



Sovereign Rating Methodology

Sovereign and Public Sector

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Summary

This rating methodology explains Scope's approach to assigning sovereign credit ratings. Scope's assessment continues to be based on five categories of sovereign risk: 'Domestic economic risk', 'Public finances risk', 'External economic risk', 'Financial stability risk' and 'ESG credit risks'.

The main update compared to the previous methodology published on 9 October 2020 relates to a clarification of our assignment of foreign and local currency ratings. This clarification has no implications for existing sovereign ratings assigned by Scope.

Contents

Summary	2
1. Introduction	4
1.1 Rating definitions	5
1.1.1 Definition of a sovereign issuer.....	5
1.1.2 Definition of a sovereign default.....	5
1.1.3 Local- and foreign-currency ratings.....	5
1.1.4 Mapping from long-term to short-term ratings.....	5
1.1.5 Short-term local- and foreign-currency ratings	6
1.1.6 Model data and sources.....	6
2. Methodology	6
2.1 Overview.....	6
2.2 Domestic economic risk.....	8
2.3 Public finances risk.....	9
2.4 External economic risk.....	10
2.5 Financial stability risk.....	11
2.6 Environmental, social and governance risk.....	12
3. Core variable scorecard (CVS)	14
3.1 Forecasts and peer analysis.....	16
3.2 Reserve currency.....	17
4. Qualitative scorecard (QS)	17
4.1 Extraordinary circumstances.....	18
5. Annex I: Quantitative variables (CVS)	19
6. Annex II: Qualitative variables (QS)	24
7. Annex III: Foreign vs local currency sovereign defaults	28
8. Annex IV: Country case study	30
9. Literature	31

1. Introduction

This credit rating methodology details Scope Ratings GmbH's (hereafter: Scope) methodological approach and credit rating criteria for the rating of sovereign issuers and their debt issuances.

Scope's ratings of a sovereign are a forward-looking assessment of the ability and willingness to honour debt obligations to private-sector creditors in full and on time. Ratings are assigned to the issuer, i.e. the sovereign, and its debt instruments. Scope assigns local-currency (LC) ratings and foreign-currency (FC) ratings, using its long-term and short-term rating scales.

In assigning a sovereign issuer rating, Scope incorporates the most significant factors that affect the risk of upholding timely and full payment of interest and principal in the future. Scope's rating methodology looks at a broad range of economic, fiscal, external, financial and ESG-credit related factors to assess the government's ability and willingness to service its debt obligations.

Scope's sovereign rating methodology provides added analytical value through:

- comprehensive analysis using both quantitative and qualitative determinants of sovereign risk;
- forward-looking rating framework explicitly incorporating five-year forecasts;
- inclusion of financial stability risk to explicitly account for risks stemming from the banking sector;
- inclusion of environmental, social and governance related credit risks, and
- rigorous rating analysis using sophisticated scoring systems to enhance transparency.

The methodology provides a clear and detailed presentation of Scope's analytical framework and rating approach, including an articulation of the rationale for each key rating factor as well as more granular assessment criteria. The methodology is based on scorecard frameworks that allow a consistent assessment of the relative strength of rated sovereigns, while enhancing rating transparency and comparability. Scope's dual quantitative-qualitative approach is underpinned by sovereign and global financial stability risks that have emerged after the global financial crisis.

To structure the rating process and ensure comparability across the peer group, Scope divides sovereign analysis into five broad-based analytical categories, each of which contains a set of quantitative and qualitative considerations:

- Domestic economic risk
- Public finances risk
- External economic risk
- Financial stability risk
- Environmental, social and governance risk

Scope implements a core variable scorecard (CVS) as the first step for determining an indicative sovereign rating. The CVS aggregates the main components of the five rating categories and determines an overall score which is mapped to the long-term rating scale. For sovereigns with a reserve currency included in the IMF Special Drawing Rights basket, this indicative rating is adjusted upward by +1 to +3 notches. Scope then complements the quantitative CVS with a qualitative scorecard (QS) to account for analytical elements that cannot be captured within the CVS. The QS serves as a qualitative adjustment of the CVS indicative rating, with a possible adjustment of ± 3 notches, with the exception of extraordinary circumstances detailed in the methodology.

A formal qualitative analytical framework as a component of the sovereign credit risk analysis has several benefits. The integration of the rigorous qualitative framework supplements the analysis of fundamental fiscal and macro-economic variables. Scope believes that a robust, qualitative framework can contribute to the clear identification of potential changes in sovereign risk. Such a framework allows for assessing the cascading impacts of alternative macroeconomic assumptions and policy responses, as well as the availability and quality of potential action and reaction functions of governments and institutions that may have material impact on sovereign credit risk. Scenario analysis based on tested causalities is also applied to a wide range of possible economic developments.

1.1 Rating definitions

1.1.1 Definition of a sovereign issuer

Scope defines sovereigns as IMF member states¹.

Scope's ratings assigned to sovereigns or their issuances apply only to the risks faced by private-sector creditors. The rating does not reflect the sovereign's ability and willingness to service other types of obligations, such as:

- obligations to multilateral development institutions, such as the International Monetary Fund or the World Bank; or
- obligations to other governments (Paris Club debt or intergovernmental debt).

Scope's ratings do not refer to risks faced by these official sector institutions as they typically enjoy preferential treatment².

1.1.2 Definition of a sovereign default

Scope's [definition of default](#) is applicable to sovereign debt obligations and includes the following four events:

- failure to service a coupon or principal on a bond or loan issued by the sovereign on the due date or the resolution of outstanding payments within a grace period;
- missed coupon or principal repayment on non-sovereign debt benefiting from an irrevocable and unconditional guarantee issued by the sovereign;
- failure to service debt other than loans or bonds owed to private creditors by the sovereign; and
- any debt exchange or distressed-debt restructuring that leads to less-favourable terms of a debt obligation than those of the original contractual terms. This can include, for example, an extension of maturities, reduced principal amount, lower coupon or interest rates, a change in the currency payment³, or effective subordination.

In the case of announced sovereign debt restructuring, Scope assesses the circumstances of any exchange offer and considers the impact of each individual change in the terms of the debt. If a rated sovereign's debt is subject to either an exchange offer or distressed-debt restructuring that leads to a material reduction (compared with the original contractual terms), Scope will change the rating on both the issuer and the obligation subject to the exchange to D (default). This also applies when only a part of the rated bonds is subject to exchange offers. The sovereign will remain in default until the debt exchange has been concluded, after which Scope will change the sovereign issuer rating from D to a rating in line with the weak post-restructuring fundamentals of the sovereign.

1.1.3 Local- and foreign-currency ratings

Scope assigns local and foreign currency ratings using its long-term and short-term rating scales.

Ability and willingness to pay in either LC or FC debt is considered by Scope to be equal across most investment-grade rated sovereigns (i.e., those rated 'BBB-' and above). In rare and specific cases, for non-investment-grade rated sovereigns, Scope could assign a higher LC rating than the sovereign borrower's FC rating should Scope consider default risk to vary between its FC and LC debts. In exceptional circumstances, this could be the case should the following key factor(s) be considered met:

- Weak external fundamentals and outstanding risks as associated with currency depreciation;
- Significant proportion of central government debt burden denominated in FC;
- Established domestic capital markets and stronger capacity to refinance debt in LC; and/or
- Past preferential treatment of its LC versus FC debt or a strong basis for future disparity in willingness to pay LC versus FC debt.

[Annex III](#) provides an overview of the history of defaults on foreign-currency versus local-currency rated debt.

1.1.4 Mapping from long-term to short-term ratings

Short-term ratings are derived from the long-term ratings. The same elements that Scope identifies as relevant for differentials between local-currency and foreign-currency long-term ratings also apply to short-term ratings. Accordingly, Scope does not necessarily align foreign-currency and local-currency short-term ratings.

¹ The one exception is Hong Kong.

² Preferred creditor status reflects the incentives of a borrowing sovereign to prioritise debt repayment to multilateral institutions. These incentives include continued access to funds, availability of cheaper terms with longer maturities and the threat of sanctions.

³ In the case of a currency redenomination that leads to a change in the payment terms of a debt obligation enacted by the sovereign that results in a financial loss to investors.

1.1.5 Short-term local- and foreign-currency ratings

Scope's rating definitions provide five possible overlapping short-term rating positions over five long-term rating categories. The exclusive ability of a sovereign to create its own currency and its ability to obtain privileged market access will ensure that its financial flexibility and short-term solvency will normally be higher than for other issuers, for example, similarly rated corporates and financial institutions. As a result, for both foreign-currency and local-currency short term ratings, Scope will choose the higher of the two options for those sovereigns that benefit from having either an established reserve currency status, sizeable foreign-exchange reserves or comparatively strong financial and policy flexibility. Conversely, Scope will choose the lower of the two options for those sovereigns whose reserves are depleted with comparatively low financial and policy flexibility.

1.1.6 Model data and sources

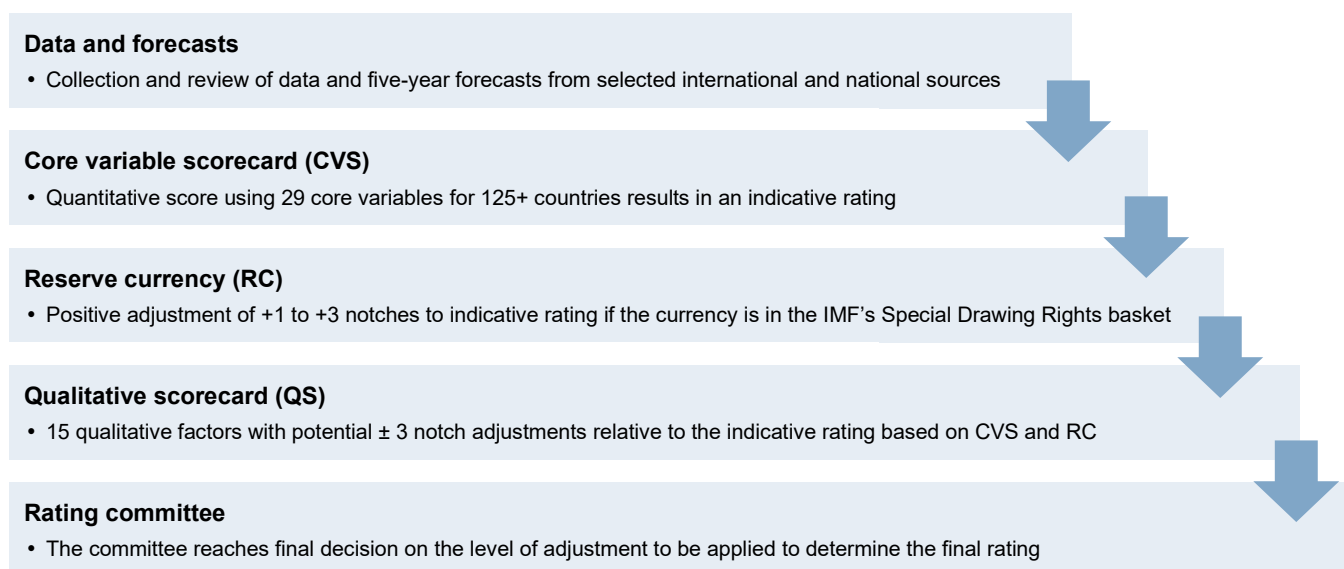
Scope's analysis and sovereign methodology is based predominantly on public information from a variety of sources. Scope may consider confidential information as submitted by sovereign issuers actively participating in the rating process. These sources include supranational organisations (such as the International Monetary Fund, the European Commission, the European Central Bank, the Organisation for Economic Cooperation and Development, the World Bank, and the Bank for International Settlements), national statistical offices, national central banks and various other government agencies and ministries, as well as other generally accepted sources. Scope will not rate the sovereign if data is considered insufficient in coverage or lacking in adequate quality, or if other issues exist that place the utility of the data into question.

