Rating Methodology of Creditreform Rating AG

Bank Ratings

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Creditreform Rating

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1 Introduction

Creditreform Rating AG (hereinafter also referred to as "CRA") has been carrying out ratings since its foundation in 2000 and is a recognised European rating agency.

A rating is the classification of a bank into a creditworthiness or ranking class according to certain criteria. CRA produces long-term and short-term issuer ratings and uses rating scales that are in common use internationally in order to make the results comparable and transparent. The CRA's rating methodology is based on the fundamental question of the extent to which the bank will be able to meet its financial or contractual obligations from financing instruments in full and on time in the future, which is represented as a ranking in the rating scales. For the fulfilment of financial obligations, the intrinsic financial strength or the "stand-alone" ability of a bank to generate cash surpluses from operating activities in its market environment in the future and to always have sufficient liquidity is meant first and foremost. Determining this ability is a focal point of the analysis. Based on this and taking into account possible further credit risks, it is analysed to what extent possible third-party support factors can still influence the "stand-alone" rating. The final issuer rating for a specific bank is then derived from the overall analysis result.

Creditreform bank ratings are carried out using all the information available and classified as relevant in order to make an assessment of the credit or default risk of a bank within the framework of a credit rating. The CRA makes its statements on the basis of a rating methodology in which bank-specific risk factors or risk types are analysed with the help of quantitative and qualitative approaches.

Bank ratings are well-founded opinions on the creditworthiness of the bank being assessed. They are not recommendations to buy, sell or hold a financial instrument. A bank rating does not constitute a legal opinion and there is no independent valuation of assets.

2 Rating statement and rating process

2.1 Scope of application

The scope of application of the bank rating refers to institutions that conduct the majority of typical banking business and are subject to national supervision or regulation and have a banking licence. In addition, access to central bank money should in principle be guaranteed for these banks.

2.2 Rating object

As a rule, the rating object is the parent company of the Group. Ratings for subsidiaries, which:

- are fully consolidated in the group or consolidated group of companies and
- in which the parent company or one of its fully consolidated subsidiaries holds at least 50%+1 of the shares

are generally assigned to the parent company. In justified cases, for example due to legal circumstances, this regulation may be deviated from, in particular if we assume that the parent company is liable for the subsidiary. For the procedure for rating joint liability schemes, please refer to the separate sub-methodology.

2.3 Rating statement and process

Ratings are the result of a rating process in which quantitative and qualitative factors are analysed on the basis of data and experts in order to assess and evaluate bank-specific risk types. The aim of the rating process is to consistently arrive at an appropriate and reliable assessment of a bank's creditworthiness. The procedure is based on the objective of ensuring the quality and integrity of the rating process, avoiding conflicts of interest and making the decision-making process comparable.

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Stand-Alone Rating

The first step is to analyse the intrinsic financial strength or "stand-alone" capability of a bank. This means the financial strength or ability of the bank to successfully exist in the market without support factors from third parties. For this purpose, the bank's business model, its strategy and the specific success factors or the bank's unique selling proposition are analysed, especially in the market environment. We have to take into account that country-specific factors such as GDP, the strength of the economy in the respective markets, economic structures and the interest rate environment are taken into account in this analysis, which can positively or negatively influence the credit rating of the bank to be analysed. On this basis, the audited annual financial statements or consolidated annual financial statements of at least the last three years are analysed and specific ratios are derived, which form the basis for the peer group or competitive analysis of the bank. In addition, published annual reports, segment reports, risk reports and disclosure reports of the bank as well as other documents are taken into account.

External risk factors and banking regulation

Based on this analysis, possible further external risk factors are included in a second step of the analysis, such as, in particular, supervisory restrictions or regulatory requirements for banks. In this context, the Basel regulations applicable to the euro zone should be mentioned in particular, which are continuously being developed and adapted to the various business models of banks. In this respect, the rating process uses the information available to assess whether and to what extent the Bank meets the current regulatory requirements or will be able to meet them in the future.

Support from third parties

In addition, in order to finalise the rating, an analysis is made as to whether possible third-party support factors (support) are available to avoid or prevent a default and, if so, to what extent they have a positive or negative impact on the bank's creditworthiness. Third-party support can also be analysed using specific sub-methodologies.

