Euler Hermes Rating GmbH

Methodology: Issuer Rating

31 May 2016 formally amended on 14 November 2017

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Introduction

This methodology was introduced in May 2016 and was formally amended on 14 November 2017.

The rating categories, which are no longer contained in this rating methodology from 14 November 2017 on are included and explained in more detail in the Basic Principles for Assigning Credit Ratings and Other Services.

This Issuer Rating Methodology replaces the General Rating Methodology as of March 2012. The revised methodology particularly aims to describe more transparently the approach applied by Euler Hermes Rating GmbH (EHR) in assigning issuer ratings so that customers, investors and interested third parties are more readily able to understand the relevant criteria and the manner in which they are condensed to arrive at a final rating. As the revised methodology does not entail any changes to the rating criteria, weightings or valuation benchmarks, the application of this methodology will not result in any rating changes.

Transparent description of the rating methodology but no impact on existing ratings

This issuer rating methodology supplements the Basic Principles For Assigning Credit Ratings and Other Services, which are available on our website. In addition, the Issue Rating Methodology, which is also available on our website is relevant for the issue rating for a financial instrument.

As with any rating methodology, Euler Hermes Rating GmbH applies the following methodological principles as a guide and as the underlying benchmark for the rating process. However, the result of such a decision-making process is determined at the Rating Committee's discretion in each individual case. As each rating reflects the opinion of the analysts and the rating agency, assessments and evaluations based on the individual case form an integral part of the methodology. This also means that the issuer rating methodology must allow for differences in business and corporate structures, which are individually assessed. Accordingly, this methodology provides the framework for the analysis and is undergoing continuous further development.

Individual case-by-case assessments form an integral part of the methodology

The issuer rating methodology is divided into two core areas of analysis – the business risk and the financial risk. The following sections describe these areas of analysis and the individual factors relevant to the rating. In addition, this document explains how these factors are weighted and condensed to form a final rating in consideration of operational risks and external group effects. Appendix 1 provides an overview of all factors and the derivation of the issuer rating.

Business risk

The starting point for the analysis of the business risk is the information provided by the issuer on its market environment together with other internal and external market analyses. In this connection, external information chiefly comprises sector analyses, supplementary information and expert opinions as well as information material provided by research institutes and industry associations. The analysts derive information on the issuer's strategic orientation from the documentation provided by the company concerned and from interviews with its management.

Internal and external analyses provide the starting point

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Market risk

Market structure

The market structure analysis looks at fundamental aspects of the market and competitive environment that may affect the issuer's future performance. The most important aspects are industry cyclicality, profitability, barriers to market entry and substitution risks.

Highly **cyclical** industries tend to pose higher risks to the company's profitability and impose different requirements in terms of the issuer's strategic alignment and financial flexibility. Since industry cycles may vary from general economic cycles, analysts identify the most appropriate industry cycle to use when rating the issuer.

Evaluating the cyclicality of the industry

Industry **profitability** is a function of competitive intensity and supplier / customer bargaining power and thus also factors into calculations of specific market risk. Future projections of industry profitability play a particularly significant role in evaluating the issuer's future earnings power.

Analysing profitability as a measure of competitive intensity

Competitive intensity within an industry depends not only on suppliers' and customers' negotiating position, but also on how easily other companies can enter the market. **Barriers to market entry** may be imposed by government regulations, market entry costs, economies of scale or patent requirements and thereby limit specific market risk. Competitive intensity within an industry is also significantly affected by **substitution risk**, i.e. the threat posed by alternative products, services or technology. High substitution risk generally increases specific market risk.

Analysing barriers to market entry and substitution risk

Market development

The analysis of future market development examines and evaluates market growth and potential structural changes in the issuer's environment. It pays particular attention to changes that may affect the issuer's future performance.

The analysis of future **market growth** considers trends in the larger economy and in relevant markets for the issuer. One important step in this process is the identification of major growth drivers and the evaluation of their numbers, quality and sustainability. Analysts focus on quantitative indicators that provide clues as to expected future demand for products or services.

Analysing key growth drivers

In addition, the analysis of future market development examines and assesses the impact of medium- to long-term **structural changes** on the issuer's future performance. These include regulatory, technological, societal or demographic changes that may affect the market's structure and require the issuer to adjust its strategy.

Impact of medium- to long-term structural changes

After analysing the market structure and market development, the issuer's specific market risk is assessed based on an analyst-driven approach. In this process, they also identify key success factors that can be used for assessing strategic risk.