2. Methodology

2.1 Overview

Assigning the rating is a multi-stage process consisting of five stages including the recommendation made to the rating committee. In the first stage, data and forecasts undergo a rigorous review process; in the second stage the core variable scorecard (CVS) is used to calculate a first indicative rating; in the third stage a positive adjustment is made for those sovereigns issuing in a reserve currency⁴; in the fourth stage, the qualitative scorecard (QS) is used to refine the analysis and to identify an indicative rating. In the fifth stage, the analyst presents a rating recommendation based on the previous stages of the rating process and the rating committee decides on the final rating.

Figure 1: Sovereign rating process summary – a multi-stage process



Source: Scope Ratings GmbH

The data and forecast review stage of the process includes a review of all data and publicly available forecasts, which is used to further the rating process for timeliness, accuracy and relevance. Scope implements the CVS as the first step for determining a first indicative rating. Quantitative scores are based on historical data, estimates, and projections of 29 key economic, financial, and

⁴ This is based on the IMF's Special Drawing Rights basket which currently includes the USD, EUR, JPY, GBP and RMB.

political variables. The CVS is organised along the principal elements of Scope's sovereign rating categories and generates a score result which is mapped to the long-term rating scale.

Scope complements the quantitative score produced by the CVS with a QS, adjusting for sovereign-specific elements that cannot be captured within the CVS. These include, but are not restricted to, assumptions about institutional and political risks, government attempts to manage the economy, and policy implementation. The QS is used to ensure rigorous, systematic and transparent analysis of qualitative forward-looking factors. The QS serves as a qualitative adjustment of the CVS indicative rating, with a potential adjustment range of ± 3 notches, with the exception of extraordinary circumstances as detailed in the methodology.

The final rating assigned is determined by Scope's rating committee, taking into account the sovereign's performance in each of the analytical categories captured by both the CVS and QS. Relevant rating aspects that could not be captured sufficiently in either the scorecards or the analytical framework that may emerge in the rating committee discussion are also considered.

In Scope's view, there are five risk categories which are critical for assigning sovereign credit ratings. These are:

- Domestic economic risk
- Public finances risk
- External economic risk
- Financial stability risk
- Environmental, social and governance risk

For each risk category, Scope identifies a group of key quantitative and qualitative factors that help to capture the state of a sovereign's creditworthiness. In addition, Scope adjusts the indicative rating upward for sovereigns issuing in a global reserve currency included in the IMF's Special Drawing Rights basket to account for the associated benefits in a systematic and transparent manner.

Figure 2: Five categories of sovereign credit risk

Core Variable Scorecard (Quantitative)			Reserve currency*	Qualitative Scorecard	
Sovereign Risk Category	Sub-Category	Variable			
Domestic Economic Risk (35%)	Wealth & size	GDP per capita	+	+	1. Growth potential 2. Monetary policy framework 3. Macro-economic stability & sustainability
		Nominal GDP			
	Growth, inflation & unemployment	Real GDP growth s.t. GDP/capita			
		Real GDP volatility			
Public Finance Risk (25%)	Debt affordability	Interest payments	+	+	1. Fiscal policy framework 2. Debt sustainability 3. Debt profile & market access
		GG Gross debt s.t. GDP/capita			
	Debt dynamics	Primary balance			
		GG Gross debt trajectory			
External Economic Risk (10%)	International Position	Net IIP/GDP	[+1; +3]	+	1. Current account resilience 2. External debt structure 3. Resilience to short-term shocks
		Current account balance/GDP			
	External debt sustainability	Reserves/Imports			
		Change GG Gross financing needs			
Financial Stability Risk (10%)	Banking sector	Non performing loans	+	+	1. Banking sector performance 2. Banking sector oversight & governance 3. Financial imbalances
		Tier 1 ratio			
	Private sector	Private sector credit growth			
ESG Risk (20%)	Environment	Transition risks: CO2/GDP	+	+	1. Environmental risks
		Natural disaster risks			
		Resource risks**			
	Social	Old-age-dependency ratio			2. Social risks
		Income inequality			
Governance	Labour force participation				
	WB Governance indicators***	3. Institutional and (geo)political risks			

* Positive adjustment to sovereigns whose currency is included in the IMF's SDR basket.

** Relation between a country's Ecological Footprint of Consumption and the biocapacity available within its own borders.

*** Average of six World Bank Governance Indicators.

Source: Scope Ratings GmbH

2.2 Domestic economic risk

Figure 3: Domestic economic risk



Source: Scope Ratings GmbH

The domestic economic risk factor focuses on the sovereign’s ability to support sustainable long-term growth. An established track record of continued growth is a key indicator of a sovereign’s ability to generate fiscal revenues, enabling a sovereign to adapt to a variety of shocks. High domestic economic risk, or weak economic prospects, have proven to be an important factor in past sovereign defaults⁵. Recent defaults and debt re-structurings have been largely the result of multi-year adverse macro-economic developments and, for countries heavily dependent on commodity exports, extended price drops of commodity prices.

The core quantitative factors of domestic economic risk include measures of the dynamics of the economy expressed in real GDP growth rates and GDP volatility, as well as the country’s economic strength as reflected in GDP per capita and Nominal GDP. Other core factors include inflation and unemployment. Further details on the rationale for the adoption of these variables in the CVS are addressed in [Annex I](#).

In analysing real GDP growth, Scope measures trend growth conditional on income levels. A higher per-capita income level is associated with higher economic and financial wealth and suggests that high value-added activities prevail in the economic structure (this is not always applicable to countries which are mainly commodity exporters). In addition, larger economies, as measured by nominal GDP are also more likely to exhibit a greater resilience to economic shocks. Volatile real GDP growth indicates imbalances in the economy and increases uncertainty about a sovereign’s ability to repay its obligations fully and on time.

Inflation rates that deviate persistently from desired levels compatible with the economy’s growth trajectory – for example, sustained periods of deflation or double-digit inflation rates – indicate underlying distortions that are harmful for economic performance. High unemployment rates over extended time periods point to structurally weak labour markets. Institutional barriers that impede labour re-allocation across economic activities may seriously hamper growth and weaken a country’s ability to absorb shocks.

Scope complements core indicators with qualitative considerations on a country’s growth potential, monetary policy framework and macro-economic stability. Scope examines historical growth trends and the country’s growth prospects in the medium to long term. This entails assessing a sovereign’s robustness, flexibility, and propensity to grow, in addition to assessing structural rigidities that may affect the sovereign’s economic performance or its vulnerability to exogenous shocks.

Assessment of a country’s monetary policy framework examines monetary and foreign exchange policies. Scope notes that the sovereign’s ability to pursue an efficient and coordinated set of policies may mitigate the risks of economic and financial shocks, supporting a faster economic recovery and more sustainable growth. Scope reviews the credibility and effectiveness of monetary policy, which is assessed by the track record of central banks in meeting their objectives. Independence of the central bank includes monetary authorities’ degree of freedom in the timing and use of instruments, legally guaranteed independence from political interference, and budgetary independence.

Scope also considers limitations that can prevent the central bank from achieving policy goals. Shallow and undiversified domestic financial systems and capital markets may constrain the effectiveness of monetary policy, with weak transmission mechanisms from the banking sector to the real economy. Another constraint may be rigid exchange rate regimes⁶, which may prevent the

⁵ Tomz and Wright (2007) report that 62% of defaults over the last 200 years occurred in years where the level of output in the defaulting country was below its long-run trend.

⁶ Rigid exchange rate regimes include all regimes other than free-floating, as classified by the IMF in the publication “Annual report on exchange arrangements and exchange restrictions”.

central bank from effectively influencing domestic currency rates. Additional policy objectives may also conflict with the monetary policy goal of maintaining the exchange rate at set levels.

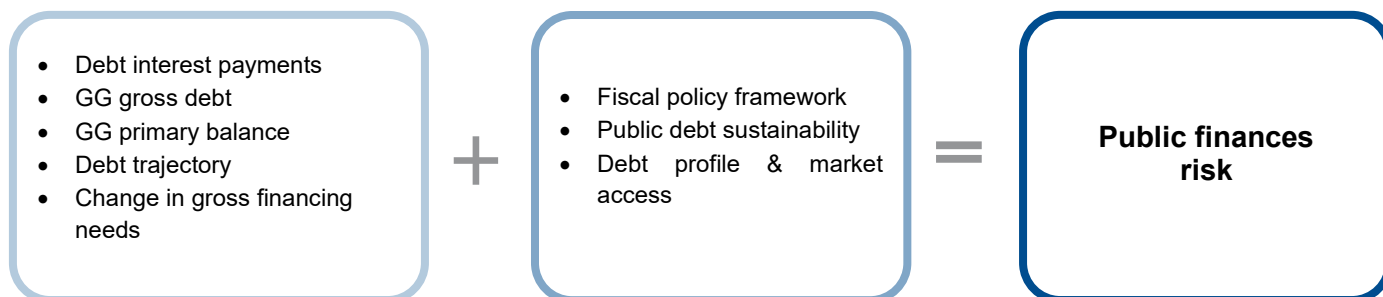
Scope also examines the effectiveness of unconventional monetary policy tools such as large-scale government bond purchase programmes. Scope believes that an effective government bond purchase programme from a highly credible central bank can support sovereign ratings. In Scope's judgement, such policy tools can support public finances, increase sovereign funding flexibility and reduce the risk of protracted deflation and economic downturns. However, a large and prolonged asset purchase programme may increase a sovereign's dependence on the use of extensive monetary easing to improve fiscal sustainability that could lead to fiscal dominance and potentially unwarranted higher inflation.

For sovereigns in a monetary union, such as the euro area, where individual sovereigns have transferred power over monetary and exchange rate policies to the central bank of the monetary union, the analysis focuses on appropriate fiscal and structural adjustment policies supporting debt affordability, as well as the competitiveness and flexibility of the economy (i.e. the ability of sovereigns to undertake internal adjustments instead of external devaluation by adjusting the exchange rate). Scope also examines the credibility of monetary unions, and member states commitment, as well as the financial strength and policy stance of its central bank. Other key considerations include the efficacy of institutional arrangements for supporting banks facing liquidity problems and credible safeguard mechanisms in the case of individual sovereigns in financial distress.

The macro-economic stability and sustainability assessment evaluates sovereign structural strengths and weaknesses conducive to a sovereign's future growth prospects. Scope considers overreliance on a specific industry or economic activity to be a weakness. Scope measures diversification of the economy by the proportion of valued added by sectors in the country's annual output. Overreliance on external markets also poses significant risks. Shortfalls in domestic savings may force a country to rely on external sources of funding and therefore foreign investor sentiment, increasing vulnerability to external shocks.

2.3 Public finances risk

Figure 4: Public finances risk



Source: Scope Ratings GmbH

The analysis of public finances risk focuses on the ability of a sovereign to maintain the strength of its balance sheet and to repay its maturing debt obligations. To assess public finance strength, Scope considers the following key quantitative variables: general government (GG) primary budget balance, interest payments as a percentage of budgeted revenues, gross general government debt, the debt trajectory and the change in gross financing needs. Further details on the rationale for the adoption of these variables in the CVS are addressed in [Annex I](#).

A substantial number of sovereign defaults are triggered by persistent fiscal imbalances⁷. Persistent budget deficits lasting longer than periods of economic downturns point to structural issues which, if not tackled, may eventually lead to a build-up of debt levels and put a strain on the sovereign's ability to service or refinance its debt⁸. A persistent primary-budget deficit may also indicate a low capacity to service sovereign debt from its own resources and an overreliance on markets to refinance debt.

