Creditreform Rating AG Rating Methodology

Non-Financial Corporate Issue Ratings

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Content

1 Introduction **3**

2 Scope of application **3**

3 Rating methodology **3**

3.1 Notching criteria 4

3.1.1 Seniority 4

3.1.2 Securities 5

3.1.3 Guarantees 6

3.1.4 Covenants, representations and warranties 6

3.1.5 Issue structure 7

3.1.6 Structural subordination 8

3.1.7 Country and industry-specific criteria 9

3.2 Notching of issuers with ratings of BB- and higher 9

3.3 Notching of issuers with ratings of B+ and lower 9

3.3.1 Determination of a failure scenario 10

3.3.2 Valuation of the issuer 10

3.3.3 Determination of creditor claims 11

3.3.4 Distribution of assets and cash flows to creditors 12

3.3.5 Assignment of Recovery Rating and notching of the corporate rating 12

3.4 Additional notes 13

Appendix 13

This rating methodology for corporate issues has been revised to supplement and specify the rating system "Non-Financial Corporate Issue Ratings" of financial instruments (issue ratings)" of July 2016 for corporate issues.

1 Introduction

In order to enhance the transparency and clarity of Creditreform Rating AG's (CRA) ratings to companies, investors and the general public, the present rating methodology "Non-Financial Corporate Issue Ratings" for the rating of corporate issues is disclosed. The rating methodology will be updated in the case of changes to the applicable methodology. Each CRA rating is based on defined fundamentals and principles (e.g. rating process, principal procedures, defined rating scales and add-ons). This methodology, the fundamentals and principles, and the CRA Code of Conduct, are readily accessible to the public via our website, www.creditreform-rating.de.

2 Scope of application

A rating of corporate issues (hereinafter also issue rating) of CRA refers to a specific issue of an economically active company or an issuer, taking into account the existing group structure. The credit quality of (non-financial) corporate issues, i.e. corporate bonds, debentures, loans or other forms of borrowing is analysed. On the basis of this rating methodology, CRA does not assign issue ratings for equity-related financial instruments (e.g. preferred shares). Hybrid capital such as profit participation certificates are not excluded. This rating methodology defines the general methodological analytical framework for conducting an issue rating.

3 Rating methodology

CRA makes its statements on the basis of a rating methodology in which company- and issue-specific risk factors are analysed with the aid of qualitative and quantitative approaches. The analysts determine the relevance of the individual factors when aggregating them to form a rating statement, taking into account the requirements and special features of the company in question and the specific issue. CRA focuses on the following risk areas for issue ratings:

- Seniority
- Securities
- Guarantees
- Covenants, representations and warranties
- Issue structure
- Structural subordination
- Country and industry criteria

CRA applies uniform analysis procedures for its issue ratings. The starting point for the rating of a specific financial instrument is usually the corporate rating of the issuer (issuer rating). If the issue has a guarantee, the guarantor's rating may serve as the starting point instead of an issuer rating. This may be the case, for example, if a project company (special purpose entity) issues a bond in which the parent company acts as guarantor. In this case, a corporate rating from the issuer is not mandatory, although it is not ruled out. If both the issuer and the guarantor have a rating, the higher rating in each case is used as the starting point if the rating committee fully recognises the guarantee as an equivalent substitute for the financial instrument. Based on the (corporate) rating, qualitative and quantitative criteria for issues are incorporated into the issue rating using a notching approach.

In addition, CRA applies different procedures for certain rating classes. For corporate ratings in the AAA and AA rating classes, CRA generally does not perform any notching of the specific financial instruments. For corporate ratings in the A, BBB and BB rating classes, CRA performs a notching approach. The notching results from the individual risk profile of the issue. For corporate ratings from and below B+, a recovery rating of the issue is determined in addition to the corporate rating due to the credit rating level or the relative proximity to insolvency. The recovery rating uses the expected recovery rate in six quality levels to determine the notching range for the issue rating in the event of a default by the company.

It is not possible to draw conclusions about an issue rating from a corporate rating without applying this rating system to issues by non-financial corporates.

3.1 Notching criteria

3.1.1 Seniority

Contractual or statutory seniority determines the distribution of a company's assets and cash flows to creditors in the event of default. The following waterfall for the distribution of assets and cash flows serves as a guide for CRA and its analysts when assessing a financial instrument:

1. All costs necessary to maintain business operations or insolvency proceedings, personnel costs and social security contributions, pension obligations, taxes, and other claims with legal or contractual priority, except borrowed capital
2. Senior or non-subordinated debt with participating in collateral (first lien)
3. Senior or non-subordinated debt with subordinated participation in collateral (second lien)
4. Senior unsecured debt (super senior)
5. Non-subordinated, unsecured debt (senior unsecured)
6. Subordinated unsecured debt (subordinated)
7. Mezzanine/Hybrid capital
8. Equity

In terms of the source of funds, the ranking of the issued financial instrument among the possible classes of debt capital at the issuer is assessed and whether this results in a de facto above-average or below-average (partial) collateralization. Recoveries from free assets can be used to service creditors on the basis of debt claims. The rank and maturities of receivables and liabilities must therefore be assessed as part of the analysis process. The structural ranking of the financial instruments and creditors in relation to each other is derived from this. Taking the above constellations into account, an assessment is made for a specific issue as to what proportion of generated cash flows and existing assets is available to service the contractual payment obligations of a financial instrument.

