Creditreform Rating AG Rating Methodology

Structured Finance

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Version 2.2

Creditreform Rating

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This document (v2.2) is an update which contains no essential, fundamental methodological changes. The content was clarified. The update was carried out in July 2016.

Introduction

Creditreform rating AG (hereinafter also referred to as CRA) has been performing externally commissioned ratings since its inception in the year 2000 and has evolved into a recognized European rating agency.

The present rating system of CRA for structured finance is being published in order in order to provide the parties involved, as well as investors and the public with a better understanding of the reasons for a rating assigned by CRA. This document is updated regularly to reflect changes in the methodology. The rating system and the code of conduct of CRA are freely available on the website www.creditreform-rating.de.

A rating is the classification of a company, financial stock or security into a credit rating-category according to certain criteria. The CRA uses the internationally adopted letter-codes (AAA, AA, etc., with addition of "sf" for structured finance) for their ratings in order to render the results transparent and easy to compare. The rating methodology of CRA is based on the fundamental question of to what extent the security under review can be serviced fully and in a timely manner in the future. In order to assess the probability of default as a risk benchmark by means of a rating, Creditreform Rating's carries out a holistic analysis, taking into account all available relevant information. The CRA arrives at their conclusion on the basis of a rating methodology combining quantitative and qualitative approaches.

Structured financing is financing which is composed of multiple elements. Often, individual receivables are bundled and transferred to a special purpose vehicle which will then issue a bond for the purpose of refinancing. These notes are issued in the form of structured tranches which are serviced in dependence on cash flow and are treated as either primary or subordinate amongst themselves. Tranching is viewed as a form of structured financing, as the notes in the individual tranches are dependent on one another. The rating of tranches is based on the predetermined tranching. In the event that a company issues only one bond (with only one tranche), there is - according to our rating system - no existing structured financing.

In addition to corporate and issue/bond ratings, ratings for structured finance belong to the product range of Creditreform Rating AG. CRA carries out ratings for these products; however, it does not itself divide any issue into tranches.

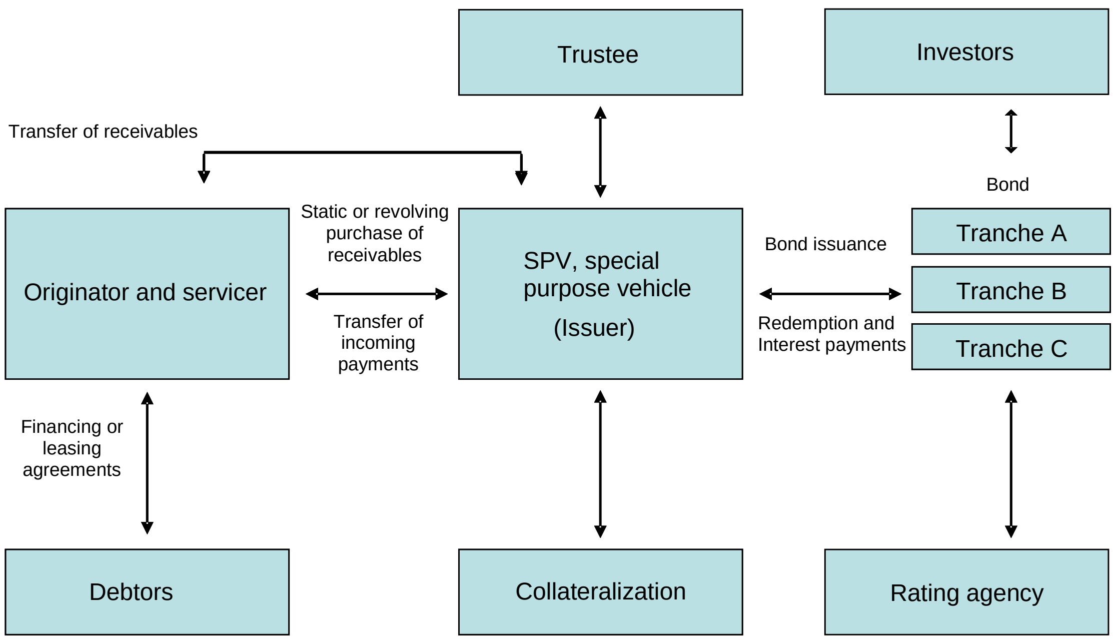
The ratings are substantiated statements of opinion as to the creditworthiness of the enterprise or security under review. They are not recommendations to buy, sell or hold financial stock. CRA develops their opinion as to the future viability of the security under review, systematically and with due diligence.