In terms of quantitative factors Scope evaluates the general government primary balance, as well as forecasts, and a sovereign's current and potential indebtedness by analysing debt levels and debt affordability ratios. Though both gross and net debt ratios are comprehensive measures of sovereign debt, the history of sovereign defaults (see [Annex III](#)) suggests that high levels of debt do not necessarily lead to sovereign defaults. A key indicator that captures this is the debt affordability ratio, i.e. general government

⁷ Baldacci et al. (2011) provide a comprehensive assessment of the determinants of fiscal stress periods, covering public debt default as well as near-default events.

⁸ The defaults of Moldova in 2002, Greece in 2012 and most recently Ukraine in 2015 are examples of such types of sovereign defaults.

interest payments relative to budget revenues. Scope also considers the change in gross financing needs which indicates a sovereign's dependence on market funding, as opposed to internal resources (taxes, privatisation proceeds, etc.) and shows the sovereign's exposure to volatile market sentiment and elevated external refinancing risks.

Scope complements the core fiscal risk variables with qualitative assessments on sovereign fiscal performance, debt sustainability, market access, and funding sources. The analysis of fiscal framework and performance evaluates a government's ability to generate revenues, to plan and control expenditures, as well as to assess the consistency and appropriateness of budgetary policies and processes, as well as its adequacy to various phases of the economic cycle and its synchronisation with monetary policy. Scope conducts stress scenarios to examine the sensitivity of the budget to cycles and examines the fiscal room available to governments to mitigate the effects of economic downturns or other shocks in order to keep public finances in balance. Scope assesses revenue flexibility as the ability of the sovereign to raise revenues through higher tax rates, an expansion of the tax base, or the sale of sovereign assets. The track record of sovereign control over expenditures, as well as spending demands from an ageing population (pensions and healthcare) is also an important factor,

The underlying drivers of sovereign debt dynamics are central to Scope's analysis. A debt sustainability framework is used to assess sovereign ability to service debt under various stress scenarios. Public debt dynamics are analysed through debt projections accompanied by sensitivity analyses and stochastic debt projections. This enables Scope to examine the fiscal position of sovereigns, assessing resilience under sudden episodes of fiscal stress that may occur following the materialisation of public finance or macro financial risks. Medium-term sustainability challenges are assessed by focusing on the sovereign's initial budgetary position, levels and projected development of sovereign debt, and projected implicit liabilities relating to an ageing population.

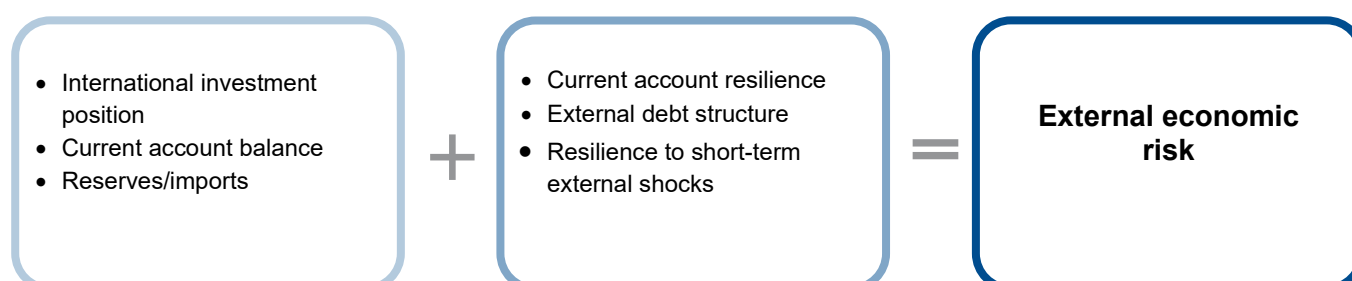
Within the debt sustainability analysis, Scope also examines the exposure of sovereigns to a wide range of contingent liabilities⁹. These include:

- contingent liabilities associated with the banking sector;
- contingent liabilities related to the non-financial sector, including government related entities; and
- explicit guarantees by the sovereign and other off-budget operations (pension obligations, extra-budgetary funds, securitisations and public-private partnerships (PPPs)) not included in the previous two groups.

Scope also assesses sovereign market access and ability to issue under stress scenarios. Scope examines sovereign debt composition, as well as maturity, interest rate, and currency structures. A sovereign with a debt structure characterised by long maturity and duration is less exposed to refinancing and interest rate shocks. Conversely, a sovereign that borrows significantly in foreign currency may be exposed to currency risk in times of financial and economic stress. Other areas of focus include, but are not limited to, the depth of the domestic capital market, access to concessional and multilateral sources of funding, as well as sovereign wealth funds.

2.4 External economic risk

Figure 5: External economic risk



Source: Scope Ratings GmbH

⁹ Bova et al. (2016) find that the average fiscal cost of a contingent liability realisation for the period 1990–2014 is 6% of GDP but costs can be as high as 40% for major financial sector bailouts.

The analysis of external economic risk focuses on the soundness and sustainability of a sovereign's external position and resiliency to external shocks¹⁰. Persistent current account deficits, high external debt borrowing and overreliance on short-term funding may be sources of external vulnerabilities, not only for emerging markets but in advanced countries as well. These vulnerabilities may reflect unsustainable consumption, asset price booms or a loss of competitiveness amplified by collapse in investor confidence. These vulnerabilities may lead to financial and economic crises and hence compromise sovereign creditworthiness. Scope's core indicators for the external economic risk factors include the net international investment position, the current account balance, and reserves/imports coverage. Details on the rationale for the adoption of these variables in the CVS are addressed in [Annex I](#).

Scope adjusts the external economic risk score by assessing current-account vulnerabilities. Volatile current-account receipts undermine a sovereign's ability to generate stable and reliable external revenues. Reliance on a single commodity (e.g. oil), a single service (e.g. tourism), or a single country for foreign worker remittances may expose the sovereign to shocks and sharp downturns of these commodity markets and respective countries.

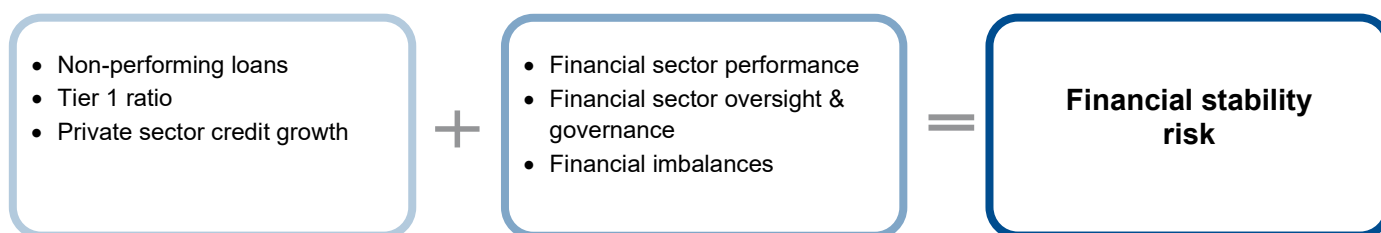
Emerging market economies are more exposed to "original sin" problems and spill-overs from financial markets¹¹. With a small domestic investor base, sovereigns that resort to substantial external borrowing are exposed to significant foreign currency risks. Scope evaluates the sustainability of external debt by focusing on the development and structure of external debt in both private and public sectors. This is assessed against assets available to make timely and full repayment. Scope pays specific attention to those sectors of the economy – households, corporates, banks, or the public sector – that are responsible for any external debt overhang and the sustainability of funding sources for the accumulated debt. Potential spill-over of private debt onto the balance sheet of the public sector is reviewed.

Scope's assessment of external debt positions is supplemented with the external liquidity ratio (which is measured by comparing the country's international foreign-exchange reserves with its external financing needs), including short-term external debt (original maturity short-term debt and current-year principal payments on long-term debt) and non-residents' deposits in domestic banks. A low liquidity ratio may signal the weak ability of major sectors in the economy to withstand a temporary loss of investor confidence and hence the ability to continue servicing debt using domestic resources when external creditors decline to refinance.

Scope considers the quality of funding sources for external debt to be another important factor. Sovereigns with sizeable portions of current-account deficits covered by foreign direct investments or equity in local companies are less prone to capital flight during periods of financial market turbulence. Portfolio and other debt-like capital inflows may, however, result in a potentially unsustainable build-up of external debt by sector. Access to international capital markets, especially for emerging markets, and affordability of capital from such markets is also reviewed.

2.5 Financial stability risk

Figure 6: Financial stability risk



Source: Scope Ratings GmbH

The financial stability risk factor focuses on assessing the overall strength and soundness of the financial sector, the effectiveness of regulation and supervision by the sovereign, as well as financial imbalances in the economy. The financial sector is critical to economic development, given its role as collector of savings, as an intermediary between savers and borrowers, and as a provider of payment infrastructure. In this regard Scope captures the key sources of systemic risk which may challenge macro-economic stability. There is significant empirical evidence of a link between systemic financial sector crises and sovereign defaults¹². Whereas

¹⁰ Two of the largest sovereign defaults – Russia in 1998 and Argentina in 2001 – are examples of sovereign inability to pay triggered by severe currency crises, which led into banking and fiscal crises.

¹¹ "Original sin" is the inability of emerging market economies to finance externally in domestic currency.

¹² See Balteanu and Erce (2014) and Correa and Sapriza (2014) for a detailed examination linking banking crises and sovereign defaults in emerging markets.

the vulnerability of sovereigns to the strength of their financial sector was prevalent in emerging market economies until recently (currency crises, sudden stops), this link has become even more important for advanced countries after the Great Financial Crisis.

Such crises may translate into sovereign debt crises through two types of transmission channels. The first channel is associated with the government's role to safeguard the financial system and the resulting materialisation of government-contingent liabilities adversely impacting fiscal sustainability¹³. The second channel relates to the existing macro-economic situation at the time of the crisis. A crisis in the financial sector may trigger a severe economic recession that weakens the fiscal position of the sovereign.

Scope also focuses on the impact that potential sovereign defaults may have on the solvency of financial institutions, given the losses these institutions may incur as a result of sovereign debt holdings and funding costs¹⁴. Although sovereigns and financial institutions may be independent, interdependencies create feedback loops: problems on one side can be amplified by negative feedback into the other side. Under these circumstances, crises in the financial sector can have negative implications for sovereign creditworthiness.¹⁵ Core variables adopted by Scope for assessing financial stability risks include non-performing loans, the tier 1 ratio, and the private sector credit growth. Further details on the rationale for the adoption of these variables in the CVS are addressed in [Annex I](#).

These variables are expanded upon by an examination of a country's overall financial sector performance. Scope analyses the main indicators of financial soundness including asset quality, profitability, liquidity, and capital adequacy. A highly leveraged financial sector may be characterised by volatile funding structures with excessive reliance on wholesale funding or short-maturity instruments in foreign currencies. This may expose sovereigns to large vulnerabilities that undermine overall financial stability. Moreover, Scope assesses the level of financial sector oversight as well as any macro-prudential policies aimed at reducing systemic risks by enhancing resilience to shocks and contagion.

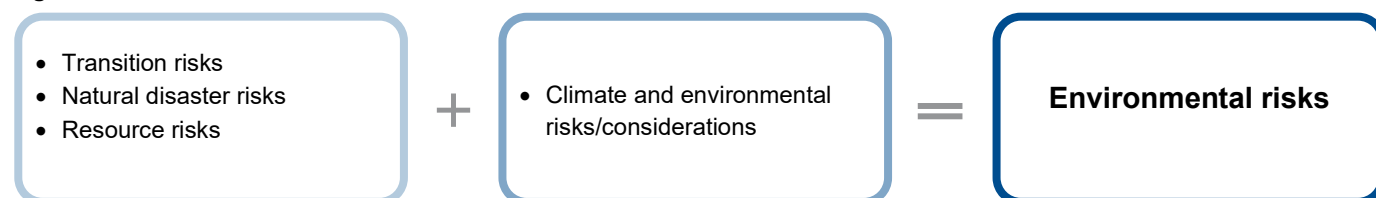
Scope also examines financial imbalances in economies related to variations in credit growth, high levels of household and corporate debt, and high asset prices. Scope examines the extent of these imbalances, as these may have a potentially sizeable impact on a sovereigns' creditworthiness. Scope focuses on credit-growth dynamics, which are closely associated with financial crises, and takes into account the level of a sovereign's financial development. For sovereigns with a low, but increasing, proportion of credit (typical in the developing world), rapid credit growth may point to a deepening of capital and financial markets and the emergence of new credit products, along with an increase in the population's wealth and income.

