed
A / BBB (hard cap for AA-)	0 to 2 notches	-1 to 1 notches	-2 to 0 notches
BB	0 to 3 notches	-1 to 1 notches	-2 to 0 notches

In well-grounded exceptional cases, CRA can decide to act independently from this guideline.

3.3 Notching of issuers with ratings of B+ and lower

For companies with corporate ratings in categories B and C, the default probabilities are higher. This is why the possible recovery rates are more relevant for their creditors and why companies with corporate ratings of B+ and lower are additionally provided with CRA recovery rates for their issues. CRA assigns each of these issues to one of six recovery rating categories, reflecting how much of their capital the creditors might expect to recover in the event of a default. Recovery ratings determine the notching range for the issue rating.

Due to the increased default risks of companies with lower corporate ratings, recovery ratings anticipate the most likely course of events in the event that the issuer experiences an insolvency. CRA designs hypothetical default scenarios for companies with corporate ratings of categories B and C. The actual credit risks of these companies are reflected by their corporate ratings. Recovery ratings only serve to predict the percentage of the outstanding claims (interest plus nominal capital) that creditors may expect to recover under a default scenario. The inclusion of the recovery rate allows the conclusive issue rating to integrate both elements of the credit risk, probability of default and loss given default, providing the creditors with a more accurate idea of their overall risk exposure and of their investment's likely performance given that their securities have been acquired from an issuer with a corporate rating of B+ and lower with a relatively high default risk.

CRA recovery ratings are based on an issue-specific, scenario-based and future-oriented analysis. They reflect a qualified and approximated assessment of an issue's recovery percentages in the hypothetical event of a default. They are, however, also based on certain assumptions which is why they must not be construed as exact calculations of asset distributions in the actual event of an insolvency.

The CRA process of calculating recovery rates and of assigning recovery ratings consists of five stages:

1. Establishment of a default scenario
2. Assessment of the issuer's value
3. Determination of the creditors' claims
4. Distribution of assets and cash flows among the creditors
5. Assignment of the recovery rating and notching of the corporate rating

3.3.1 Establishment of a default scenario

Step one in the process of establishing CRA recovery ratings is the definition of a default scenario. For this purpose, the profit-and-loss account and the cash flow account of the company under review are subjected to various levels of stress. Each stress scenario is based on assumptions that have been customized to reflect the specific characteristics of the company under review and the industry in which it is economically active.

3.3.2 Assessment of the issuer's value

Faced with the task of assessing a fair value of the company for the purposes of the default scenario, CRA distinguishes between two eventualities: companies may be maintained as a going concern or they may undergo liquidation. The respective values of the company usually determine on which of these two eventualities the recovery rating will be based. It is also possible, however, that CRA's assessment of how appropriate it would be to maintain the company as a going concern will determine the selection. CRA may also opt in favour of a mixed approach which may be the most suitable solution for complex corporations where certain subsidiaries are likely to survive while others will most probably be liquidated.

Enterprise Value

If CRA assumes that the company under review will be kept as a going concern, the enterprise value is generally determined by using an EBITDA multiple.

If no such EBITDA multiple can be determined despite the assumption that the company will be kept as a going concern, CRA will apply other suitable evaluation methods based on the discounted-cash-flow or residual-income formulae.

Liquidation Value

If CRA assumes that the company would be liquidated in the event of a default, it will – based on certain customary assumptions and market rates – calculate liquidation rates for the corporate assets. These liquidation rates can be supported by evaluations and surveys of external providers if any such information has been made available to CRA. Valuations for the corporate assets may fluctuate depending on their nature, the industry and specific conditions. The following table provides a rough overview of certain principles that are generally applied:

Balance sheet item	Valuation base
Intangible assets	0-50 %
Goodwill	0 %
Fixed assets	25-75 %
Financial assets	0-100 %
Inventories	0-75 %
Third party receivables	60-80 %
Receivables from related parties	0-80 %
Receivables from shareholders	0 %
Liquid funds	0 %

3.3.3 Determination of the creditors‘ claims

The following assumptions generally underpin the process of establishing the creditors‘ claims in a default scenario:

- No new funds have been borrowed.
- All liabilities that become due before the issue under review are refinanced under an identical or similar technical arrangement.
- Overdraft facilities, factoring and other forms of variable financing are fully used.
- There are no liquid funds left.
- Depending on the specific conditions of the case, trade accounts payable may rise (debts to suppliers and service providers, received prepayments, notes payable, deferred income).

CRA default scenarios do not make any allowances for newly borrowed funds, since that would directly affect the corporate and issue ratings and the ultimate consequences are difficult to predict. Instead, CRA starts from the assumption that all due liabilities are refinanced and that all variable credit lines are fully used.

For the purpose of its default scenarios, CRA furthermore takes into account possible insolvency and restructuring costs as well as potentially emerging senior non-debt claims such as personnel costs, severance schemes, pension claims that are not duly covered and open legal disputes.

The way of accounting for these claims is determined by the conditions of the individual case as well as by the nature of the legal and regulatory framework.

The analysis will result in a waterfall of creditor claims in which the individual groups of creditors may partake depending on their rank of seniority and their access to the collateral.

3.3.4 Distribution of assets and cash flows among the creditors

Assets and cash flows from the enterprise value analysis will be allocated by taking into account the waterfall of creditor claims (established as described in the above) and the legal framework. CRA ultimately arrives at recovery rates (expressed in percentage points) of individual groups of creditors and specific financial instruments.