Definition of default

The presentation of ratings requires a definition of default. The definition of CRAs is basically based on the definition of default adopted by the Basel Committee on Banking Supervision. A bank is deemed to be in default if it is highly probable that it will not be able to meet its contractual payment obligations for financial instruments in full and on time or if it is forced to defer them due to specific regulatory requirements (e.g. if the state financial supervisory authority imposes a moratorium). In accordance with the definition of the CRA, the promise or granting of support measures - for example through state guarantees, guarantor liability, institutional liability or letters of comfort - is not considered default. Even a voluntary or contractual waiver of payments, which may in some circumstances be voluntary or contractual, is not considered default. With regard to the intrinsic financial strength or the "stand-alone" rating of a bank, it should be noted that a rating downgrade of the bank may occur in this context in the context of the qualitative analysis. This should be seen against the background that external support measures for liquidity supply, in particular, can only be provided for a limited period of time.

The CRA differentiates between long-term and short-term issuer ratings, which are presented in two different rating scales. The main distinction between long-term and short-term ratings, mainly with regard to liquidity, is the maturity of the individual categories of financial instruments used by a bank as assets or as refinancing sources in the context of maturity transformations.

2.3.1 Long-Term Ratings

In the case of long-term ratings, the risk is assessed for individual categories of financial instruments of a bank that have a remaining term of more than one year. It is analysed whether payment obligations for these financial instruments may not be met in due time, taking into account in particular support measures to ensure that individual classes of financial instruments can be serviced within the payment periods. The notation used by CRA for long-term ratings follows internationally recognised standards (21 rating classes from AAA to D). The rating scale of Creditreform Rating AG shown below is a ranking or each notation is a measure of the creditworthiness and thus the increasing or decreasing insolvency risk of a bank:

Rating class	Long-Term Rating	Assessment
AAA	AAA	Highest creditworthiness, lowest default risk
AA	AA+ AA AA-	Very high credit rating, very low risk of default
A	A+ A A-	High creditworthiness, low default risk
BBB	BBB+ BBB BBB-	Highly satisfactory creditworthiness, low to medium risk of default
BB	BB+ BB BB-	Satisfactory creditworthiness, medium default risk
B	B+ B B-	Sufficient creditworthiness, higher risk of default
C	CCC CC C	Low creditworthiness, high to very high default risk
SD	SD	Insufficient creditworthiness, selective default of a significant portion of payment obligations
D	D	Insufficient creditworthiness, negative features, insolvency, moratorium, default
NR	Not Rated	Rating currently suspended, e.g. recovery process

In addition to the rating notation, the outlook is marked "positive", "stable" or "negative". The rating outlook is an early indicator of a possible change in the rating within the next 12 to 24 months after the rating grade has been determined.

2.3.2 Short-Term Ratings

Short-term ratings assess the risk for individual categories of financial instruments of a bank with a remaining term of up to one year. It is analysed whether these banks may not be able to meet their payment obligations for these short-term financings on time. These financial instruments include money market instruments such as commercial paper or deposits in the form of overnight money or time deposits. In particular, the short-term ratings analyse and assess whether a bank has access to the interbank market or whether it holds sufficient collateral to be able to obtain refinancing from the central bank. If this refinancing option is not available, particularly in the event of a deterioration in creditworthiness, it must be analysed

whether the bank alternatively has sufficient liquidity in the form of liquid assets to meet its payment obligations for a period of one year. As with the long-term rating, it must be examined in this context whether possible support measures exist which can then be used to service short-term debts or financial instruments.

The rating scale or notation used by CRA for short-term ratings is shown below:

Short-Term Rating	Assessment
L1	Exceptionally good liquidity
L2	Strong liquidity
L3	Adequate liquidity
NEL*)	Insufficient or endangered liquidity
D	Outage

*) NEL = non-first rate liquidity

CRA assumes that the following relationship exists between long-term and short-term ratings: For a bank with a "good" long-term rating, there is at the same time a lower risk of defaulting or being unable to service current liabilities. This situation is essentially due to the fact that characteristics which, in the context of a bank's creditworthiness and risk assessment, lead to the fact that it will not default in the long term are the same as those which do not cause a bank to default in the short term. These include, for example, a good and competitive business model, a strong credit profile or high asset quality, a broadly diversified refinancing base, sufficient liquidity scope and sufficient capital buffers to be able to survive or bridge periods of weak earnings. Accordingly, the CRA assumes that there is a high correlation between long-term and short-term ratings for the creditworthiness and risk assessment of a bank and that a mapping can be derived from this.