3.1.2 Securities

Collateral directly strengthens the recovery rate of creditors in the event of default, regardless of contractual and legal seniority. CRA assesses the value of collateral depending on its type using various qualitative and quantitative criteria as well as on the basis of stress scenarios.

In the case of collateralized financial instruments, the following circumstances must generally be taken into account in the rating process:

- The collateral provider is the issuer itself or a third-party
- Value of the collateral in a stress scenario
- Exclusivity and permanence of the collateral
- Independence of the cash flow generation of the collateral
- Timing and legal framework of liquidation by the creditor
- Possibility to realize the collateral separately from other assets

Accordingly, the type of collateralization in the case of issues represents a so-called "credit enhancement" which, taking structural aspects into account, can allow a better assessment of the credit quality in relation to unsecured issues, depending on the amount.

If financial instruments are not secured and no third-party or substitute collateral is provided, the contractual payment obligations are serviced solely on the basis of the issuer's cash flows from operating activities or expected revenue ratios. In these cases, the corporate rating as an indicator of credit risk plays an enhanced role in the assessment of the issue.

In addition to collateral, an issue may contain various components to hedge various risks ("credit enhancement"). Commonly used hedging mechanisms include:

- Credit default insurance
- Letters of credit/liquidity facilities
- Overcollateralization
- Hard letters of comfort/guarantees

CRA examines the appropriateness, quality and dimensioning of the intended hedging mechanisms with regard to their risk-mitigating effect and takes the results of this analysis into account in the rating opinion.

3.1.3 Guarantees

A guarantee may result in an additional up-notch of +1 notch if the guarantor has an investment grade rating that is at least on par with the issuer. The probability of simultaneous default or correlation of the default probabilities of the guarantor and the issuer is considered low.

In the case of a guarantee, the rating of the guarantor instead of the issuer can be used as the starting point for an issue rating. If, in the opinion of CRA, the guarantee does not fully substitute for the obligations arising from the issue for the issuer, it may be used in the rating in a negative/relative manner. Guarantees should have the following characteristics:

- Irrevocable and unconditional
- Includes full payment of principal and accrued interest as well as other agreed payments such as penalty interest
- Payment on time
- Order for the entire term of the financial instrument or until the creditor claims have been serviced in full.

If the guarantee is already included in the issuer rating of the issuer, it does not need to be included again in the issue rating. This applies, for example, to financing companies established within the group that have their own rating. These are usually assigned the same rating as the respective parent company/guarantor on the basis of corporate, strategic, financial, operational and, above all, liability links, such as a guarantee by the parent company for liabilities of the issuer (e.g. bonds).

3.1.4 Covenants, representations and warranties

If covenants, representations and warranties have been agreed as part of the contractual terms of the financial instrument, CRA analyses in the context of the issue rating whether they are relevant for the assessment of the issue and to what extent these agreements strengthen the position of the creditors of the issue. Covenants can influence both the issue and the company rating. Covenants can influence both the issue only and the corporate rating. Decisive for the assessment of the influence of covenants on the issue rating are the rights of investors arising from a covenant violation (e.g. premature termination).

Often, certain events are defined in the transaction that can trigger a strengthening of the collateral or early redemption of the issued securities (trigger events). Trigger events serve to protect investors against a deterioration of the company's credit rating. Based on the defined trigger events, scenarios can be derived, which in turn can be taken into account in the quantitative analyses.

3.1.5 Issue structure

The analysis of the transaction and redemption structure reveals the key structural features of the issue that can have a positive or negative impact on performance from the investor's perspective. In addition to the features already described, the most important criteria include seniority, collateral, credit enhancements and covenants, the contractual structure, possible regular partial repayments (sinking funds) and interest and redemption intervals.

Based on the analysis of the transaction structure, the degree of complexity or structuring of an issue is determined and, derived from this, the plausibility of possible design deficiencies or risks is assessed. This plausibility check is based on a review of the contracts (bond terms and conditions, downstream contracts, expert opinions, etc.). Contracts, issue conditions and/or expert opinions are typically prepared by special lawyers.

