



Sovereign Rating Methodology: Governments/Sovereign States

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1. Introduction

This Methodology provides a general description of the sovereign rating methodology incorporating pillars, attributes, variables, and their respective weights as well as the peer review assessment. The processes and methods used by Sovereign Africa Ratings (SAR) to establish sovereign credit ratings rely on both quantitative and qualitative data and information in arriving at the final rating. SAR applies quantitative statistical models to ensure that the processes, procedures, and practices of its credit ratings do not become a subjective concept.

The rating exercise undertaken by SAR is based on information provided by the issuing entity, an in-house database, and data from other sources that SAR considers dependable. This methodology is applied for both solicited and unsolicited ratings. The methodology is focused on assessing the income generation capacity, ability, and willingness of a sovereign to meet debt obligations. The analysis examines key determinants of a sovereign as a borrower by assessing probabilities of change in these fundamentals which could affect its repayment capacity. The assessment is conducted using SAR's sovereign model which incorporates five pillars which embody nine attributes and 40 variables with weights allocated at variable level. The model is used to assess historical data and produces forecasts at the variable level. Indicative scores are assigned at the variable level based on established thresholds.

2. Key Risk Factors

Sovereigns have several unique characteristics that affect their creditworthiness. From a creditor's perspective, the receipt of funds owed by a sovereign relies to some extent on the willingness of the sovereign to meet its debt obligations. SAR's analysis of sovereign creditworthiness, therefore, considers not only the sovereign's ability to repay its debt but also its willingness to do so.

SAR's sovereign rating model has gone through a series of calibration exercises designed to maintain the robustness of scoring thresholds and improve quantitative analysis. The SAR Sovereign Rating Framework consists of five pillars which embody nine attributes and 40 variables. The pillars are used to highlight several risk factors with varied degrees of significance when evaluating sovereign creditworthiness.



2.1 SAR Sovereign Rating Pillars

Figure 1: The five pillars in SAR's sovereign credit rating methodology include:



2.2 Sovereign Rating Framework Overview

Roll-up scores from variables and attributes are used to generate evaluation scores for the Key Rating Pillars.

Table 1: Pillars and Attributes

<i>Pillar</i>	Weight	Attribute	Weight
<i>Economic strength</i>	25%	GDP growth and relative size	16%
		Structural nature	9%
<i>Financial strength</i>	30%	Debt profile	22%
		Local currency and financial markets	8%
<i>Institutional strength</i>	20%	Institutional effectiveness	20%
<i>ESG</i>	15%	Environmental	2%
		Social	6%
		Governance	7%
<i>Natural Resources</i>	10%	Extraction and beneficiation	10%

Economic Strength: The structure of a country's economy has a bearing on its growth prospects and resilience in its ability to generate sustainable revenues and service its financial obligations. This pillar as well as the attributes it encompasses enables relative assessment of both qualitative and

quantitative evaluation of the growth rate and growth rate stability, the economy's size relative to peers, terms of trade, diversification, and income generation. Assessing economic risk is a very critical consideration as this entails evaluating the macroeconomic fundamentals of a sovereign state in terms of economic resilience, economic policy stability, size, patterns of economic growth, fiscal position, and economic development. The key risk variables incorporated under the Economic Strength pillar are as follows:

- GDP growth rate (%)
- GDP growth volatility
- GDP per capita
- Share in peer-group GDP
- Share in world GDP
- Export diversification index
- Current account balance (% of GDP)
- General Government Revenue (% of GDP)

Financial Strength: The analysis relies on indicators of the underlying debt profile of the rated economy encompassing debt burden and debt affordability metrics, financial, capital, and the depth of the domestic debt capital markets as well as exposure to external shocks. An analysis of the economy's outstanding debt currency denomination is also conducted with consideration of inflation levels and foreign currency reserves to appropriately determine financial risk. The key risk variables incorporated under the Financial Strength pillar are as follows:

- Gross government debt (% of GDP)
- Gross government debt (% of revenue)
- General government interest (% of revenue)
- General government fiscal balance (% of GDP)
- Gross Foreign currency-denominated debt (% of GDP)
- Gross Local currency-denominated debt (% of GDP)
- Contingent liabilities (% of GDP)
- Debt repayment record (Years since default or restructuring event)
- Inflation rate
- Exchange rate stability
- Domestic Market Capitalisation (% of GDP)
- Broad money supply
- Broad money supply growth rate
- Foreign currency reserves (% of total external debt)

The sustainability of a sovereign state's fiscal deficits and government debt is crucial to determine sovereign credit risk. The nature and composition of the government debt, income, and overall tax revenue as well as debt affordability measures are essential in evaluating a country's vulnerability as well as probability of default.