The standardised mapping of the CRA from long term to short term ratings is as follows:

Rating Class	Long-Term Rating	Short-Term Rating	Assessment
AAA	AAA	L1	Exceptionally good liquidity
AA	AA+		
	AA		
	AA-		
A	A+	L2	Strong liquidity
	A		
	A-		
BBB	BBB+	L3	Adequate liquidity
	BBB		
	BBB-		
BB	BB+	NEL	Insufficient or endangered liqui-dity
	BB		
	BB-		
B	B+		
	B		
	B-		
C	CCC		
	CC		
	C		
D	D	D	Outage

For example, in order to have a good quality short term rating (L1 - L3), a bank requires in our opinion at least a long term rating of BBB-. Accordingly, a downgrade of the long-term rating in the range below BBB- is directly linked to the fact that no more short-term ratings in the L1 - L3 range can be issued. The mapping thus reflects the close relationship that exists for the assessment of default risks in the case of long-term and short-term ratings. However, we would like to point out that the limits for mapping long-term and short-term ratings are not rigid, but can become fluid at the transitions to the short-term rating classes, which can be determined for each specific bank rating by means of analysis. In the case of a long-term rating, particularly in the "AA area", we consider the achievement of the highest short-term rating of L1 to be plausible only if the rating outlook has been at least stable in the context of the previous year's rating.

3 Rating methodology

CRA makes its statements on the basis of a rating methodology in which bank-specific risk factors or risk types are analysed with the aid of quantitative and qualitative approaches. Banks' main risks are typically interest rate risks, market risks, operational risks and liquidity risks. Since there is a close connection between the qualitative and quantitative factors and the assessment of the quantitative factors is essentially derived from the qualitative factors or can be derived from them, the areas are linked to one another and viewed in context as part of the rating process. The following CRA analysis modules are used to prepare short-term and long-term ratings. With regard to the rating statement for short-term and long-term ratings, different focal points of analysis must be taken into account.

3.1 Qualitative factors in bank rating

Qualitative factors are a major determinant of a bank's future success and thus of its continued existence. The qualitative analysis is based on a system of indicators which evaluates factors relevant to creditworthiness as well as macro and market factors.

3.1.1 Factors of creditworthiness

Factors relevant to creditworthiness are the first part of the qualitative rating. In the analysis area "set-up and orientation", the group or group affiliation and the location conditions are examined. Particular attention is therefore paid to the structure of the bank. Furthermore, it is examined whether and to what extent group companies belong to the banking sector, are active in bank-related industries, such as leasing or factoring companies, or also belong to other (financial) industries, such as insurance companies. In addition to the Group structures, the assessment therefore also takes into account the business policy, corporate law and influences of Group companies affecting the result as well as any mutual liability relationships between the individual companies. The so-called "step-in risk" must also be considered in this context, which arises mainly from the possible interrelationships and business relationships of banks with shadow banks (e.g. Fintech companies) or other industrial companies. With regard to legal risks, current and past proceedings are included in the analysis. The bank's ownership also has a significant impact on the stability of the bank and its long-term business model.

In the final step, the assets side of the Bank is examined with regard to concentration risks and diversification. Special attention is paid to special risks on the asset side and the quality and development of risk-weighted assets.

3.1.2 Macro and market factors

Furthermore, the CRA analyses the relevant macro and market factors. In doing so, the analyst considers capital market and interbank market conditions, protection fund conditions and central bank policy in the institution's home country and in the markets in which the Bank operates. Last but not least, the economic and economic policy environment in which the Bank operates is analyzed.

Any support factors that influence the development of a bank or measures that contribute to the restructuring or rescue of a bank are also analyzed. Specific support factors are mapped with the help of sub-methodologies (e.g. government-related entities or joint-liability schemes). In principle, the analysis includes an assessment of a bank's ability to support itself and the willingness of third parties to support it. In particular, a bank could receive "internal" support from its shareholders and/or by write-offs/conversion of debt capital into equity capital by way of a so-called "bail-in". "External" support could be provided by interventions and regulations inherent in the system by central banks or central governments as a so-called "bail-out".