The reliable and independent ratings by CRA are intended as a contribution to reduce the asymmetry of information between lenders and investors as well as between lenders and borrowers. In addition, the published ratings increase the transparency of the capital market in the interests of market participants and the public.

1 Structure and collateralization of a transaction

The following illustration shows the typical structure of a transaction. In the center there is a special purpose vehicle (SPV) as the issuer, who purchases receivables from bank/insurance company/corporation xyz. In this example, the originator is selling specified receivables to the SPV. The SPV, as issuer, thus becomes the owner of these receivables and has rights of disposal. Usually, the originator also continues to manage sold as well as its unsold receivables (servicer function).

The special purpose vehicle is established as a legal entity with a clearly defined and outlined purpose. The owner of the SPV is usually a trustee who controls collateral and cash flows in the interest of investors. Usually, SPVs purchase all rights with regard to the underlying loans and refinance them by selling the securities to investors. Incoming interest and redemption payments are then passed on to the investors in accordance with the agreements.



The special purpose vehicle may be collateralized by means of various constructions, for example over-collateralization, cash reserves, material collateralization, interest surplus between interest income from receivables and excess spread. Here it is crucial that the underlying portfolio risks with receivables (e.g. financing or leasing contracts and trade receivables) is kept apart from the original lender or financing provider, thus reducing the risks for investors related to insolvency of the originator. In most cases this is achieved by means of a true sale, whereby the right of entitlement to cash flows is transferred entirely to the special purpose vehicle. CRA also assesses and provides ratings for synthetic structured financing transactions. In this case, the originator’s receivables are not sold, but specified receivables risks are transferred to a collateral provider by means of guarantees or loan derivatives. The collateral-taker pays a risk premium to the collateral-provider for the contractually agreed risk transfer.

The division of the notes into various tranches is an important element of the structure. Cumulative losses from the portfolio of receivables (outstanding receivables or interest payments, etc.) are assigned to the bonds in a predetermined ranking order. In the above example, initial losses are assigned to the notes in tranche C. As soon as the nominal sum of tranche C (junior equity or equity tranche) is used up by the assigned defaults, further defaults are assigned to tranche B (mezzanine) and finally to the most senior tranche A.

The underlying portfolio consisting of receivables vis à vis debtors serves as the primary source for interest and redemption payments for investors. The portfolio may consist of a wide range of various receivables, e.g. trade receivables, automobile/truck leasing receivables, or receivables from real estate, consumer or corporate financing, spread over various sectors and regions. For receivables which have been taken into the portfolio of receivables for the first time, as well as those taken in during the term of the security (revolving transaction), a contractual agreement is required, stipulating what quality requirements these receivables will have to meet.

The business object and rules of the SPV are carefully evaluated by CRA. Analysts at CRA review the entitlements of the SPV according to the receivables in the underlying portfolio.

2 Rating indication and procedure

2.1 Rating indication

The aim of the rating procedure is to arrive, in an efficient and consistent manner, at a reliable assessment of the creditworthiness and structure of the bonds. The approach focuses on the objective of ensuring the quality and integrity of the rating process, avoiding conflicts of interest, and rendering the decision-making process easy to compare.

CRA uses the following rating scale. Since the rating systems for structured finance and for bonds and corporate ratings differ, a rating of structured financings is indicated by "sf":

Rating category	Rating	Assessment
AAA $_{sf}$	AAA$_{sf}$	Highest level of credit quality, lowest investment risk
AA $_{sf}$	AA+$_{sf}$ AA$_{sf}$ AA-$_{sf}$	Very high level of credit quality, very low investment risk
A$_{sf}$	A+$_{sf}$ A $_{sf}$ A- $_{sf}$	High level of credit quality, low investment risk
BBB$_{sf}$	BBB+$_{sf}$ BBB $_{sf}$ BBB-$_{sf}$	Highly satisfactory level of credit quality, low to medium investment risk
BB $_{sf}$	BB+ $_{sf}$ BB $_{sf}$ BB- $_{sf}$	Satisfactory level of credit quality, medium investment risk
B $_{sf}$	B+ $_{sf}$ B $_{sf}$ B-$_{sf}$	Moderate level of credit quality, increased investment risk
C $_{sf}$	CCC $_{sf}$ CC $_{sf}$ C $_{sf}$	Low level of credit quality, high or very high investment risk
D $_{sf}$	D $_{sf}$	Insufficient level of credit quality, total loss of investment
NR	Not Rated	Rating temporarily suspended, liquidation in process (e.g.)