Institutional Strength: The institutional strength pillar captures a country's institutional effectiveness and the ability of the civil service and policymakers to respond to events that could affect a sovereign's creditworthiness. This includes the sovereign's ability and willingness to make decisions that further economic, fiscal, and political stability in support of its ability to meet financial obligations.

The inclusion of institutional factors allows for a robust framework for determining the likelihood of sovereign debt crises rather than exclusively using macroeconomic indicators. We also view a predictable policy environment with strong and effective institutions as supportive of economic growth, which, in turn, also enhances creditworthiness. The key risk variables incorporated under the Institutional Strength pillar are as follows:

- Independence of central bank (Transparency and Independence)
- Regulatory effectiveness
- Fiscal policy effectiveness
- Monetary policy effectiveness
- SOE institutional effectiveness
- Institutional transparency and accountability

Environmental, Social, and Governance (ESG): The analysis assesses ESG factors that have relevance to debt repayment by focusing on governance, human development, and sustainable development in a country. ESG factors are important drivers for economic performance and may impact financial risk. Consideration is given to indicators of governance as these are included to measure the capacity and willingness of the government to mobilise resources to meet debt obligations, as well as the risk that this might be affected by unrest, political instability, or conflict. They also measure how well the government and its institutions are able to control the economy and absorb negative shocks. Good governance, strong institutions, and low levels of corruption have been long identified as drivers of economic growth and lower financing costs.

Intuitively and empirically, countries that provide better social conditions tend to see better economic stability. Income equality, environmental sustainability, human development, and governance effectiveness all play a role in a country's long-term growth. ESG factors supplement conventional credit analysis, considering information that is not captured by traditional credit risk analysis, with a long-term focus. The key risk variables incorporated under the ESG pillar are as follows:

- Environmental regulations and enforcement
- Climate and natural disaster risk exposure (Climate Change Policy)

- Unemployment rate (%)
- Income inequality (Gini coefficient)
- Social and environmental impact of natural resource extraction and beneficiation
- Labour rights and standards (Average Production / Labour Ratio)
- Human development indicators (HDI)
- Political effectiveness (Political Stability Index)
- Governance practices (Government Effectiveness Index)

If not well managed, environmental sustainability may pose a threat to a country's financial, economic, and socio-economic position. Greenhouse gases from human activities are the most significant driver of observed climate change since the mid-20th century. Behind the phenomena of global warming and climate change lies the increase in greenhouse gases. The devastating effects of global warming lead to droughts, floods, and other environmental disasters which may impact the fiscal position, specifically regarding off-budget and unplanned expenditure items such as contingent liabilities. Contingent liabilities place immense pressure on the debt situation of sovereign states.

Natural Resources: This pillar captures the wealth and economic growth prospects of a country, which are indicative of the natural resources that sovereigns can draw upon. Countries with diversified resources typically provide a sovereign with a greater potential tax base and therefore a more stable and predictable source of income. The assessment therefore incorporates an analysis of the extent and measures in place for an economy's natural resource beneficiation including the development of the secondary and tertiary sectors of the economy, which is not limited to minerals but includes tourism.

The sustainability of a country's natural resources, particularly mineral resources such as oil and gas, is key to enhancing tax revenue base, economic growth, and economic development as well as enhancing the fiscal position of a sovereign state. This could be achieved in cases where resource rents are optimised and the fiscal framework and fiscal regimes (i.e., royalty rates, resource rents, company tax paid by multinational companies) are prudently used and channelled towards local economic/industry development and import substitution, reinvestment in other sectors of the economy, and reduction of sovereign debt.

The optimisation of resource rents and depletion of mineral or oil and gas reserves have a bearing on economic prospects in countries that are endowed with natural resources in the medium to long term, more so if such a country is solely dependent on such endowments. The key risk variables incorporated under the Natural Resources pillar are as follows:

- Natural resource extraction levels
- Natural resource beneficiation [Gross Value Added as % of GDP]
- Energy generation and availability

2.3 Qualitative Assessment and Notching

SAR’s analysts employ sound qualitative judgements to notch the quantitative scores at variable level by up to 2 notches up or down. SAR’s analysts conduct variable score notching to factor in their analytical assessments such as trend analysis and forecasting. A sovereign’s model output rating may be adjusted up or down to capture a credit weakness or strength not sufficiently considered in the individual scoring categories. The model output is adjusted with a possible notching range of up to 2 notches for all the variables mentioned above. This improves the quality of the ratings by ensuring that adjustments informed by analytical assessments are conducted at variable level instead of adjusting the final ratings directly.