3.3.5 Assignment of the recovery rating and notching of the corporate rating

On the basis of these recovery rates, CRA issues a recovery rating. The table below shows the six categories of such a rating and its impact on the corporate rating (the “notching”).

Rating category	Recovery rate	Assessment	Notching
RR1	100%	Excellent	+3
RR2	90% to <100%	Good	+2
RR3	60% to <90%	Above average	+1
RR4	30% to <60%	Average	0
RR5	10% to <30%	Below average	-1
RR6	0% to <10%	Poor	-2

The final issue rating reflects the issue-specific and risk-specific adjustments to which the corporate rating has been subjected. The table below shows how the different grades of the recovery ratings (“RR”) impact corporate ratings.

		Corporate rating							
Recovery rating		**B+**	**B**	**B-**	**CCC**	**CC**	**C**	**SD**	**D**
	RR1	BB+	BB	BB-	B+	B	B-	CCC	D
	RR2	BB	BB-	B+	B	B-	CCC	CC	D
	RR3	BB-	B+	B	B-	CCC	CC	C	D
	RR4	B+	B	B-	CCC	CC	C	C	D
	RR5	B	B-	CCC	CC	C	C	C	D
	RR6	B-	CCC	CC	C	C	C	C	D

In substantiated exceptional cases, CRA can decide to act independently from this guideline.

4 Monitoring, Follow-Up Ratings and Validity

Once corporate issue ratings have been released, they will be monitored for a specific period of time and are valid until they are suspended or withdrawn (NR) by CRA. During the monitoring period, the team of analysts continues to observe the business development of the company under review in order to ensure that the rating is not made obsolete by events. For this purpose, the analysts continue to liaise with the management and to request additional data for further studies and evaluations. The analysts will also conduct independent research and follow relevant articles in industry publications and business journals. If any significant events or developments occur during the monitoring period that may – in the view of the CRA analysts – adversely or positively affect the rating, the original rating may be adjusted. If the company under review fails to provide business information of acceptable quantity or quality or within acceptable time intervals (according to the judgement of CRA), the Rating Committee can decide to suspend the rating (NR).

Events or developments that have changed the risks which are relevant for an assessment of the company’s financial strength may cause or require an adjustment of the rating.

Appendix

What Constitutes a Default Event?

A representation of comparable default probabilities requires a clear definition of a default event. This is why we want to explain what we define as a default event and what the default criteria are for the purposes of our integrated rating approach.

A corporate issue shall be deemed to have gone into **Default (D)** for the purposes of our corporate issue ratings when at least one of the following criteria has been met:

1. Creditors of the company / the issuer or the company / the issuer itself have filed for an insolvency or a similar measure, or another regulatory / legal payment block has been imposed, or – according to the Creditreform credit agency – the company / issuer has been provided with an Index of Financial Strength of 600 (= insolvency).

2. CRA assumes that the company / issuer will be unable to meet one or several payment obligations to creditors of the issue, in violation of the agreement between the company / issuer and the creditor in question (for example through a delay or refusal of payment).

3. One or several of the company's / issuer's substantial payment obligations from the issue are being restructured, rescheduled, renegotiated or converted (either eventuality representing a "restructuring"), provided this restructuring of debt – in the view of CRA – will adversely affect the creditors (by putting them in a position which is worse than their position was under the previous agreement) <u>and</u> the restructuring has its roots in a financial crisis of the company / issuer or represents – in the view of CRA – the enforced reaction to a critical situation. Restructurings of substantial payment obligations may include (but are not limited to) the following:

   - Changes of the due date of payment or the interest rate (for example through the deferral, suspension or reduction of interest payments).

   - Changes of the due date of payment or the amount of principal payments / nominal redemption amounts (for example through extensions, reductions of the nominal amount, suspension or deferral of principal redemptions).

   - Significant (in the view of CRA) amendments of the terms and conditions of the issue.

   - Conversion of debt to equity (debt-equity-swaps).

   - Conversion of debt to subordinated debt, mezzanine capital or debt with a different interest and redemption structure to the disadvantage of the creditors (for example through an agreement that does not necessarily involve a lower final interest rate, a conversion of fixed interest rates into optional or suspended interest components, the changes of a gradual – "amortizing" – redemption structure to an interest-only "bullet" repayment scheme).

- Satisfaction of creditor claims on the basis of repaying less than the nominal redemption amount plus interest.

Financial crises of the company under review or enforced reactions to critical situations may include (but are not limited to) the following:

- CRA assumes that the company / issuer will not be able to meet its original payment obligations without restructuring its debt.

- The company / issuer has, directly or indirectly, indicated that an insolvency or a similar measure would be inevitable without a restructuring of its debt, that it would be unable to meet its original payment obligations without restructuring its debt or that it would attempt to – directly or indirectly – weaken the position of the creditors in another way if the creditors failed to approve its restructuring plans.

If CRA assumes that the occurrence of one of the aforementioned default criteria is imminent, for example following corporate announcements of measures that have not yet been formally implemented, the company in question including any of its corporate issues that may be concerned will usually be assigned to the lowest category of financial strength , i.e. "C (watch)". If certain issues were not directly affected by such default criteria (for example under a restructuring arrangement of another payment obligation), the issue ratings in question would usually be put under "(watch)".