The result of the rating is an assessment of the probability of a default of the securities within the individual categories (tranches). The rating of asset-backed securities includes both quantitative and qualitative factors. CRA focuses here on four areas: legal structures, financial structures, parties involved, and on the underlying portfolio. Financial structuring such as tranching and over-collateralization, as well as guarantees or cash reserves, provide additional collateral (credit enhancement) and play a crucial role in the assignment of a rating.

A team of analysts consisting of at least two rating analysts are responsible for the CRA rating. The analysts are selected according to the qualifications necessary to carry out the respective request. This team of analysts is the contact for the client throughout the entire rating process and subsequent monitoring process.

Ratings are the result of a rating process, which in the case of structured finance consists of the steps described below in 2.2 - 2.4.

2.2 Data requirements and preliminary analysis

CRA checks to see whether an order can be accepted. If there is no reason preventing the acceptance of the order, the rating process, methodology and terms and conditions for the rating are explained to the client as preliminary information. After the order has been received by CRA in written form, the team of analysts is assembled.

In assessing the risk of structured finance, CRA relies on a comprehensive information base. In addition to information concerning the legal and economic environment, the model relevant to the transaction structure is assessed. For the rating of structured financing therefore, documents submitted by the initiator of the transaction are evaluated with regard to their parameters in a preliminary analysis, whereby information including the following is taken into consideration:

- Transaction structure and parties involved
- Description of the collateral
- Further collateralization (credit enhancement)
- Cost structures as well as interest and repayment structure at the level of collateral / tranche
- Contractual agreements

All available data is checked for reliability, including an appropriate data history concerning experience with default, payment arrears and dilution with regard to the underlying portfolio. A plausibility check with internal and external comparison data is carried out for credit-related information.

In addition, other documents may be requested during the rating process. All data obtained is treated by the agency with confidentiality.

2.3 Management meeting

The management meeting serves to explain and supplement the information presented and evaluated in the prior analysis and is held with the Manager or initiator of the transaction.

With respect to the Manager/initiator, his creditworthiness, track record, and the tools and capacity required for management of the portfolio play a role.

2.4 Rating committee

The findings of the analysis with regard to the qualitative and quantitative factors are condensed by the analysts into a proposal for the rating score. The rating analysts forward this report, as well as the proposal for the rating score, to the rating committee.

The rating committee is the final authority for credit ratings. It assigns and changes rating scores. The committee serves to objectify rating decisions and ensures the uniformity of the substantive and formal quality of the ratings.

The analysts responsible present the individual parts of the report and state the reason for their proposal of the rating. The rating score is determined by the rating committee according to the principle of unanimity. The rating report including the rating result is usually delivered to the client after the concluding session of the rating committee. The client now has the opportunity to review the report for substantive and formal errors.

3 Rating methodology

3.1 Overview

The rating of a transaction follows a multi-level approach with regard to its methodology. In the framework of the qualitative analysis, the general conditions of the transaction are first analyzed and assessed (see section 3.2). The input parameters for quantitative analysis are then calibrated. The resulting information is used in the next step in the quantitative analysis in order to examine the default risk concerning the portfolio of receivables (see section 3.3). In the final step, the results from the two areas of analysis are merged to determine the probability of default with respect to the individual bond tranches.

The values determined for the probability of default for the individual tranches, taking into account a number of different scenarios as well as the qualitative assessments of structures including additional collateral (credit enhancement) and important parties involved, jointly determine the rating to be assigned.

The methodology described below names all the qualitative and quantitative factors which are taken into account by CRA for the assignment of a rating for structured financing. In the context of the economic and legal parameters of the transaction, further structural characteristics can be evaluated and included in the rating score, depending on the specific case. Key areas of qualitative and quantitative analyses are:

- Legal structure and legal/regulatory risks
- Transactional and repayment structure
- Operational risks and financial strength of the parties involved (originator, servicer, SPV, possibly the credit insurer, etc.)
- Assessment of the creditworthiness of the seller and servicer of receivables
- Collateralization and additional collateral (credit enhancement)
- Assessment of individual receivables in the portfolio and the process of formation, as well as the collection of the individual claims (e.g. scoring, document review and document management, debt collection process)
- Cash flow modeling and stress scenarios
- Monte-Carlo simulation

A special approach taken by CRA in the context of the rating of structured financing transactions with commercial debtors is the inclusion of debtor creditworthiness assessments in the analysis. In this way, individual commercial risks can be adequately considered. In addition, information on empirical value adjustments and losses on the part of the originator are compared with relevant benchmark data. In addition to the quality of the underlying receivables, a legal isolation must occur in the case of true sale transactions in order to protect the investor and cash flows to the SPV in the event of insolvency on the part of important parties involved. We hold it for particularly important to carry out a detailed analysis of the underlying assets. In addition to benchmark analyses, relevant objects are examined e.g. in the case of less granular portfolios with real estate financing.