Corresponding contractual documents and legal opinions are inspected by CRA (sometimes on a random basis). If possible design deficiencies or risks become apparent, the analysts provide their assessment of these risks. The discussion of legal aspects does not constitute a legal opinion by CRA, nor are legal opinions prepared internally as second opinions. CRA does form an opinion on these documents, but a legal review does not take place. In addition to transaction-specific legal risks, regulatory risks in the broader sense are also assessed for plausibility as part of the issue rating and included in the analysis.

Option rights implemented in an issue deserve special mention. Common options are the right of the issuer to redeem the bond early (callable) or the right of the creditors to return the bond to the issuer early (puttable). Another option customary in the market is the right of creditors to demand redemption by conversion into shares instead of redemption of the nominal amount (convertible). CRA assigns these and similar option rights to investment risk and not to credit risk. Accordingly, they generally have no influence on the rating decision. The possible consequences of exercising such an option for the company's credit rating are part of the company's rating. CRA distinguishes between option rights that explicitly serve to protect creditors, e.g. termination rights (puts) in the event of covenant violations or the occurrence of trigger events. These are included in the issue rating.

The structural features described are assessed overall in terms of their effectiveness and performance and may be considered in the notching of the issue.

3.1.6 Structural subordination

Structural subordination can arise for non-subordinated unsecured debt if it is issued at the level of the holding company of a group, while the main cash flows are generated and the main assets exist at the level of the subsidiary/subsidiaries and, at the same time, there are also non-subordinated unsecured financial liabilities of significant size at the level of this subsidiary/subsidiaries. A high proportion of secured financial instruments in the group can also lead to structural subordination.

Upstream guarantees from the subsidiaries may prevent structural subordination. Furthermore, if the number of subsidiaries with their own cash flows is high, a structural subordination may be considered not material (granularity). In this case, down-notching in the amount of one notch, with which a structural subordination is normally indicated, can be waived. For rating objects with a rating of A- or higher, a structural subordination can be considered as not material due to the good financial risk profile.

CRA carries out the following key test steps in the event of an assumed structural subordination, whereby an answer of "yes" to the respective question rules out a structural subordination or makes it appear unlikely, or other test aspects, such as collateralization, take precedence.

1. Are there no significant financial liabilities at the upstream group levels (subsidiaries)?
2. Is the financial instrument being assessed subordinate in seniority?
3. Is the financial instrument being assessed collateralized?
4. Is the credit risk of the issuer low (A- or better rating)?
5. Do secured or upstream liabilities together account for less than 50% of the group's total liabilities?
6. Are upstream guarantees in place from the upstream levels (subsidiaries) that ensure that the financial liabilities rank pari passu?
7. Are liabilities distributed sufficiently granularly among upstream levels (subsidiaries) so that structural subordination is offset?

If structural subordination is identified in the analysis, CRA will indicate it in the rating document.

3.1.7 Country and industry-specific criteria

Country and sector risks of the issuer are taken into account under the item "Business risk" in the corporate rating. For the assessment of a specific issue, further criteria are applied, including possible (indirect) currency risks of the issue as well as economic and regulatory specifics of industries as far as assessable.

3.2 Notching of issuers with ratings of BB- and higher

Based on the corporate rating, the notching criteria for an issue rating are applied. Depending on the structure of the issue, the issue rating can be the same, better or worse than the corporate rating. The notching guideline for companies with BB and higher corporate ratings can be found in the following overview.

Rating class	Senior Secured	Senior Unsecured	Subordinated
AAA / AA	Usually no Notching	Usually no Notching	Usually no Notching
A / BBB (hard cap at 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

3.3 Notching of issuers with ratings of B+ and lower

For companies in rating classes B and C, default is more likely and the recovery rate becomes more important for creditors. For corporate ratings at and below B+, CRA determines a Recovery Rating of the issue in addition to the corporate and issue ratings. The Recovery Rating reflects CRA's expectations for the percentage recovery rate in six quality levels. The recovery rating is then used to determine the notching range for the issue rating.

A recovery rating makes the assumption of issuer default due to the increased credit risk of the lower rating classes. For companies in rating classes B and C, CRA constructs hypothetical default scenarios. Actual credit risk is indicated by the corporate rating. Recovery Ratings estimate the repayment rate of principal and accrued interest in the default scenario. Through the recovery rating, the final issue rating combines both elements of credit risk, probability of default and loss given default. This gives the creditor a better picture of the expected performance of an issue with relatively high default risk in the category of issuers with a corporate rating of B+ and below.

CRA's recovery ratings are based on an issue-specific, scenario-based and forward-looking analysis. They provide a qualified and approximate estimate of the default-based recovery rate of an issue; however, due to the assumptions made, they cannot be equated with an exact calculation in the event of an actual default event.