Scope also examines the degree of leverage in the private sector, as well as changes in asset prices, in order to identify potential financial bubbles, especially for housing. Such bubbles, when burst, may have a long-term effect on economic activity. The danger of asset price bubbles is that they may be self-reinforcing, especially if fuelled by permissive financial leverages and an easing of credit standards¹⁶. Indicators used by Scope include, but are not limited to, affordability ratios, household balance sheets and their impact on economic activity, and mortgage markets. Asset bubbles may also take the form of stock and commodity market booms.

2.6 Environmental, social and governance risk

This risk pillar comprises three separate risk categories: Environmental risks, social risks and governance related risks.

Figure 7a: Environmental risk



Source: Scope Ratings GmbH

¹³ Bova et al (2016) estimates of the fiscal costs of financial crises across advanced economies and emerging markets suggest a range between 5% and 15% of GDP.

¹⁴ Financial institutions highly exposed to the sovereign have shown larger increases in solvency risk, sharper reductions in loans and more noticeable rises in lending rates than institutions less exposed.

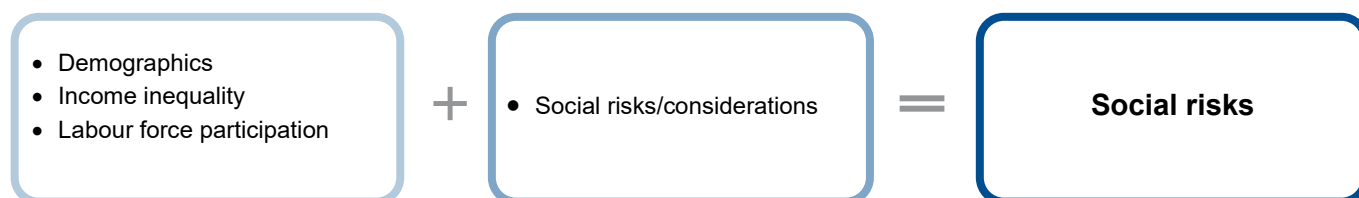
¹⁵ Financial institution's exposure to domestic sovereign risk via government bond holdings amplified the transmission of stress to the banking system during the recent eurozone crisis. Altavilla, Pagano and Simonelli (2016) establish that sovereign exposure has a causal role in this amplification mechanism.

¹⁶ Reinhart and Rogoff (2014) find that two out of five real estate market downturns were associated with systemic banking crises in advanced economies.

Environmental risks are a growing area of concern and increasingly relevant for sovereign credit risk. Climate change is likely to have longer-term demand-side implications, but will also cause a negative supply shock in the decades to come and may even have the potential to lead to widespread disruption to the economic and financial system¹⁷. Examples include the rise in the costs resulting from an increased incidence and severity of extreme weather conditions but also the structural change economies may have to undergo as and when policymakers and regulators adopt and expand carbon pricing mechanisms¹⁸. In addition, countries may face natural resource constraints (resource-security) which may vary depending on a country's consumption and production patterns, its trade relations facilitating access to raw materials as well as the biocapacity physically available within its borders¹⁹.

Core variables adopted by Scope for assessing environmental risks include transition risks captured via CO2 emissions per GDP, natural disaster risks as measured by the World Risk Institute and resource risks measured via a country's ecological footprint of consumption relative to its biocapacity. Further details on the rationale for the adoption of these variables in the CVS are addressed in the [Annex I](#). These variables which capture the current exposures of a sovereign to environmental risks are complemented by a qualitative assessment of the governments' willingness and ability to mitigate these risks.

Figure 7b: Social risk

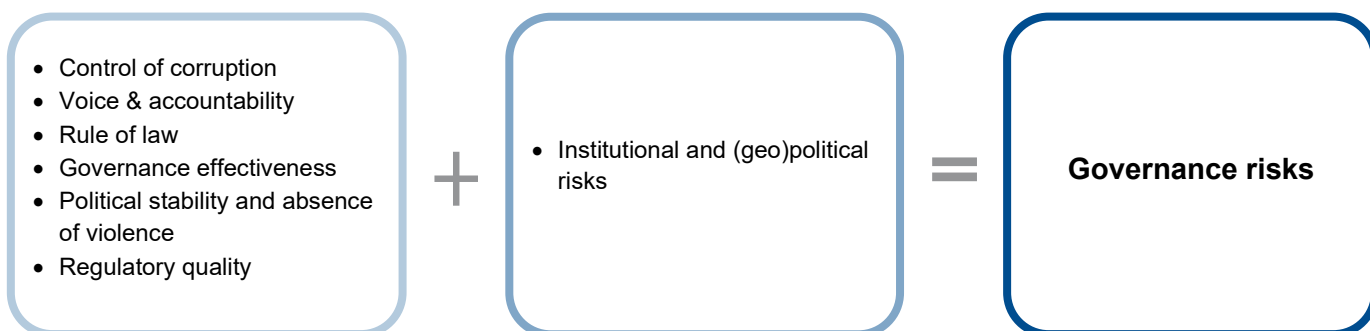


Source: Scope Ratings GmbH

Social risks have a fundamental impact on economic development and can thus affect the growth and public finance outlook of a sovereign as well as its political risks over the medium-term. There is thus conceptually an important overlap with other risk categories in Scope's methodology, particularly 'Domestic Economic Risk', but also 'Public Finance Risk' as well as the institutional and political risk factor. Scope focuses in this part of the analysis on persistent, structural features of an economy and society.

Core variables adopted by Scope for assessing social risks include the old-age dependency ratio, income inequality as measured via the income quintile share ratio (S80/S20) – that is, the ratio of the 20% of the population with the highest income (top quintile) to that received by the 20% of the population with the lowest income (lowest quintile) – and the labour force participation rate. Further details on the rationale for the adoption of these variables in the CVS are presented in the [Annex I](#). These variables which capture the current exposures of a sovereign to social risks are complemented by a qualitative assessment of the governments' willingness and ability to mitigate these risks.

Figure 7c: Governance risk



Source: Scope Ratings GmbH

The analysis of institutional and (geo)political risks focuses on the strength, soundness and stability of a country's political institutions. Sovereign defaults may be triggered by weak institutions, political instability, and an exposure to external conflicts which

¹⁷ Andersson, M.; Baccianti, C. and Morgan, J. 2020. Climate change and the macro economy; ECB Occasional Paper Series.

¹⁸ De Nederlandsche Bank: The price of transition. An analysis of the economic implications of carbon taxing, October 2018.

¹⁹ UNEP, 2012. A new angle on sovereign credit risk

directly or indirectly affect the perceived willingness to service debt²⁰. Scope's core indicators for institutional and political risks are the six governance indices compiled by the World Bank: control of corruption, the rule of law, the voice and accountability, governance effectiveness, political stability and absence of violence, and regulatory quality. Further details on the rationale for the adoption of these variables in the CVS are addressed in the [Annex I](#).

The institutional and political risk core variables are supplemented by assessments of qualitative factors that include recent events, policy, institutional and (geo)political risks and considerations. Sovereigns, unlike corporates or financial institutions issuers, are not subject to bankruptcy laws and enforcement procedures. Sovereigns, despite having sufficient resources available, can make the deliberate choice not to repay their debt. Default decisions are highly influenced by political developments²¹. Examples include defaults occurring during war time or significant transitions of power (which can lead to the declaration of debt being 'odious'²²). Scope examines the sovereign's perceived willingness to pay by examining the history of debt repayment. Scope considers whether recent debt restructuring measures and/or debt write-offs adequately address solvency issues, and not just liquidity problems in the economy. A further important indicator is the history of timely and full repayment of sovereign debt to international donors and bilateral lenders. Scope believes it is also important to take into account a sovereign's dependency on international donor support to meet its obligations.

Scope expands its assessment of the country's institutional strength by examining recent policy decisions and political events that may materially affect sovereign creditworthiness. Emphasis is placed on the sovereign's ability to implement structural reforms and fiscal consolidation programmes which may be politically difficult. Policy risk and overall orientation, predictability, and efficacy of government policy are reviewed, focusing on measures and initiatives most likely to impact economic and financial conditions. Scope also examines the frequency of changes in government and the sovereign's track record in terms of past political and economic crises.

Exposure to geopolitical risks may place economic growth at risk. This may be mitigated by a sovereign's ability to contain and curb risks associated with these low-probability high-impact events. Scope assesses geopolitical security risks that can disrupt economic activity through tensions with neighbouring countries, leading to armed conflict or threat of such. External conflicts or threat of conflicts may reduce investment flows and have a detrimental effect on business confidence, putting a strain on the balance of payments and internal policies.

3. Core variable scorecard (CVS)

Scope uses its CVS model ("CVS"), a core variable scorecard (CVS), as the first step for determining an indicative sovereign rating. The CVS encompasses the five rating analytical categories Scope applies to sovereign ratings.

While the CVS is not a predictive model of default, it does assess a sovereign's relative credit strengths and weaknesses, allowing for a comprehensive peer group analysis. It is Scope's opinion that the limited number of sovereign defaults does not allow for a purely quantitative analysis to determine the probability of default as statistical models fail to comprehensively capture, for example, political decision-making and other qualitative factors that have led to sovereign defaults in the past.

The following weights are assigned to the five categories based on Scope's judgment of their relative importance in assessing sovereign creditworthiness:

- **Domestic economic risk (35%):** The weighting reflects the relative importance of macro-economic fundamentals as important indicators of economic vulnerabilities.
- **Public finances risk (25%):** The weighting reflects the relative importance of public finances' importance in examining sovereign balance sheets and the ability to mobilise resources to service debt.
- **External economic risk (10%):** The weighting reflects the relative importance of the balance-of-payment risk analysis.
- **Financial stability risk (10%):** The weighting reflects the relative importance of assessing system risk and the banking sector's ability to withstand shocks and contagion.

²⁰ External conflict with Russia, coupled with a change in the country's leadership, contributed greatly to the default by Ukraine on a USD 18bn Eurobond in 2015.

Other recent examples of defaults driven by political risk factors include Paraguay's debt restructuring in 2002-04 and Ecuador's default in 2008.

²¹ Several empirical studies reviewed in Hatchondo and Martinez (2010) find that the proximity of elections, the turnover of government officials, increases in political instability, and less democratic political system are statistically associated with a higher default probability.

²² The concept of odious debts was coined by the jurist Alexander Sack (1929). Odious debts are defined by Sack as debts contracted and spent against the interests of the population of a State, without its consent, and with full awareness of the creditor. These include: war debts, subjugated or imposed debts, and regime debts.

- **Environmental, social and governance risk (20%):** The weighting reflects the relative importance of environmental, social and governance considerations.

Scope has chosen 29 quantitative variables as the basis of a rigorous peer analysis. These indicators were chosen on the basis of empirical research and economic theory, analytical judgment, and availability. The chosen indicators are considered good predictors of default and fiscal distress and hence offer strong explanatory power. They were chosen on the basis of academic studies on factors driving historical defaults²³.