Dilutions such as bonuses and discounts, as well as unfavorable legal and tax-related interpretations, can also result in increased costs and thus need to be taken into consideration. These aspects are assessed prior to the start of the transaction, as well as during the monitoring process. An assessment is also made as to the existence of interest rate or currency risks and whether they are hedged, for example by means of swaps. In the event that there is no such sufficient hedging, these risks are assessed using accrual valuation methods and taken into account by CRA in the rating.

The quantitative analyses carried out by CRA deal with the any repayment plans on the part of debtors in order to incorporate risks associated with early repayment, as well as with payment delays and defaults, into the rating. The size and default correlations of the individual underlying receivables play a decisive role here. The portfolio should thus be highly diversified in order to avoid dependency on a small number of debtors. Correlations are taken into consideration in particular with respect to commercial debtors regarding sector concentration. Country, industry and sector risks, as well as sector correlations, are determined based on the Creditreform database and supplementary information.

3.2 Qualitative analysis, credit analysis

Structured and other financing transactions are subject to particular risks. A Creditreform rating is based on an analysis of the prospectus of collateralized securities as well as of legal and tax-related aspects of the structure.

One significant aspect is the legally effective isolation of the SPV from the originator in the case of true sale transactions or the quality of credit swaps, guarantees, etc. by third parties in the case of synthetic structured financing. The integrity of the underlying legal framework is assessed with the aim to identify vulnerabilities. These include, for example, consolidation risks in the event of insolvency of the originator (bankruptcy remoteness), return clauses (‘claw-back’), rights of recourse, set-off risks or tax liabilities which can negatively affect the cash flow. The relevant contracts are accordingly assessed and, wherever called for, assessments of legal and tax-related aspects and audit certificates are obtained. These risks are reflected to an appropriate extent in the ratings.

The analysis of the transaction and repayment structure accesses the significant structural characteristics of the transaction which, from the investor’s point of view, can have a positive or negative effect on performance. Due to the flexibility of the construction of structured financing and to the wide range of asset classes, an exhaustive list of all of these characteristics is hardly possible to provide. Among the most important characteristics are the payment priority for interest and redemption with respect to the securities under review, collateralization and additional collateral such as interest surplus, cash reserves or liquidity buffers (credit enhancement), guarantees and hedging mechanisms, trigger events which alter cash flows, constraints, terms and other covenants, as well as call or early redemption options. The characteristics are assessed in terms of their effectiveness and performance and taken into account in the quantitative modeling of the transaction.

Various parties are involved when preparing asset-backed securities, whereby initially the originator and servicer are most significant. The originator is the initiator of the underlying receivables. In the case of a true sale transaction, he sells the receivables to the SPV, thus reducing in most cases the risk with regard to his own balance sheet. For a CRA rating, the business practices of the originator concerning the occurrence of a receivable are an important feature. Selection and quality criteria (eligibility criteria) which have to comply with the underlying assets, as well as portfolio concentration, portfolio limits and quality tests in the case of revolving portfolios, are verified and incorporated into the rating. The servicer is responsible for managing and processing payments from receivables in the portfolio. Typically, the servicer and the originator are identical. In addition to the processes in debt collection, human and technical resources constitute important aspects.

In addition to the originator and servicer, in the analysis of counterparty risks the creditworthiness and experience of the collateral provider, swap counterparty, the banks holding the accounts and the trustees are also rated. CRA thereby assesses all dependencies of the parties involved. Counterparty risks arising due to e.g. the provision of derivatives, credit lines or financial guarantees, constitute risks which go beyond the credit risk of the pool of receivables. Significant parties involved in the transaction, such as banks which hold accounts or provide guarantees, insurance companies and swap counterparties or trustees are therefore analyzed in the context of the rating process. Corresponding risks and applicable fees are included in the evaluation.