Evaluating the specific market risk and identifying KSFs



Strategic risk

Strategy

The first step in evaluating strategic risk is to analyse the issuer's strategic **positioning** given the prevailing market structure, expected market development and identified key success factors. Strategic positioning is not just about market position, but also relies on qualitative and quantitative factors that provide competitive advantages or disadvantages for the issuer.

Analysing and assessing strategic positioning

Dependence on individual products, customers, regions or suppliers exposes issuers to higher risks. However, we believe companies can avoid these concentration risks with effective **diversification**, which can be achieved by increasing the variety of products, customers or sales markets, for example. **Strategic objectives** are analysed by looking at the primary goals defined in the issuer's strategy. Analysts specifically assess goals relating to business segments, markets / customers, organisational structures and finance. The strategy is checked for plausibility and evaluated based, among others, on discussions with management. These strategic areas are evaluated and checked for plausibility given the prevailing market structure, expected market development and basic implementation requirements. The strategy assessment is then used to evaluate the plausibility of the financial plan.

Diversification of income sources

Analysing and assessing strategic objectives

Implementation requirements

When it comes to strategy implementation, the issuer may be exposed to strategic risks associated with inadequate **resources** and **competencies** and poor **adaptability** to structural changes. The company must have the necessary resources and competencies to drive its strategic objectives. Also, the company's business model and organisational structure should be flexible enough to respond to structural shifts in the market and competitive environment.

Evaluating available resources, competencies and adaptability

After analysing the strategy and implementation requirements, analysts assess the issuer's strategic risk on an individual basis.

Assessing strategic risk

Weighting

Within the business risk profile, an analyst-driven weighting of market trends and market risks / opportunities as well as the strategic orientation and strategic risks / opportunities is performed. In this connection, the criteria, which are considered as having a major impact on the company's future business performance are decisive. The business risk is assigned to one of the following five categories on the basis of the weighting:

Analyst-driven weighting of sub-areas













Financial risk

The financial analysis is normally based on the applicable audit reports (single and consolidated financial statements) for the past three to five years including the segment report. Business performance during the year is chiefly assessed on the basis of quarterly and monthly reports. Financial flexibility is particularly evaluated based on analysing cash flows, an overview of the current funding structure and the liquidity forecast. In addition, the issuer provides information on its financial planning and the assumptions underlying it.

The information in the annual financial statements is incorporated in a structural income statement and balance sheet with corresponding adjustments. With respect to the financial statements, the main focus is on the recoverability of the reported assets and, where applicable, correction of measures of accounting policy. Non-sustainable income and expenses in particular are eliminated from the income statement. Matching adjustments are normally largely also made to the forward-looking income statements and balance sheets. The ratios calculated in this way are evaluated on a "through-the-cycle" basis using a proprietary EHR system.

Preparation of structural balance sheet and income statement

Earnings power

In the analysis of the company's **earnings power**, sales margins and – in particular – the return on capital are taken into account. This approach is independent of the underlying value creation and capital structures and is therefore suitable for comparing companies from different sectors.

Sustainability of earnings power as a key factor

In addition, earnings power is assessed on the basis of sales and earnings development by segment and – using segment earnings as a basis – an analysis of the various expense types.

The key financial ratios in this connection are:

Margin	Returns
EBITDA margin	Return on assetsReturn on capital employed (ROCE)Cash flow return on investment (CF-RoI)

The analysis of the financial planning focuses on an assessment of the corresponding ratios and particularly also the forecast of future sales, earnings and expenses in consideration of expected market trends and the issuer's strategic orientation.

Capital structure

The **capital structure** is assessed by means of an analysis of the static capital structure as well as the ratio of debt to cash flows generated (deleveraging potential). With respect to the capital structure, the ratio of economic capital to total assets and to financial liabilities is of particular relevance. This also entails an analysis of the structure and recoverability of the assets value reported and capital turnover. The extent to which the company funds its assets on a matching-maturities basis is determined on the basis of asset coverage ratios. The analysis of the cash flow coverage provides an indication of the company's theoretical deleveraging potential. In addition, coverage ratios are analysed in relation to interest expense.

Focus on capital structure, deleveraging potential and interest coverage ratios



The main ratios for assessing the capital structure and indebtedness are:

Capital structure	Deleveraging potential	Interest coverage ratios
Equity-to-total assets ratioLeverage	Total liabilities / EBITDANet debt / EBITDA	EBIT interest coverageEBITDA interest coverage

The analysis of future indebtedness is based on the financial planning and takes account of fundamental trends in the relevant ratios and particularly also any possible corporate actions or investments. What is decisive here is that these trends are consistent with the company's strategic objectives and the prerequisites for achieving these objectives.