Figure 8: Five categories of sovereign credit risk (CVS)

Core Variable Scorecard (Quantitative)			Reserve currency*
Sovereign Risk Category	Sub-Category	Variable	
Domestic Economic Risk (35%)	Wealth & size	GDP per capita	+
		Nominal GDP	
	Growth, inflation & unemployment	Real GDP growth s.t. GDP/capita	
		Real GDP volatility	
		Inflation rate	
Public Finance Risk (25%)	Debt affordability	Interest payments	+
		GG Gross debt s.t. GDP/capita	
	Debt dynamics	Primary balance	
		GG Gross debt trajectory	
External Economic Risk (10%)	International Position	Net IIP/GDP	+
	Current account	Current account balance/GDP	
	External debt sustainability	Reserves/Imports	
Financial Stability Risk (10%)	Banking sector	Non-performing loans	+
	Private sector	Tier 1 ratio	
ESG Risk (20%)	Environment	Private sector credit growth	+
		Transition risks: CO2/GDP	
		Natural disaster risks	
	Social	Resource risks**	
		Old-age-dependency ratio	
		Income inequality	
		Labour force participation	
Governance	WB Governance indicators***		

* Positive adjustment to sovereigns whose currency is included in the IMF's SDR basket.

** Relation between a country's Ecological Footprint of Consumption and the biocapacity available within its own borders.

*** Average of six World Bank Governance Indicators.

Source: Scope Ratings GmbH

To calculate the rating score within the CVS, Scope uses a minimum-maximum algorithm to determine a rating score, which ranges from 1 to 100 as per the indicative rating, for each of the 29 indicators. Scope calculates the minimum and maximum of each rating indicator and places each sovereign within this range. Sovereigns with the strongest results for each rating indicator receive the highest rating score; sovereigns with the weakest results receive the lowest rating score.

For example, in the hypothetical situation where the positive (negative) outlier of a variable is identified as the value 1 (-8), the score of a variable with the value 0.5 (thus being close to the 'best' score) would be derived using the following calculation: $1 + 99 \times \frac{(X - \text{MIN})}{(\text{MAX} - \text{MIN})}$ or $1 + 99 \times \frac{(0.5 - -8)}{(1 - -8)} = 94.5$.

²³ These Include Reinhart and Rogoff (2009), Manasse and Roubini (2003) and Baldacci et al. (2011).

Scope uses statistical analysis to exclude outliers (statistical noise) at either end of the distribution. The min-max calculation is based on a 125+ country sample that covers 99% of sovereign debt issuance. The identification of outliers is conducted on the basis of the Median Absolute Deviation²⁴ which adds (subtracts) the median of the absolute difference between each observation and the median of the full sample multiplied by a constant to (from) the median of the sample. Scores are aggregated using a weighted average score to generate an overall rating score.

In a final step, the aggregated CVS score is then used to determine the indicative rating as shown in the following table.

These are in lower case to differentiate them from final rating scores determined by the rating committee. Scope notes that movements between indicative ratings are not immediate but executed after analyst review of CVS results and are documented for and approved by a rating committee during review of the rating. The aim is to avoid scores which are at the limit of indicative ratings to move too rapidly and too frequently into another indicative rating thus creating unnecessary rating volatility.

aaa	80.0-100.0	bb+	46.7-50.0
aa+	76.7-80.0	bb	43.3-46.7
aa	73.3-76.7	bb-	40.0-43.3
aa-	70.0-73.3	b+	36.7-40.0
a+	66.7-70.0	b	33.3-36.7
a	63.3-66.7	b-	30.0-33.3
a-	60.0-63.3	ccc	20.0-30.0
bbb+	56.7-60.0	cc	10.0-20.0
bbb	53.3-56.7	c	1.0-10.0
bbb-	50.0-53.3	d	No score

3.1 Forecasts and peer analysis

The CVS incorporates a combination of historical, current, and forward-looking data. Economic data and forecast are subject to revisions and changes. Hence the CVS is updated on an ongoing basis. Each country is reviewed at least twice a year.

Scope uses publicly available macro-economic and financial data with five-year forecasts for 9²⁵ out of the 29 adopted variables (see [Annex I](#)). A weighted average is calculated before the rating algorithm is executed, providing a single data point which includes the last year of historical data, current-year data, and a five-year forecast. This algorithm uses a dynamic weighting process in which weights change over a calendar year. This reflects the fact that data availability improves the quality of any forecast over the current year, resulting in a shift of weight from the most recent historical year at the beginning of a calendar year, to the current year at the end of a calendar year.

Scope uses forecasts to form a forward-looking opinion on sovereign risk. Scope adopts a through-the-cycle approach that goes beyond the current phase of the economic cycle, focusing on the long-run performance of a sovereign. Consequently, Scope believes that rating changes are more likely to occur when there is a clear structural change in the economy or when the phase of the cycle has exposed fundamental weaknesses or strengths in the creditworthiness of a sovereign.

The relation between quantitative indicators and sovereign risks may differ across countries. The rating score from the CVS does not represent a linear relationship between quantitative indicators and sovereign default risks. The scorecard acts primarily as a scoring tool to help form a recommendation for the rating committee.

²⁴ See 'Leys, C. et al. 2013. 'Detecting outliers: Do not use standard deviation around the mean, use absolute deviation around the median'.

²⁵ Old-age dependency ratio is forecast through 2030.

Essential to Scope's approach are the indicative rating peer groups, which include the peers in the adjacent indicative ratings generated by the CVS. These allow comparative analysis over sovereigns and across time. This is essential to ensure consistency and provides the basis for the qualitative assessment in the QS.

3.2 Reserve currency

Global currencies are widely used in cross-border monetary operations, finance and trade. For the few issuing sovereigns, these currencies come with both benefits and costs and can therefore have significant implications for creditworthiness. Uses of an international currency extend well beyond its role as a foreign exchange reserve for central banks. It fulfils the three traditional functions of money for both private and public actors: a medium of exchange, a unit of account, and a store of value. An international currency provides a host of benefits for the issuing country. First, borrowing costs for the issuing sovereign are reduced due to high demand for its currency, increasing fiscal space and the ability to raise spending without materially affecting debt sustainability. In addition, domestic banks in the issuing country have access to the central bank's liquidity facilities, which translates into a competitive advantage over foreign banks. Domestic firms also benefit as their exchange rate risks are lower than those of foreign firms. Finally, a global reserve currency can be used by the issuing country politically, for instance, via sanctions, bolstering the country's global hegemonic status.

At the same time, an international currency also has its costs. During times of global distress, such currencies can appreciate strongly due to their safe-haven status, adversely affecting the cost-competitiveness of domestic producers. In addition, the absence of credible fiscal rules, low borrowing costs and sustained elevated demand for its debt securities may induce governments to pursue a fiscally expansive policy, resulting in high public debt. Countries issuing international currencies also face policy constraints as strong debt movements can increase interest rate volatility, complicating monetary policymaking.

While there is no accepted list of global currencies, in Scope's opinion the closest official recognition of the global currency status is its inclusion in the IMF's Special Drawing Right (SDR) basket, which was created as a supplementary international reserve asset²⁶. While the abovementioned costs are captured in Scope's CVS, particularly via the public finance and external economic risk pillars, the benefits can be substantial but are very difficult to assess quantitatively. Therefore, for the few sovereigns which issue in a global reserve currency as defined above, Scope adjusts the indicative rating by a minimum of +1 and a maximum of +3 notches based on the weight the currency receives in the IMF's SDR basket²⁷. Specifically, currencies with a weight around 30% (20%) or above receive +3 (+2) notches, otherwise +1 notch. For now, for sovereigns in a monetary union such as the euro area, the weight of the currency in the SDR basket is adjusted by the capital held by the national central banks of the member states as shareholders of the ECB. This could change depending on progress made towards a fully-fledged capital markets union in Europe²⁸.

4. Qualitative scorecard (QS)

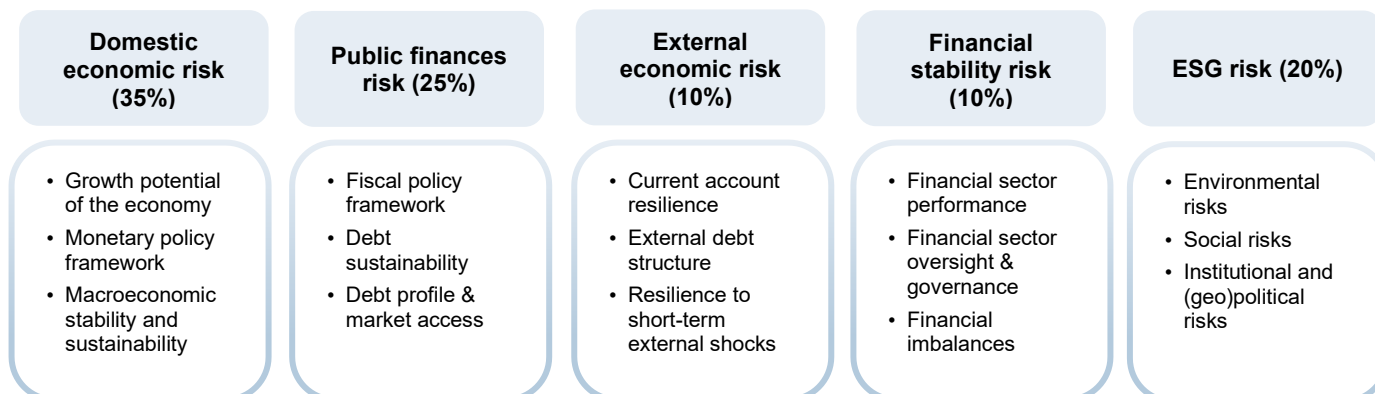
Scope complements the quantitative CVS with a qualitative scorecard (QS) to account for analytical elements not captured within the CVS. The QS is designed to expand on the CVS. It is organised into five complementary sections corresponding to the five analytical categories in the CVS (domestic economic risk, public finances risk, external economic risk, financial stability risk, and ESG risk). The weights in the QS are the same across each category.

²⁶ As stated by IMF "currencies included in the SDR basket have to meet two criteria: the export criterion and the freely usable criterion. A currency meets the export criterion if its issuer is an IMF member or a monetary union that includes IMF members, and is also one of the top five world exporters. For a currency to be determined "freely usable" by the IMF, it has to be widely used to make payments for international transactions and widely traded in the principal exchange markets. Freely usable currencies can be used in Fund financial transactions".

²⁷ As only a few sovereigns issue in global reserve currencies, capturing this benefit via the CVS would significantly skew the results for all other countries.

²⁸ Capital markets union: Final report by High-Level Forum pushes for the completion of the CMU.

Figure 9: Five categories of sovereign credit risk (QS)



Source: Scope Ratings GmbH

The QS is the analytical tool used to adjust the CVS-indicative rating. An overall maximum adjustment range of ± 3 notches may be applied. The adjustments are aggregated using equal weights for each assessment such that each risk pillar is worth one full rating notch, while the overall assessment is capped at ± 3 notches. Each adjustment is the assessment of the relative strengths and weaknesses conducted vis-à-vis the peer group with the same indicative rating, including the two adjacent ones (positive and negative). All steps of the process are documented, including adjustment recommendations and their impact on the rating.

Within the QS assessment the analyst conducts a comprehensive review of the qualitative factors detailed in Annex II. This includes but is not limited to economic scenario analysis based on tested causalities, but also a review of debt sustainability, fiscal and financial performance and policy implementation assessments. There are three assessments per category for a total of fifteen. For each assessment, the analyst examines the relative position of a given sovereign within its peer group. For this purpose, additional comparative analysis beyond the variables included in the CVS is conducted. The result is the implied QS notch adjustment which is the basis for the analyst recommendation to the rating committee (see Annex IV for a country case study). The QS process results in a recommendation for the rating committee. The rating committee may adjust the rating beyond ± 3 notches under extraordinary circumstances which are not captured by the scorecard results.