Table 2: Variable Notching Table

Very Strong (+2 notches)	Strong (+1 notch)	Average (0 notches)	Weak (-1 notch)	Very Weak (-2 notches)
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SAR analysts determine their final internal credit rating recommendation after applying several checks and potential adjustments to the model. An exceptional adjustment may be proposed only when material risks are not appropriately captured in the five risk factors.

These adjustments can cover a variety of issues and concerns, including event risk, peer comparison, and individualised quantitative or qualitative factors pertaining to a sovereign that are not captured in the model.

While the model allows some room for analyst judgment, the model is driven predominantly by quantitative factors to limit subjective rating assessments. In some cases, issues may arise related to the availability and quality of data needed to run the model. If SAR determines that the available data is inadequate, SAR will not issue a credit rating.

2.4 Peer Review

The framework adopted by SAR also incorporates the peer-review analysis, wherein in addition to the model assessment, the peer assessment is introduced as part of the qualitative assessment. A selection of peers is conducted based on structural features and the size of the economy wherein SAR evaluates a selection of variables. The risk variables selected for the peer analysis are the following:

- GDP Growth Rate
- GDP Per Capita (US\$)
- Export Diversification Index
- Share In Peer Group GDP (%)
- Gross Domestic Product, Constant Prices
- General Government Revenue (% of GDP)

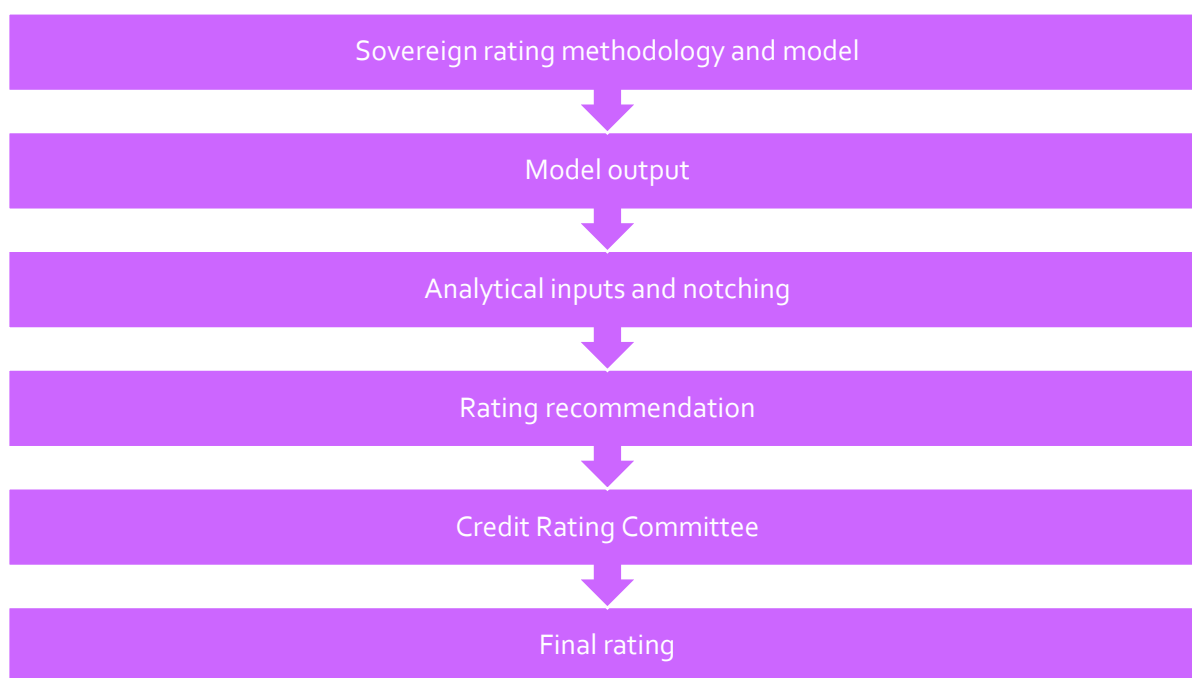


- Gross Government Debt (% of GDP)
- Gross Government Debt (% of revenue)
- General Government Interest on Debt (% of revenue)
- Domestic Market Capitalisation (% of GDP)
- Unemployment rate
- Income inequality (Gini coefficient)

3. Credit Rating Process

After analysis and preparation of the rating committee pack, the Lead Analyst presents a rating recommendation and rationale for approval to the Credit Rating Committee, which has the final opinion in determining the appropriateness of the recommended rating and rationale.