Cash flow / financial flexibility

The analysis of the **cash flows** and **financial flexibility** determines the source and use of funds in past periods on the basis of a step-by-step cash flow calculation. Based on the company's earnings power, the cash flow from operating activities is indirectly calculated, including amongst others liquidity-impacting factors like working capital. Free cash flow additionally includes the effects on liquidity of cash flow from investing activities. Taken in conjunction with cash flow from financing activities, free cash flow is a key indicator of the issuer's deleveraging capacity.

Free cash flow as a key characteristic

The following cash flow elements are taken into account for this purpose:

	Cash flow analysis
 Cash flow from operating activities Cash flow from investing activities Free cash flow Cash flow from financing activities 	

In connection with the assessment of the financial planning, the cash flow analysis shows to which extent the company's measures regarding its earnings and capital structure may impact the issuer's future liquidity.

Further relevant criteria for assessing the company's financial flexibility include changes in liquidity throughout the year, the assessment of its non-utilised credit facilities and the diversification of the funding base across financial intermediaries and the capital market. The collateral for credit facilities, funding measures and possible financial covenants are also important in this respect.

Weighting

The financial analysis and financial planning are weighted based on an analyst-driven assessment, which leads to the assessment of the financial risk profile. For this purpose, financial risks can be allocated to one of the following six categories:

Analyst-driven weighting of analytical areas

very low low moderate slightly increased increased increased



Anchor rating

Weighting of risk profiles

The anchor rating for the issuer is determined on the basis of the assessment of the business risk profile and the financial risk profile. It condenses the business and financial risk to arrive at a (sub-)rating. This initially excludes possible operational risks or external factors arising from group or public-sector membership.

EHR rating matrix

The anchor rating is determined by assessing the two risk profiles. The weighting of the risk profiles mainly depends on the extent of the financial risk. Asymmetric weighting is applied for this purpose. If the rated company has an increased financial risk, the financial risk profile is of material importance for determining the anchor rating; however, if it has a less pronounced financial risk, the business risk grows in importance. Accordingly, the requirements for the financial risk profile are correspondingly high for an investment grade anchor rating. In this connection, an increased financial risk generally results in what in some cases may be a substantially below-average anchor rating.

Asymmetric weighting of business and financial risks

The business and financial risk profiles are weighted according to the EHR rating matrix, which condenses the two risk profiles to form an anchor rating.

			Financial r	risk			
risk		Very low	Low	Moderate	Slightly in- creased	increased	Significantly increased
	Very low	AAA / AA+	AA	A-	BBB-	BB-	B-
Business	Low	AA	A+	BBB+	BB+	B+	ccc
B B	Moderate	AA-	А	BBB	ВВ	В	CCC-
	Slightly increased	Α	BBB+	BB+	BB-	B-	CC
	Significantly increased	BBB	BB+	BB-	В	CCC+	С

The matrix acts as a guide for the analysts. This means that deviations from this approach are possible in justified individual cases.



Stand-alone rating

Operational risks

Operational risks are identified and evaluated separately from business and financial risks. They primarily relate to internal structures and processes.



The **corporate governance** analysis focuses on structures relating to oversight, incentives and interests as well as the company's willingness to openly disclose its situation and performance to external stakeholders. The company's **management** is evaluated based largely on factors such as diversity, integrity, effectiveness, qualifications and dependence on specific individuals.

Focus on internal structures and processes

The analysis of the company's **organisation** focuses on transparency, efficiency, sustainability and manageability. **Planning and controlling instruments**, for their part, are assessed for their ability to provide a sound basis for management decision-making along with the risk management system.

The **business process** analysis looks at the efficiency and flexibility of the company's value creation processes. It evaluates development, procurement, production and sales risks in light of the company's business model. The assessment of **legal risks** mainly considers risks from ongoing litigation or legal disputes.

Modification 1

With respect to the assessment of the operational risks and any modification, which may be necessary to the anchor rating, it is assumed that the issuer reasonably masters all of its internal structures and processes with the result that a corresponding modification will normally have a negative effect. The extent of this modification is determined individually based on an analyst-driven assessment and may result in considerable (negative) adjustments. In justified individual cases, the modification may also result in a marginal improvement in the anchor rating.

Modification of anchor rating to arrive at the stand-alone rating

The stand-alone rating, i.e. the individual rating assigned to the issuer in question, results from Modification 1.



Issuer rating

Group

The stand-alone rating may be influenced by the group background of the rated company. If the issuer rating does not refer to an independently active group parent, the links with the parent company and any affiliates are also analysed.