4.1 Extraordinary circumstances

The rating committee may further adjust the outcome of the CVS and QS to take into account extraordinary circumstances that scorecards cannot capture. The circumstances may include but are not restricted to:

- a sovereign undergoing a crisis as a result, for example, of a sharp economic downturn or a financial crisis accompanied by a crisis of confidence, leading to a significant increase in the risk of default in the short-term that has not yet been captured by data or forecasts;
- a sovereign with a recent history of default intending to enter into a distressed exchange;
- an exogenous shock of an exceptionally large magnitude (political uprisings, wars, natural disasters, sudden changes in market liquidity and capital flows) that lead to a strong increase in the risk of a default;

Any other circumstances where greater adjustment flexibility is believed by the rating committee to be necessary (for example, capital controls, lack of capital market development, political distress) in order to incorporate sovereign fundamentals that are not otherwise captured by the scorecard results. Extraordinary rating adjustments, if needed and applied, will be transparently communicated.

5. Annex I: Quantitative variables (CVS)

Variable	Description	Sources
Domestic economic risk		
Real GDP growth	Seven-year weighted average of real GDP growth using past, current, and five-year forecast data; assessed adjusted for GDP/capita	IMF
Nominal GDP	Natural log of seven-year weighted average of Nominal GDP using past, current, and five-year forecast data	IMF
Real GDP volatility	Standard deviation of real GDP growth using data for the past four years, current data, and a five-year forecast	IMF
GDP per capita, current USD	Natural log of seven-year weighted average of GDP per capita using past, current, and five-year forecast	IMF
Inflation rate	Seven-year weighted average of inflation rate using past, current, and five-year forecast, adjusted for developing/developed sovereigns	IMF
Unemployment rate	Most recent data on unemployment rate	WB
Public finances risk		
Primary balance % GDP	Seven-year weighted average of primary balance as a percentage of GDP using past, current, and five-year forecast data	IMF
Interest payments on debt % revenues	Seven-year weighted average of interest payments on debt as a percentage of revenues using past, current, and five-year forecast data; assessed in non-linear form.	IMF
Gross debt % GDP	Seven-year weighted average of gross debt as a percentage of GDP using past, current, and five-year forecast data; assessed in non-linear form and adjusted for GDP/capita.	IMF
Debt trajectory	Change in public debt-to-GDP ratio between past and one-year forecast	IMF
Change in gross financing needs % GDP	Change in gross financing needs, as a percentage points of GDP, using past and current-year estimate	IMF
External economic risk		
International investment position % GDP	Most recent data on international investment position as a percentage of GDP; if unavailable, this is proxied via the historical cumulative current account	EC, national banks and statistical offices
Current account % GDP	Seven-year weighted average of current account as a percentage of GDP using past, current, and five-year forecast	WB
Reserves/imports	Most recent data on reserves expressed in terms of the number of months of imports of goods and services	IMF, WB
Financial stability risk		
Non-performing loans % total loans	Most recent data on non-performing loans as a percentage of total loans	IMF, WB
Tier 1 capital % risk-weighted assets	Most recent data on Tier 1 capital % risk-weighted assets	IMF
Private sector credit growth	Three-year change in private sector credit, based on two-year average	WB



Sovereign Rating Methodology

Sovereign and Public Sector

Variable	Description	Sources
Environmental, social and governance risk		
E: Transition risks	Fossil CO2 Emissions per \$1,000 of GDP (tons)	EDGAR
E: Natural disaster risks	Most recent data on World Risk Indicator	WRI
E: Resource risks	Log of most recent data on Ecological Footprint of Consumption relative to biocapacity within a country's borders	Global Footprint Network
S: Old-age dependency ratio	Past and long-term weighted average of old-age dependency ratio; assessed in non-linear form.	UN
S: Income inequality	Most recent data on S80/S20 income percentile ratio; if unavailable, this is proxied via the regional average	WB
S: Labour force participation	Most recent data on labour force participation	WB
G: Control of corruption	Most recent data on control of corruption	WB
G: Voice and accountability	Most recent data on voice and accountability	WB
G: Rule of law	Most recent data on rule of law	WB
G: Governance effectiveness	Most recent data on governance effectiveness	WB
G: Political stability and absence of violence	Most recent data on political stability and absence of violence	WB
G: Regulatory quality	Most recent data on regulatory quality	WB

Sources: Scope Ratings GmbH.

Quantitative indicators	Definition	Rationale
Domestic economic risk		
Wealth & size 1. GDP per capita, current USD 2. Nominal GDP	1) GDP per capita is equal to gross domestic product divided by the population 2) Nominal GDP on a USD-basis	1) The higher the GDP per capita, the broader the potential tax base which the sovereign relies on to pay its obligations. Moreover, higher per-capita-income level is associated with higher economic (stock of human and physical capital) and financial wealth (stock of financial assets) 2) Nominal GDP is used to account for a sovereign's resilience
Growth, inflation & unemployment 1. Real GDP growth 2. Real GDP volatility 3. Inflation rate 4. Unemployment rate	1) Real GDP growth is defined as annual percentage growth rate of GDP at constant prices 2) Real GDP volatility is equal to the standard deviation of real GDP growth 3) The inflation rate is the yearly percentage change in the consumer price index 4) Unemployment refers to the share of the labour force that is without work but available for and seeking employment	1) A country's ability to generate sustainable long-term growth is an important factor influencing creditworthiness 2) Highly volatile real GDP growth indicates the presence of imbalances in the economy and increases uncertainty about the sovereign's ability to repay its obligations fully and on time 3) Long periods of high inflation (higher than 10%) undermine the credibility of the local currency as a main storage of value; conversely, deflation (an inflation rate below 0%) undermines economic growth through its detrimental effect on consumption and business confidence 4) High unemployment, which is usually associated with a significant structural component, points to an inflexible labour market, can seriously hamper growth and weaken the country's ability to adapt to new challenges
Public finances risk		
Debt affordability 1. Interest payments on debt % revenues 2. General government gross debt % GDP Debt dynamics 1. Primary balance % GDP 2. Debt trajectory (p.p.) 3. Change in gross financing needs (p.p.)	1) Interest payments include interest payments on government debt to domestic and foreign residents, including long-term bonds, long-term loans, and other debt instruments 2) Gross debt is defined as a government's total outstanding debt instruments 1) Primary balance is defined as overall balance excluding net interest payment (interest expenditure minus interest revenue) 2) Debt trajectory is defined as the 3-year change in the debt-to-GDP ratio 3) Change in gross financing needs are defined as overall new borrowing requirement plus debt maturing during the year compared to previous year	1) Interest payments % budget revenue displays a sovereign's ability to service its debt 2) The gross debt ratio is a universal and comprehensive measure of sovereign indebtedness, 1) A persistent primary budget deficit indicates a sovereign's low capacity to service its debt from its own resources and an overreliance on the markets to refinance its debt 2) A persistent rise in a government's debt to GDP ratio indicates a combination of a low capacity to consolidate public finances and/or weak growth prospects 3) Gross financing needs measure dependence of a sovereign on capital market access and is a function of the debt structure and duration. A sudden increase can result in a sovereign having difficulties raising additional amounts on the capital markets.

Quantitative indicators	Definition	Rationale
External economic risk		
External debt sustainability 1. International investment position % GDP 2. Current-account balance % GDP 3. Reserves/ imports	1) Net IIP is the difference between external financial assets and external financial liabilities of residents of a country as a percentage of GDP 2) Current-account balance is the sum of net exports of goods and services, net primary income, and net secondary income 3) The number of months' worth of imports that can be purchased by a country if there is a 'sudden stop' of foreign exchange due to a payment shock	1) Recent crises have underscored the importance of external assets and liabilities as an important indicator of external vulnerability 2) Large and persistent current-account deficits signal the risk of depletion of net foreign assets/liquidity/foreign-exchange reserves, indicating a lack of international competitiveness. They also signal a shortage of domestic savings in the economy, which are covered by capital inflows from non-residents 3) Sovereigns whose currency is not widely used often mitigate external risks via their availability (and use) of reserves.
Financial stability risk		
1. Non-performing loans % total loans 2. Tier 1 ratio % risk-weighted assets 3. Private sector credit growth	1) A loan is non-performing when payments of interest and principal are past due by 90 days or more, or at least 90 days of interest payments have been capitalised, refinanced or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons to doubt that payments will be made in full 2) Tier 1 ratio measures a bank's core capital relative to its risk-weighted assets 3) Private sector credit growth is defined as the 3-year change in the outstanding credit to the private sector relative to GDP	1,2) Banks' risky operations could pose a threat to macro-economic stability given the banking sector's role as a collector of savings, intermediary between savers and borrowers, and a payment infrastructure provider 3) Excessive private sector credit growth could serve as an early-warning indicator for a banking crisis. It points to the build-up of financial vulnerabilities within the economy
Institutional and political risk		
Environment 1. Transition risks 2. Natural disaster risks 3. Resource risks	1) Fossil CO2 emissions per \$1,000 of GDP (Tons) 2) Score of World Risk Index which measures the risk of disaster in consequence of extreme natural events. It is calculated through the multiplication of exposure and vulnerability. Exposure covers threats of the population and other certain protected entities due to earthquakes, cyclones, floods, droughts and sea-level rise. Vulnerability is comprised of three components: a) Susceptibility, which describes the structural characteristics and framework conditions of a society and indicates the likelihood of suffering from harm in an extreme natural event; b) Coping, which comprises various abilities of societies to be able to minimize negative impacts of natural hazards and climate change through direct action and the resources available; and c) Adaptation, which includes measures and strategies dealing with and attempting to address the negative impacts of natural hazards and climate change in the future. 3) Resource risks: a country's ecological footprint of consumption relative to its biocapacity	1) Transitional risks refer to the likely economic and fiscal costs sovereigns face as a result of policy and regulatory actions to foster carbon-free economies. As and when policymakers and regulators adopt and expand carbon pricing mechanisms, economies with a higher share of carbon-intensive industries are likely to face higher i) economic costs, which include the structural change economies may have to undergo, and ii) fiscal costs, which include direct expenditures, investments and subsidies. In addition, the impact on sovereign risk may further materialize via trade channels in cases where trade barriers for carbon-intensive products adversely impact domestic industries not subject to carbon-pricing at home. 2) Sovereigns more exposed to natural disasters may face higher economic and fiscal costs resulting from an increased incidence and severity of extreme weather conditions. 3) Sovereigns with limited resources may face natural resource constraints (resource-security) which may vary depending on a country's consumption and production patterns as well as the biocapacity physically available within its borders. This risk may also be affected by i) trade policies, and ii) the availability and substitutability of raw resources

Quantitative indicators	Definition	Rationale
Social 1. Demographics 2. Income inequality 3. Labour force participation	1) Ratio of population aged 65+ per 100 population 15-64 2) Income quintile share ratio (S80/S20): ratio of the 20% of the population with the highest income (top quintile) to that received by the 20% of the population with the lowest income (lowest quintile) inequality 3) Labour force participation: labour force divided by total working-age population	1) The old-age dependency ratio indicates the share of the population dependent on the work-force, thus capturing the demographic challenges a sovereign is likely to face in the future 2) Income inequality may lead to low social mobility (hindering human capital formation), high social conflicts and corruption, which impede sustainable economic growth and development 3) The share of an economically active population does not only impact economic growth directly by adding to total output but also indirectly by lowering hysteresis and contributing to a dynamic labour market
Governance 1. Control of corruption 2. Voice & accountability 3. Rule of law 4. Governance effectiveness 5. Political stability and absence of violence 6. Regulatory quality	Perceptions of (the extent to which) 1) Control of corruption: public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites/private interests 2) Voice & accountability: a country's citizens ability to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media 3) Rule of law: agents have confidence in and abide by the rules of society, in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence 4) Government Effectiveness: quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies 5) Political Stability and Absence of Violence/Terrorism: likelihood of political instability and/or politically-motivated violence, including terrorism 6) Regulatory Quality: ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development	1, 2, 3, 4, 5, 6) Favourable levels of world government indicators can strengthen the institutional environment in regard to corruption, property rights, public and private interests, freedom of speech, and crime and violence, and can enhance governments' commitment to pursue structural reforms
Reserve currency		
Reserve currency	1) Currency is included in the IMF's basket for special drawing rights.	1) Sovereign bonds issued in currencies with global use in international capital markets enjoy higher liquidity in times of crisis and have a robust secondary market.