Figure 2: Final Sovereign Credit Rating



4. Converting Scores into Ratings

The main objective of the ratings is to classify rated countries in terms of their willingness and ability to honour their debt obligations.

A rating of AAA is assigned for scores of 800 points and above out of 1000, whilst the lowest rating of D is assigned to scores less than 200 points. These points are generated from each scored variable.

The points range from 0 up to 1000 while the corresponding ratings are from D to AAA, where scores equal to and above 800 indicate a AAA rating. Scores of 500 and above are investment grade while lower scores are in the speculative grades. The table below depicts the model score conversion into ratings.

Table 3: Converting Scores into Ratings

Sovereign Africa Ratings (SAR): Converting Scores into Ratings						
	SAR Tier Grade	Points Allocation			Long Term	Short Term
Investment Grade BBB- & Higher	1-Exceptional (Prime): $\geq 80\%$	Tier 1 – 800+	1	≥ 800	AAA	A+
	2-Very Good (High Grade): 70%-79%	Tier 2 – 700-799	2	767-799	AA+	A
			3	734-766	AA	
			4	700-733	AA-	
	3-Above Average (Upper Medium Grade): 60%-69%	Tier 3 – 600-699	5	667-699	A+	A-
			6	634-666	A	
			7	600-633	A-	
	4-Average (Low Medium Grade): 50%-59%	Tier 4 – 500-599	8	567-599	BBB+	B+
			9	534-566	BBB	
10			500-533	BBB-		
Speculative Grade BB+ and lower	5-Below Average: (Non-Investment Grade) 40%-49%	Tier 5 – 400-499	11	484-499	BB+	B
			12	467-483	BB	
			13	451-466	BB-	
			14	434-450	B+	B-
			15	418-433	B	
			16	400-417	B-	
	6-Poor (Substantial Risks): 31%-39%	Tier 6 – 300-399	17	367-399	CCC+	C
			18	334-366	CCC	
			19	300-333	CCC-	
7-Very Poor (Extremely Speculative): $\leq 16\%$ -30%	Tier 7 – 200-299	20	267-299	CC+		
		21	234-266	CC		
		22	200-233	CC-		
8-Default: $\leq 15\%$	Tier 8 – 0-199	23	0-199	D	D	

5. Integrity of the Rating Process

- SAR employees will comply with all applicable laws and regulations governing their activities in the jurisdictions in which they operate, without exception.
- SAR and its employees will, at all times, deal fairly and honestly with issuers, rated entities, investors, other market participants, and the public.
- SAR will hold its employees to high standards of integrity at all times.

6. Limitations of the Methodology

Ratings represent our expectations for an issuer's performance going forward, but as the time horizon gets longer, uncertainty grows and the value of exact estimations as scorecard inputs or for other rating factors often decreases. Our predictions are based on assumptions that may turn out to be erroneous in the future. Unexpected developments in the macroeconomic environment, general financial market conditions, industry competition, disruptive technologies, or regulatory and legal measures could be the cause of this. In any event, there is a great deal of uncertainty when projecting the future.

We aim to include all significant credit factors in our credit ratings and to have the most prognosticative attitude that knowledge of these risks and mitigating factors allows.

This methodology does not provide a complete list of all the variables we may take into account when rating this industry. Rated entities might encounter new risks or new combinations of risks, and they might come up with new approaches to risk mitigation.

SAR relies on the accuracy and reliability of information published by national authorities and international organisations, as well as the veracity of the information provided directly by representatives of the sovereign, even though key data and information are subject to critical review by SAR, including, when available, cross-checking with third-party sources.

When determining a sovereign rating, the rating committee considers instances of data limitation that are deemed to be relevant and notes them in SAR's sovereign rating committee package. SAR does not, however, issue sovereign ratings if it determines that there are significant data restrictions to make any analysis sufficiently reliable to support a rating conclusion.

7. Sovereign Rating Analysts

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