The process for assigning recovery ratings has five stages:

1. Determination of a default scenario
2. Valuation of the issuer
3. Determination of creditor claims
4. Distribution of assets and cash flow to creditors
5. Assignment of Recovery Rating and notching of corporate rating

3.3.1 Determination of a failure scenario

The first step in determining a CRA recovery rating is to define a default scenario. For the default scenario, the company's income statement and cash flow statement are stressed. The stress scenario is based on assumptions that are made individually for the company and industry specifics.

3.3.2 Valuation of the issuer

CRA distinguishes between two cases when determining the enterprise value in the default scenario, going concern and liquidation. The amount of the determined enterprise values in both cases usually determines which case is used for the recovery rating. However, CRA's opinion on the appropriateness of a going-concern assumption may also be decisive, or a mixed approach may be used, e.g. in the case of groups where only certain parts of the company are continued.

Enterprise Value

If CRA assumes that the company is a going concern, the enterprise value is generally determined using an EBITDA multiple.

If an EBITDA multiple cannot be determined despite the going concern assumption, CRA uses appropriate other valuation methods, e.g. discounted cash flow or residual income methods.

Liquidation Value

If CRA assumes that the company will be liquidated in the default scenario, it determines liquidation rates for the company's assets based on standard market assumptions. The determination of the liquidation rates can be supported by expert opinions and valuations from external service providers, provided CRA has such information. The valuations for the company's asset positions can vary considerably depending on the type, industry and individual circumstances. The following aggregated overview provides a rough estimate:

Balance sheet item	Valuation
Intangible assets	0-50%
Goodwill	0%
Property, plant and equipment	25-75%
Financial assets	0-100%
Inventories	0-75%
Receivables from third parties	60-80%
Receivables from affiliated companies	0-80%
Receivables from shareholders	0%
Cash and cash equivalents	0%

3.3.3 Determination of creditor claims

The following assumptions are usually made to determine creditor claims in the default scenario:

- No new debt capital was raised
- All liabilities due prior to the assessed issue are refinanced with the same or similar structure
- Current account lines, factoring and other variable financing are fully utilized
- Cash and cash equivalents are zero
- Depending on the circumstances, potentially increased trade payables (trade payables, advance payments received, notes payable, deferred income)

CRA does not consider additional debt capital in the default scenario, as this would likely have a direct impact on the corporate and issue rating and the final impact is difficult to estimate. Instead, the assumption is made that maturing debt is refinanced and all variable financing lines are fully utilized.

In addition, CRA takes into account possible insolvency and restructuring costs in the default scenario, as well as potentially arising senior claims that are not debt capital, e.g. personnel and social costs, unfunded pension entitlements and outstanding legal disputes. The valuation of these claims depends on the individual circumstances of the company, the legal framework and the regulatory environment.

The result of the analysis is the waterfall of creditor claims through which individual creditor groups are served according to seniority and collateral.

3.3.4 Distribution of assets and cash flows to creditors

The assets and cash flows from the company valuation analysis are distributed on the basis of the determined waterfall of creditor claims and taking into account the legal framework. This procedure determines the percentage repayment rate of the individual creditor groups and financial instruments.

3.3.5 Assignment of Recovery Rating and notching of the corporate rating

The percentage recovery rate determined for the issue under review leads to a recovery rating. The six quality levels of the recovery ratings and the corresponding notching on the corporate rating are shown in the following table.

Rating class	Recovery Rate	Valuation	Notching	Minimum requirement / maximum thresholds of entitlement
RR1	100%	Excellent	+3	• Senior or non-subordinated debt, participating in collateral on a senior basis (First Lien)
RR2	80% to <100%	Good	+2	• Senior or non-subordinated debt, participating in collateral on a subordinated basis (Second Lien) • Senior unsecured debt (super senior)
RR3	60% to <80%	Above average	+1	• Non-subordinated, unsecured debt (senior unsecured)
RR4	30% to <60%	Average	0	
RR5	10% to <30%	Below average	-1	• Subordinated unsecured debt (subordinated) • Mezzanine/ hybrid capital
RR6	0% to <10%	Weak	-2	

There are maximum thresholds for the assignment of recovery ratings for various financial instruments. For example, at a recovery rate of 100%, an RR1 and an associated notching of +3 notches are only assigned to senior or non-subordinated debt capital that participates primarily in collateral (first lien). Non-subordinated, unsecured debt capital (senior unsecured) can achieve at most an RR3 and thus a notching of +1 notch.

The final issue rating reflects the corporate rating, adjusted for issue-specific risks. This results in the mapping of the recovery ratings to the corresponding 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

If the issue being assessed is subject to a default (D), the issuer would be assessed SD unless there is a general default on the issuer.

3.4 Additional notes

CRA may deviate from the above criteria and calculation method, or use other/additional criteria for the assessment of corporate issues, if it is convinced that deviation will lead to a more plausible rating assessment. CRA would justify and disclose any deviation in the published documents.

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) and 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)".