Influence of group background

The following factors in particular are taken into account:

- Does the rated company have its own management?
- Are the provisions for ensuring the rated company's independence secured in the long term?
- Are any loss and profit transfer agreements in force?
- Have cash pooling arrangements been established?
- Is the rated company independent from the parent company for funding purposes and in connection with business relations?
- Are loans, guarantees or bonds provided on a mutual basis?
- Do the corresponding contracts equal those with independent third parties?

The analysis of these factors involves determining the extent to which the rated company's rating may be affected positively or negatively by any group links.

Public sector

If the issuer has a public-sector background, this may also influence the stand-alone rating.

If there are qualified voting or domination rights or if most of the issuer's shareholders belong to the public sector, potential rating determinants are examined. For this purpose, a distinction is made between a direct / legal influence and, on the basis of the company's importance, an indirect / factual influence. In the case of a factual influence, various criteria are examined on the basis of the individual case to estimate the probability and capability of a public-sector intervention on a temporary basis.

Influence of public-sector background

Modification 2

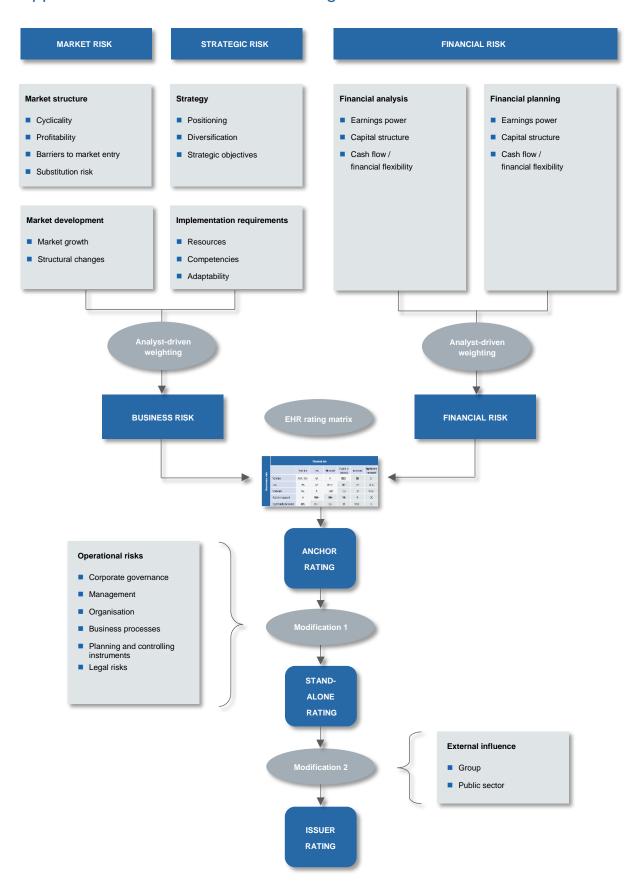
After possible external factors arising from a group or public-sector background have been assessed, the stand-alone rating undergoes Modification 2. Depending on the specific factors involved, the modification may be either positive or negative. This also depends on the rating assigned to the group or public sector. The extent of Modification 2 is determined by the analyst-driven assessment in the individual case.

Final issuer rating as modification of the standalone rating

Modification 2 produces the final issuer rating for the company, allowing a statement to be made on the issuer's credit rating.



Appendix 1: Derivation of issuer rating





Appendix 2: Definition of financial ratios

Earnings power

EBITDA margin

EBITDA margin	
Numerator	
EBITDA	
Denominator Denominator	
otal revenues	

Returns

ROCE
Numerator
Adjusted operating result (= EBIT)
Denominator
Net financial liabilities + economic capital (= capital employed)

Cash flow return on investment

Cash flow return on investment (Cash flow-ROI)
Numerator
EBITDA
Denominator
Adjusted total assets



Capital structure

Indebtedness

Equity-to-total assets ratio
Numerator
Adjusted equity (= economic capital)
Denominator
Adjusted total assets

Leverage
Numerator
Net debt
Denominator
Net debt + economic capital (= capital employed)

Net debt

Net Debt
Bonds
+ Liabilities to banks
+ Bill liabilities
+ Other interest-bearing liabilities
+ Operating lease liabilities
+ Adjustments for ABS / factoring transactions
- Cash and cash equivalents

Deleveraging potential

otal liabilities / EBITDA
Numerator
otal assets - economic capital = total liabilities)
nominator
BITDA

Interest coverage

BIT interest coverage	EBITDA interest coverage
Numerator	Numerator
djusted operating result (= EBIT)	EBITDA
enominator	Denominator
Interest expense	Interest expense

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