In summary, the Bank's business model and its specific success factors and unique selling points in its market and competitive environment are assessed. These qualitative parameters in turn primarily influence quantitatively measurable parameters such as the asset quality and earnings performance, capitalization and the refinancing base as well as the liquidity of a bank. Meaningful and meaningful assessment results are generally obtained by means of a peer group comparison or sector-specific best practice solutions with the resulting reference figures.

Accordingly, the results of the analysis of qualitative factors are used by the team of analysts to assess the plausibility of the company data (and, if possible, of the planning) on the basis of quantifiably derived key figures and to obtain estimates regarding various scenarios of future development. The qualitative factors are thus also decisive for the assessment of the quantitative factors.

3.2 Quantitative factors in bank ratings

The derivation of quantitative indicators is essentially based on the analysis of the available audited annual financial statements and annual reports of a bank. In order to be able to compare annual financial statements of banks, these are converted into a uniform structural balance sheet and income statement. Based on this, specific or selective and thus meaningful key figures form the basis for further analysis in a multi-year comparison.

In particular with regard to bank-specific risk factors, the following sub-areas are considered in the quantitative bank rating:

- Earnings situation,
- Financial position and asset quality
- Refinancing und capital quality,
- Liquidity.

In the following, the individual analysis focuses are discussed in more detail and the specific analysis instruments are described in more detail. The opportunities and risks as well as the strengths and weaknesses are identified, which are summarised in the rating report and form the basis for the rating.

3.2.1 Earnings situation

The specific market environment in which a bank operates has a significant influence on its earnings situation.

The level of economic growth rates - both positive and negative - as well as the economic structure of a country or region can have a significant impact on the success structure of a bank. The interest rate level on the money and capital markets is also of central importance. The assessment of future interest rate developments can have a significant impact on the business orientation of a bank. Interest rate risks in particular, as well as the hedging of these risks, can shape the future earnings position of the bank. In some cases, exchange rate effects also have a major influence on the development of earnings. In this context, the assessment of investment and refinancing structures is also taken into account.

n order to assess the earnings situation of a bank, specific key figures are used and their development is analysed in a multi-year comparison and these are compared with the key figures for the specific peer group of a sector-related best practice solution. The earnings figures

in particular are subject to strong fluctuations in a multi-year comparison. CRA uses a structural approach to separate extraordinary income and expenses from regular business activities and does not consider only one period.

Key performance indicators for assessing the earnings figures, which are evaluated in particular in a peer group comparison, are the following:

- Cost Income Ratios with and without trading results
- Return on Equity (ROE), Return on Assets (ROA) and return on risk-weighted assets (RORWA), before and after taxes
- Net Financial Margin (NFM, Return on financial assets)

3.2.2 Financial position and asset quality

The risk profile of a bank is largely determined by the asset items on its balance sheet. In order to assess credit risks, a bank's asset position and asset quality are therefore analysed. The analysts assess the risks associated with the individual assets and the structure of the asset side of the balance sheet. As a rule, the risk structure can be seen in the annual financial statements or risk reports. This includes, for example, the rating procedures applied, the distribution of asset items among the rating classes and the associated risk coverage potential.

Depending on the business model, the "Loans and advances to customers" items in particular, as well as the allowance for losses on loans and advances and the securities portfolio, are subjected to intensive examination. In the case of typical "credit banks", an assessment of credit quality and credit risks is given priority. In this context, possible indicators and the development of problem loans or the ratios of non-performing loans (NPL) are analyzed. The ratio of problem loans is a good indicator that these may subsequently become non-performing loans. Accordingly, it is obvious at this point to assess the Bank's risk or credit risk management and the corresponding systems and to observe their development.

Key indicators for the assessment of asset quality are the:

- NPL and problem loan ratios in relation to various key figures,
- Risk-weighted assets ratio,
- Provisioning ratio,
- Cost of risk ratio,
- The balance sheet total of the bank as an inherent measure of diversification and stability

In addition, the following positions of a bank are mainly considered and analysed from a risk perspective:

- Bonds and other fixed income securities,
- Shares and other non-fixed interest securities,
- Shares and other participations,
- Derivatives

3.2.3 Refinancing and capital quality

In the regulatory requirements for banks, it is important whether the bank is classified as systemically or non-systemically relevant. The analysts assess whether the bank is able to meet existing and future requirements of the legislator or the banking supervisory authorities, and whether it can be supported or restructured in times of crisis or, in the worst case, must be wound up.