6. Annex II: Qualitative variables (QS)

Variable	Description	Rationale
<i>All notch adjustments are taken in comparison vis-à-vis the peers of the quantitatively derived indicative rating group</i>		
1 Domestic economic risk		
1.1 Growth potential of the economy	An examination of a country's medium-to long-term growth potential	Medium- and long-term growth potential is one contributing factor to a sovereign's capacity to generate revenues and repay its debt, in particular its innovative capacity, business environment, and human/physical capital accumulation
1.2 Monetary policy framework	Assesses the coherence, credibility and effectiveness of monetary policy framework, including the effectiveness of prudential regulation in generating sustainable growth, stemming macro-economic imbalances and supporting crisis resolution	Ineffective monetary policies characterised by a weak monetary policy transmission mechanism increase the risk of too high or too low growth, macro-economic imbalances and bubbles, too high or too low inflation, exchange rate volatility, and financial market shocks
1.3 Macro-economic stability and sustainability	Assesses macro-economic imbalances arising from a lack of economic diversification and/or labour market rigidities	Sustainable economic growth increases resilience to adverse economic shocks and the ability to recover quickly after these shocks occur
2 Public finances risk		
2.1 Fiscal policy framework	Captures the fiscal framework and ability of the government to generate revenues, plan and control expenditure as well as assesses the consistency and appropriateness of budgetary policies and processes	The fiscal framework is key to preserving public debt sustainability and ensuring growth-friendly fiscal policies, mitigating the effects of economic downturns or other shocks
2.2 Debt sustainability	Assesses the fiscal position of a sovereign under a number of scenarios and its resilience under sudden episodes of fiscal stress that may occur following the materialisation of economic, fiscal or financial risks	Debt dynamics are analysed to assess medium- to long-term sustainability challenges, including contingent liabilities
2.3 Debt profile and market access	Assesses sovereign's financing needs, debt composition, maturity, interest rate, and currency structure. This includes cash holdings and other liquid assets (sovereign wealth funds), the depth of the domestic capital markets, access to international capital markets, access to concessional and multilateral sources of financing (including the safety net funds for a country member of a monetary union).	A sovereign with low financing needs, a debt structure characterized by long maturity and a high share of fixed-rated debt will be less exposed to refinancing and interest rate shocks. Uninterrupted access to internal and external sources of funding allows debt rollover. Liquid government assets can be sold to service debt if required.
3 External economic risk		
3.1 Current account resilience	Assesses financing of current account and development of external imbalances arising from a non-diversified and/or narrow range of export markets, reliance on remittances	Current account volatilities, if not counterbalanced, can put pressure on the local currency
3.2 External debt structure	Assesses structure, composition, maturity, and ownership of external debt in both the public and private sectors	High external private-sector debt may undermine foreign investors' confidence in the economy, resulting in a decline in capital inflows and net outflows

Variable	Description	Rationale
3.3 Resilience to short-term external shocks	Evaluates short-term liabilities of all sectors of the economy against liquid short-term assets and shows the ability to continue FX debt servicing if external markets are closed. For sovereigns with a reserve currency, this adjustment is only used under exceptional circumstances to avoid double-counting.	Sufficient internal FX sources boost resilience to market volatility and temporary shutdown in external markets.
4 Financial stability risk		
4.1 Banking sector performance	Analyses main macro and micro-prudential indicators of financial soundness including asset quality, profitability, liquidity, and capital adequacy. Scope's banking team analysts contribute to providing a detailed assessment.	Weak funding structure, capital buffers, and stretched liquidity can undermine financial stability
4.2 Banking sector oversight and governance	Evaluates policy measures to minimise systemic risks and support the banking system. This includes macro-prudential rules and policies as well as bank regulation standards that enhance resilience to shocks and contagion	Strong financial sector oversight and sound corporate governance arrangements are a critical pillar of financial stability
4.3 Financial imbalances	Evaluates the implications of financial imbalances for banks, in particular credit-fueled growth, private sector indebtedness, and asset bubbles	Financial imbalances pose a material risk to macro-economic stability
5 ESG risk		
5.1 Environmental risks	Assesses a country's vulnerability to as well as its government's ability and commitment to address environmental risks, in particular the sectoral dependence on transition risks, supply chain-related risks and reliance on energy-intensive consumption	Transition, physical and resource risks can have a profound impact on countries' economic structures and developments with governments playing an important role to facilitate an appropriate policy and investment response
5.2. Social risks	Assesses a country's demographic trends, income inequalities, effectiveness of the education and health system and other social considerations as well as policy responses to discriminatory practices or regulatory hurdles to social inclusion	Social considerations can have important consequences for a country's growth potential, fiscal developments or political risks over the medium-term
5.3 Institutional and (geo)political risks	Assesses impact of major political events and policy decisions as well as geopolitical and civil security risks	Level of political risk and policy orientation as well as conflicts could deviate the country's fundamentals

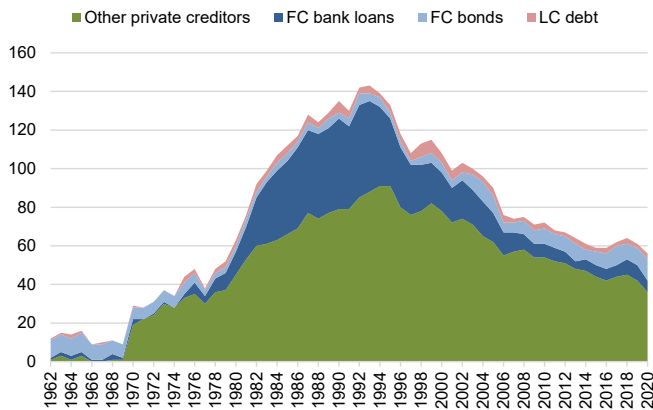
Adjustment under QS		
1 Domestic economic risk		
1.1 Growth potential of the economy and outlook		
Strong (+1 notch)	Average (0 notches)	Weak (-1 notch)
Strong outlook, good growth potential	Average outlook, growth potential	Weak outlook/growth potential under trend
1.2 Monetary policy framework		
Strong (+1 notch)	Average (0 notches)	Weak (-1 notch)
Good policies, effective implementation	Adequate policies and implementation, effective	Poor policies/ implementation, ineffective
1.3 Macro-economic stability and sustainability		
Strong (+1 notch)	Average (0 notches)	Weak (-1 notch)
Strong stability, only minor imbalances	Average stability, imbalances under control	Weak stability, imbalances problematic
2 Public finances risk		
2.1 Fiscal policy framework		
Strong (+1 notch)	Average (0 notches)	Weak (-1 notch)
Strong fiscal flexibility; appropriate fiscal stance	Average fiscal flexibility	Limited fiscal flexibility; inadequate fiscal stance
2.2 Debt Sustainability		
Strong (+1 notch)	Average (0 notches)	Weak (-1 notch)
Strong sustainability	Sustainable past end of rating period	Weak sustainability
2.3 Debt profile and market access		
Strong (+1 notch)	Average (0 notches)	Weak (-1 notch)
Very good debt structure and access	Average	Poor access, weak structure
3 External economic risk		
3.1 Current account resilience		
Strong (+1 notch)	Average (0 notches)	Weak (-1 notch)
Strong financing, well diversified	Average access, adequate financing	Weak access, concentrated
3.2 External debt structure		
Strong (+1 notch)	Average (0 notches)	Weak (-1 notch)
Debt/imbalances manageable	Debt/ imbalances largely unproblematic	Debt/ imbalances problematic
3.3 Resilience to short- and long-term external shocks		
Strong (+1 notch)	Average (0 notches)	Weak (-1 notch)
Shocks have small effect, management good	Shocks have an average effect, adequate management	Vulnerable to shocks, management problematic

Adjustment under QS		
4 Financial stability risk		
4.1 Financial sector performance		
Strong (+1 notch) Very good performance	Average (0 notches) Average performance	Weak (-1 notch) Weak performance
4.2 Financial sector oversight and governance		
Strong (+1 notch) Strong	Average (0 notches) Average	Weak (-1 notch) Weak
4.3 Financial imbalances		
Strong (+1 notch) Very good, limited imbalances	Average (0 notches) Average, some imbalances	Weak (-1 notch) Weak, significant imbalances
5 ESG risk		
5.1 Environmental risks		
Strong (+1 notch) Limited exposure; largely effective and coherent environmental, climate, energy policies	Average (0 notches) Average, partially effective policies, some contradictions	Weak (-1 notch) High vulnerability; Weak and partially ineffective policies, at times contradictory policies
5.2 Social risks		
Strong (+1 notch) Largely effective and coherent policies on demographic and social issues	Average (0 notches) Average	Weak (-1 notch) Weak and partially ineffective policies, at times contradictory policies
5.3 Institutional and (geo)political risks		
Strong (+1 notch) Stable political environment; moderate exposure to geopolitical risks	Average (0 notches) Average political environment	Weak (-1 notch) Weak political environment; problematic policy decisions

7. Annex III: Foreign vs local currency sovereign defaults

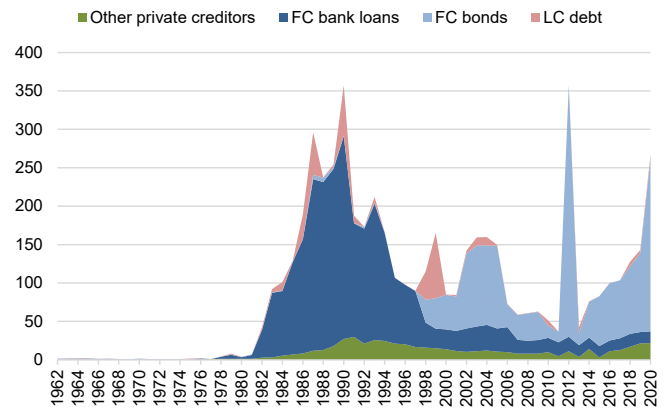
The history of defaults on foreign-currency versus local-currency rated debt is limited. This indicates that there is no uniform relationship between the denomination of debt and the likelihood of default. A historical analysis of defaults conducted by the Bank of Canada and the Bank of England reviews the annual number and volume of defaults from 1960-2019 on both local- and foreign-currency debt, tracking bank loans and bonds. As banks withdrew from sovereign lending over the past 25 years, defaults on foreign-currency bonds (rather than loans) have increased.

Figure 10: Number of sovereigns in default (to private creditors)



Source: Bank of Canada, Bank of England, 2020

Figure 11: Total debt in default, USD bn (to private creditors)



Source: Bank of Canada, Bank of England, 2020

On this basis, Scope has identified 22 major sovereign defaults on foreign and local-currency debts since 1998. The limited sample does not indicate a uniform relationship between the denomination of debt and the likelihood of default.