3.3 Quantitative analysis

The servicing of asset-backed securities is based on the underlying receivables and the resulting cash flows. The modeling of the cash flow for the assessment of liquidity and default risk is fundamentally based on the waterfall principle, as the financial structure of a typical structured financing transaction for a portfolio usually consists of various tranches. In this case, the subordinate tranches provide additional security for the primary tranches; thus payments to investors in the senior tranche have a higher priority to those in the mezzanine tranche, followed by the junior or equity tranche. In the event of a default of the portfolio, the junior or equity tranche is affected first. This is not usually assigned a rating. The servicing of applicable fees and transaction costs (swaps, credit insurance, servicer fees, etc.) are usually given priority. Single-tranche structured financing usually has a loss or default reserve, thus the waterfall principle is taken into account here as well.

The term of an asset-backed security can be divided into different periods. Thus there is often a period at the commencement of the term in which maturing receivables are replaced with new ones (revolving phase). On a defined date, a phase begins in which the investor receives interest and redemption payments (amortization phase). The respective structures are taken into account in the qualitative analysis and are also used as the basis for cash flow analyses. Trend analyses related to a possible early termination of the revolving phase and the beginning of the amortization phase can be used during current transactions for the adjustment of cash flow analyses or for calibration of the simulation parameters.

The prioritization of available cash flow for the different tranches or interest and redemption payments is an important aspect which is carefully analyzed. Trigger events may change the prioritization of cash flows. For the case of built-in, defined events which cause a change in cash flows, the cash flow model is adapted. Various analyses are performed according to asset class. If necessary, both deterministic and stochastic methods are applied.

3.3.1 Deterministic analysis

In the context of deterministic analyses, the over-collateralization of invested capital and payable interest are analyzed (OC test or IC test). In this case different scenarios are considered. The base case is based on the target value of the future cash flow structure. Parameters for Stress scenarios can be a change in the general circumstances, for example an increase in service fees or additional costs due to the default of important parties. Another stress scenario is to assume the event of a strong recession. The recession scenarios are applied at different times during the term of the structured financing. In addition, scenarios are analyzed in which the debtors of the portfolio partially fulfill their payment obligations either ahead of time or in arrears.

3.3.2 Stochastic analysis

In the context of stochastic analyses the cash flows of the underlying receivables are subjected to a Monte Carlo simulation, whereby parameters such as probability of default (PD), loss given default (LGD), or recovery rates and default correlations of the individual receivables are introduced. Other determinants in the simulation are the amounts of the individual receivables, the repayment structures and, if necessary, the interest amounts. Calibration of default probabilities takes into consideration country, industry, and sector-specific risks. PDs and LGDs can, for example, be taken from internal evaluations of the originator, whereby, if applicable, stress factors should also be considered. Default correlations process information on the distribution of addresses by sector and region, thus also cluster and concentration risks. Internal analysis of the empirical default statistics of industrial and private debtors serve as the basis for the derivation of correlation coefficients.

CRA's rating category migration matrix serves as the basis for the calculation of the time-dependent development of default probabilities. This typically has a time horizon of one year. In order to increase the flexibility of the time horizon, CRA employs the approach of Markov chains which are homogeneous in terms of time.

By means of the Monte Carlo simulation, there is a derivation of the probability distribution for portfolio losses or for the available cash flow. An incomplete or delayed servicing of a payment obligation is already considered in this case to be a default. Different time periods are used as a horizon for observation for the distribution of portfolio losses or the available cash flow, as well as for the PD of the tranche rating. Typically, the individual tranches for which a rating is to be determined are respectively predefined. The probability of the occurrence of payment irregularities per security can be seen from the loss or cash flow distribution. Accordingly, the decisive factor for the rating is the probability in the simulations that the cash flow will be sufficient to cover interest and redemption payments in their entirety and in a timely manner.

4 Monitoring

Subsequent to the disclosure of the rating by the team of analysts, it is continuously monitored. The aim of this is to ensure that that the indication provided by the rating is up to date. The duration of the monitoring period depends on the order submitted by the sponsor. The rating procedure is usually carried out at least once per year in the context of a follow-up rating in order to provide a valid rating.

For this purpose, the analysts may remain in direct contact with the client, and evaluate - among other items - sectorial data and data concerning the development of the portfolio. Usually, periodic reports by the servicer and/or SPV or trustee on the performance of the portfolio and structured financing transactions are taken into consideration, as well as the audited annual financial statements of the SPV, the originator, and the servicer. In addition to monitoring trigger events, changes with respect to hedging instruments utilized and other significant changes are considered.

The monitoring process of a transaction with regard to the assigned rating score includes the parties involved as well as counterparty risks concerning interest or currency swaps, credit insurance, guarantees, and banks holding accounts. Any measures which have led to a change in risk factors may then lead to an adjustment of the rating score.