A bank's risk-bearing capacity is based primarily on its capital structure and the quality of its equity. When considering the financial resources, the analysis focuses on the central sources of refinancing and the development of the capital structure. The individual refinancing products or categories of financial instruments are analysed according to their origin and stability. Accordingly, the balance sheet and regulatory capital is considered and in this context an assessment is made of the extent to which the Bank implements the applicable, but also future and regulatory capital requirements and provisions.

Key indicators for assessing the capital ratios are the:

- Equity ratio
- Common Equity Tier 1 and Common Equity Tier 1 ratio (CET1)
- Additional Tier 1 and Additional Tier 1 ratio (AT1)
- Tier 1 capital und Tier 1 capital-ratio (CET1 + AT1)
- Tier 2 capital und Tier 2 capital-ratio (T2)
- Total Capital ratio (CET1 + AT1 + T2)
- Leverage ratio

Risk-weighted assets (RWA) form the basis for calculating the regulatory capital components or ratios. It is analyzed how the composition of RWA by risk type changes over the analysis horizon. In order to arrive at a balanced rating assessment, additional ratios are included in the analysis if necessary, which will become established as a required standard as banking regulation progresses and are therefore available.

A future-oriented analysis is carried out to determine how the Bank's planned growth will affect the development of equity or how equity-enhancing measures will have a positive effect on the development of equity. This also raises the question of what additional equity is required to enable banks to meet future regulatory capital requirements.

3.2.4 Liquidity

This area of analysis focuses on the sources of refinancing or the overall financial resources of a bank - especially in relation to its assets - and maturity transformation. Its liquidity status is assessed on this basis. In addition, a bank's opportunities to obtain short-term refinancing, particularly on the money market or from the central bank, and to generate previously unused refinancing opportunities within the framework of planned business development are analysed.

Key figures for assessing the liquidity ratios are:

- Liquidity Coverage Ratio (LCR)
- Term structure

3.2.5 Other key figures

In order to assess risk-bearing capacity, other key figures can be taken into account in the analysis or rating, e.g. if they contribute to a more appropriate rating assessment and/or gradually establish themselves as a regulatory minimum standard and corresponding information is available in sufficient quality.

3.3 Combining the results of the analysis

In order to derive and determine a rating result or rating grade for a bank, the ratios are weighted in terms of their relevance.

In the first step, the bank's key performance indicators are compared with those of a sector-related best practice approach. The analysis, coupled with expert assessments on the part of the CRA, leads to granular intervals for each individual key figure, which are reviewed on a regular basis and calibrated if necessary. At the same time, a univariate best and worst case analysis of the individual ratios is carried out with the help of historical data in order to gain an understanding of the respective fluctuation intensity and the impact on the overall rating.

In a second step, the weighted results of the sub-sectors are combined to produce a quantitative interim score.

The objective of the procedure is to use the weighted and condensed key figures in a third step, taking into account all qualitative analysis results, to arrive at an overall statement and, derived from this, to arrive at a rating result for a specific bank.

3.4 Deviation from quantitative and qualitative analysis results and sub-methodologies

In certain cases, the long-term issuer rating of a bank may differ from the quantitative and qualitative analysis results.

This can be done by the lead analyst in justified cases, for example to take account of exceptional situations or extraordinary events, if this leads to a more appropriate rating result.

In addition, the rating system presented here can be modified by sub-methodologies to take account of specific and recurring circumstances. Sub-methodologies can, for example, lead to a more appropriate rating result through so-called notching (both positive and negative) and add-ons.

4 Continuous monitoring and follow-up rating

Following the initial rating, the development of the Bank is continuously monitored by the team of analysts (so-called monitoring). The aim is to ensure that the rating is always up to date. To this end, the analysts evaluate quarterly reports, among other things, in direct contact with the client. If significant events or developments occur during this observation period that have a positive or negative impact on the Bank's economic situation, the rating can be adjusted.

After the end of the monitoring period, the rating procedure must generally be repeated in the course of a subsequent rating in order to show a valid rating. Measures introduced which have led to a change in the factors affecting creditworthiness can then lead to an adjustment of the rating.