Sovereign defaults on foreign-currency vs local-currency rated debt (1998-2019)

Country	Year	FCY default	LCY default	Amount	Comments
Venezuela	1998	Yes	No	USD 128m	Technical default due to administrative factors, resolved within a short timeframe
Ukraine	1998	No	Yes	USD 1.3bn	Moratorium on debt service for bearer bonds owned by anonymous entities
Indonesia	1998	Yes	No	USD 1.5bn	Balance-of-payment crisis worsened by managed exchange regime, banking crisis
Ecuador	1998	No	Yes	USD 6.6bn	Missed payment followed by distressed exchange
Russian Federation	1998	Yes	Yes	USD 65bn	Balance-of-payment crisis triggered by sharp fall in commodity prices; currency crisis worsened by managed exchange rate regime and very short-term maturity of FX sovereign debt; banking crisis triggered by sharp devaluation of the local currency
Cote d'Ivoire	2000	Yes	No	USD 2bn	Defaulted on these bonds after a coup in 1999
Ukraine	2000	Yes	No	USD 2.5bn	Balance-of-payment and currency crises, triggered by deleting FX reserves, dependency on import fuel and heavy reliance on FX funding
Argentina	2001	Yes	Yes	USD 90 - 100bn	Currency crisis worsened by a dollar peg; banking crisis sparked by deposit freeze; pro-cyclical fiscal policy led to an unsustainable debt burden
Moldova	2002	Yes	No	USD 75m	Current-account deterioration led to currency crisis, triggered by secession from the former USSR and the Russian crisis in 1998
Uruguay	2003	Yes	No	USD 5bn	Crisis in the main trade partner and investor (Argentina), with balance-of-payments crisis due to currency devaluation in Argentina; run on bank, natural disasters impacted agriculture.
Dominican Republic	2005	Yes	No	USD 1.1bn	Corruption scandal in the third-largest bank sparked a run on that bank, leading to significant costs for the sovereign due to banking sector recapitalisation, deteriorated public finances
Belize	2006, 2012	Yes	No	USD 540m	Unsustainable public debt levels with unfavourable repayment schedule (step-up coupons); weak economic performance due to slowdown in tourism and decline in domestic oil production; unwillingness to pay
Ecuador	2008	Yes	No	USD 3.1bn	Dependence on commodity prices; currency peg; high dollarisation of the economy and loose fiscal policy; unwillingness to pay
Jamaica	2010	Yes	Yes	USD 7.5bn	Unsustainable public debt burden with high interest payments, combined with weak economic performance
Greece	2012 twice	Yes	Yes	EUR 199bn	Public debt surged in March and December 2012 due to undocumented off-balance government operations; economic recession resulting in poor tax collection; unaffordable debt service; lost investor confidence; banking crisis
Cyprus	2013	Yes	Yes	USD 1.6bn	Banking crisis coupled with economic recession and deteriorated public finances
Argentina	2014	Yes	No	USD 40bn	Mainly associated with willingness to pay, based on legal difficulties resolving the original default in November 2001
Ukraine	2015	Yes	No	USD 18bn	Geopolitical conflict with Russia; currency and banking crises triggered by structural economic problems and weak institutions
Mozambique	2017	Yes	No	USD 720m	Currency crisis caused by a drop in commodity prices; incomplete data on the government's off-balance sheet activities; constrained access to concessional funding as a result of misreporting
Venezuela	2017	Yes	No	USD 200m	Economic crisis, hyperinflation, and declining oil production undermined Venezuela's capacity to pay its coupon payment on two government bonds
Barbados	2018	Yes	Yes	USD 255m	High debt levels, low and falling international reserves and meagre growth led to selective default on external debt and restructuring with domestic and foreign lenders.
Argentina	2019	Yes	Yes	USD 13.4bn	Increasing debt levels, heightened rollover risks, large external financing needs and falling international reserves, together with a political crisis, led to a technical default in August 2019 and the process of restructuring Argentina's debts.

Source: Database of sovereign defaults (2020), Bank of Canada, Sturzenegger and Zettelmeyer (2007), Lazard Research (2016), Scope Ratings.



Sovereign Rating Methodology

Sovereign and Public Sector

8. Annex IV: Country case study

CVS and QS results for a hypothetical country

Core Variable Scorecard (Quantitative)					Qualitative Scorecard				
Sovereign Risk Category	Sub-Category	Variable	Score/ Indicative rating	Reserve currency*	Qualitative adjustment	Strong	Neutral	Weak	
Domestic Economic Risk (35%)	Wealth & size	GDP per capita	68 (a+)	+	+	1. Growth potential	0,33	0,00	-0,33
		Nominal GDP							
	Growth, inflation & unemployment	Real GDP growth s.t. GDP/capita							
		Real GDP volatility							
Public Finance Risk (25%)	Debt affordability	Inflation rate	55 (bbb)	+	+	2. Monetary policy framework	0,33	0,00	-0,33
		Unemployment rate							
	Debt dynamics	Interest payments							
		GG Gross debt s.t. GDP/capita							
External Economic Risk (10%)	International Position	Primary balance	38 (b+)	+	+	3. Macro-economic stability & sustainability	0,33	0,00	-0,33
		Net IIP/GDP							
	Current account								
Financial Stability Risk (10%)	Debt sustainability	Change GG Gross financing needs	49 (bb+)	+	+	1. Fiscal policy framework	0,33	0,00	-0,33
		Reserves/GDP							
	Banking sector	Non performing loans							
Private sector		Tier 1 ratio							
	ESG Risk (20%)	Environment	Private sector credit growth	59 (bbb+)	+	+	2. Debt sustainability	0,33	0,00
Transition risks: CO2/GDP			Transition risks: CO2/GDP						
		Natural disaster risks							
Social	Resource risks**	Old-age-dependency ratio	49 (bb+)	+	+	3. Debt profile & market access	0,33	0,00	-0,33
		Income inequality							
	Labour force participation								
Governance	WB Governance indicators***	Labour force participation	59 (bbb+)	+	+	1. Current account resilience	0,33	0,00	-0,33
		WB Governance indicators***							
						2. External debt structure	0,33	0,00	-0,33
						3. Resilience to short-term shocks	0,33	0,00	-0,33
						1. Banking sector performance	0,33	0,00	-0,33
						2. Banking sector oversight & governance	0,33	0	-0,33
						3. Financial imbalances	0,33	0,00	-0,33
						1. Environmental risks	0,33	0,00	-0,33
						2. Social risks	0,33	0,00	-0,33
						3. Institutional and (geo)political risks	0,33	0,00	-0,33
						Sum of adjustments		-0,66	

Indicative rating	bbb+
Reserve currency adjustment	N/A
Sum of QS adjustments (notches)	-1
Final rating recommendation	BBB

* Positive adjustment to sovereigns whose currency is included in the IMF's SDR basket.

** Relation between a country's Ecological Footprint of Consumption and the biocapacity available within its own borders.

*** Average of six World Bank Governance Indicators.

To calculate the rating score within the CVS, Scope uses a minimum-maximum algorithm to determine a rating score for each of the 29 indicators. Scope calculates the minimum and maximum of each rating indicator and places each sovereign within this range. Sovereigns with the strongest results for each rating indicator receive the highest rating score; sovereigns with the weakest results receive the lowest rating score. The score result translates to an indicative rating that is always presented in lower case rating notes. Within the QS assessment the analyst conducts a comprehensive review of the qualitative factors. This includes but is not limited to economic scenario analysis, review of debt sustainability, fiscal and financial performance and policy implementation assessments. There are three assessments per category for a total of fifteen. For each assessment, the analyst examines the relative position of a given sovereign within its peer group. For this purpose, additional comparative analysis beyond the variables included in the CVS is conducted. These assessments are then aggregated using equal weights. The result is the implied QS notch adjustment which is the basis for the analyst recommendation to the rating committee.

9. Literature

- Afonso, A., Gomes, P. and Rother P., (2007) 'What "hides" behind sovereign debt ratings?', ECB discussion paper.
- Aiyar, S and C Ebeke (2018), "Inequality of opportunity, inequality of income and economic growth", IMF WP/19/34.
- Altavilla, C., Pagano, M., and Simonelli, S. (2016), 'Bank Exposures and Sovereign Stress Transmission', Working Paper 11, European Systemic Risk Board.
- Andersson, M.; Baccianti, C. and Morgan, J. 2020. Climate change and the macro economy; ECB Occasional Paper Series
- 'An Examination of Emerging Markets Sovereign Defaults' (2016), Lazard Emerging Markets Debt Research.
- Armstad, M., and Packer, F., (December 2015), 'Sovereign ratings of advanced and emerging economies after the crisis', BIS Quarterly Review.
- Baldacci, E., et al., (May 2011), 'Assessing Fiscal Stress', IMF working paper.
- Balteanu, I., and Erce, A., (November 2014), 'Linking banking crises and sovereign defaults in emerging markets' Bank of Spain Working Paper.
- Beers, D., and Mavalwalla, J., (2016), 'Database of Sovereign Defaults', Bank of Canada Technical Report No. 101.
- Bhatia, A.B., (2002); 'Sovereign credit rating methodology (an evaluation)', IMF working paper.
- Bova, E., Ruiz-Arranz, M., Toscani, F., and Ture, H., (2016), 'The Fiscal Costs of Contingent Liabilities: A New Dataset Prepared', IMF working paper, Fiscal Affairs Department.
- Cecchetti, S. McCauley, R and McGuire P (2012), Interpreting TARGET2 balances. Monetary and Economic Department BIS Working Papers No 393
- Claessens, S., Kose, M.A., Laeven, L., and Valencia F., Eds. (2014), 'External Imbalances and Financial Crises' in 'Financial Crises: Causes, Consequences, and Policy Responses', Chapter 6: 193- 206.
- Cohen, B., Koch C., and Parise, G. (2016), 'Highlights of global financing flows BIS', BIS Quarterly Review, September 2003.
- Correa, R., Sapriza, H., (May 2014), 'Sovereign Debt Crises', Board of Governors of the Federal Reserve System International Finance Discussion Papers.
- Cuadra, G., and Sapriza H. (2008), 'Sovereign Default, Interest Rates and Political Uncertainty in Emerging Markets', Journal of International Economics 76(1): 78-88.
- De Nederlandsche Bank. (2018): The price of transition. An analysis of the economic implications of carbon taxing
- De Paoli, B., Hoggarth, G., Saporta, V., (2016), 'Costs of sovereign default', Bank of England research and analysis.
- Engler, P., and Steffen, C., (August 2015), ECB Working Paper Series: 'Sovereign risk, interbank freezes, and aggregate fluctuations', No 1840.
- ESRB (2016). Too Late, too Sudden: Transition to a Low-carbon Economy and Systemic Risk.
- Hatchondo, J. C. and L. Martinez (2010), The politics of sovereign defaults, Economic Quarterly, 96, 291-317.
- Laeven, L., and Valencia, F., (2013), "Systemic Banking Crises Database", *IMF Economic Review* 61(2): 225–270.
- 'Leys, C. et al. 2013. 'Detecting outliers: Do not use standard deviation around the mean, use absolute deviation around the median'
- Manasse, P., Roubini, N., and Schimmpfennig, A., (2003), 'Predicting sovereign debt crisis', IMF.
- Ostry, J. et al. (2018), "Economic Gains from Gender Inclusion: New Mechanisms, New Evidence." IMF SDN 18/06.
- Reinhart, C., Rogoff, K., (2009), This Time Is Different: Eight Centuries of Financial Folly, Princeton University.
- Reinhart, C., Rogoff, K., (2014), 'Financial and Sovereign Debt Crises: Some Lessons Learned and Those Forgotten', in S. Claessens, M.A. Kose, L. Laeven, and F. Valencia Eds.
- Sack A., (1929), The Effects of State Transformations on their Public Debts and Other Financial Obligations, Paris, Recueil Sirey.
- Sturzenegger, F., and Zettelmeyer, J., (2007), 'Debt Defaults and Lessons from a Decade of Crises', MIT University Press.
- Tomz, M., and Wright, M. L. J. (2007), 'Do Countries Default in 'Bad Times'?', Journal of the European Economic Association 5(2-3): 352-360.
- UNEP, 2012. A new angle on sovereign credit risk



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