Rating Methodology

5 August 2024

Request for Comment: Sovereign

Sovereign & Supranational rating methodology

CCXAP publishes a Request for Comment (RFC) on the proposed update to its sovereign rating methodology.

Summary

The proposed rating methodology adheres to the same core principles as the 2019 methodology while we have made a number of specific updates, including the following: adding new rating sub-factors such as law and regulatory under the rating factor of institution strength and ESG risk under systematic risk; provide more details on how we considering the adjustment factors in each sub-factor; revised some of the indicators such as including net FDI when considering the international payment balance; applies different indicators to developed countries and developing countries; refined the name of some of the sub-factors and other editorial amendments. We believe that the proposed update would improve our assessment on sovereign governments and also help the users to better understand our approach on sovereign rating.

The proposed rating methodology applies to sovereign governments in a global context. A sovereign is the highest tier of government in a country or a region. As recognized by the United Nations, there are 195 independent sovereigns including 193 member-states and 2 non-member observer states. The methodology is also applicable to national central banks, federal government, or the governments of certain specific jurisdictions, such as Hong Kong and Macau, which are not independent sovereigns but have independent fiscal and monetary policies as well as well-developed financial markets.

The sovereign ratings measure the debt serviceability of countries or regions. CCXAP assigns credit ratings to them using its rating scale. CCXAP uses a combination of quantitative and qualitative methods when analyzing a sovereign government’s credit. The quantitative method is to analyze a country or a region's current economic, financial, external revenue and expenditure conditions, together with predicted trends. The qualitative method is to consider factors that are not be fully quantified but may affect the credit status of a country or a region's government, based on an expert judgement approach.

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Impact on Ratings

CCXAP does not have any existing rated entities that match the scope of application of the rating methodology for sovereign, so the adoption of this methodology is not expected to result in any rating changes.

How to Submit Comments

In this request for comment, CCXAP invites interested market participants to submit written comments on the proposed rating methodology by 5 September 2024 on the Request for Comment page or via email at info@ccxap.com. CCXAP will review and take all received comments into account before publishing the methodology.

Introduction of Rating Methodology

There are 3 key rating factors for assessing the credit of sovereign governments, which are fundamental strength, institutional strength, and systematic risk. Each factor may consider both qualitative and quantitative determinants. Apart from using historical data, CCXAP also incorporates reasonable forecasts of the future performance of sovereign governments.

To begin with, CCXAP will assign a score to a country or region's fundamental strength and institutional strength by considering both qualitative and quantitative factors. The assessment of fundamental strength takes into account economic strength, fiscal strength, and external payment, while the evaluation of institutional strength considers political stability, government efficiency, and law and regulations. A basic credit grade is then derived from the rating matrix of fundamental strength and institutional strength. After that, the basic credit grade would be adjusted based on the evaluation of systematic risk.

The following table lists the 3 categories of rating factors and their sub-factors in evaluating the creditworthiness of sovereigns:

Categories	**Rating Factors**	**Sub-factors**	**Indicators**
Fundamental Strength	Economic Strength	National Income	Nominal GDP
			GDP per capita
		Economic Growth	Real GDP Growth
			Volatility in Real GDP Growth
		Economic Stability	Inflation Volatility
		Adjustment Factors	Economic Structure, Economic Growth Potential, etc.
	Fiscal Strength	Fiscal Deficit Ratio	General Government Financial Balance/ GDP
		Debt Burden	General Government Debt/GDP
		Debt Affordability	General Government Interest Payment/ Revenue
		Debt Ratio	General Government Debt/Revenue
		Adjustment Factors	Debt structure, Government Financing Convenience, etc.
	External Payment	International Payment Balance	(Current Account Balance + Net FDI) /GDP
		External Assets and Liabilities	Currency Status or Short-term External Debt/Foreign Exchange Reserves
		Adjustment Factors	NIIP, Exchange Rate System, Financing Channels and Convenience, etc.
Institutional Strength	Institutional Feature	Government Effectiveness	Government Efficiency
			Completeness of infrastructure
		Political Stability	Political Stability and Elimination of Violence

			Level of Security
		Laws and Regulations	Corruption Control
			Property Rights Protection
		Adjustment Factors	Government Strategy and Information Transparency, etc.
Systematic Risk	Financial System Risk	Financial System Risk	Credit Expansion, etc.
	Geopolitical Risk	Geopolitical Risk	Geopolitical Conflict, etc.
	ESG Risk	ESG Risk	Environmental, Social, and Governance

This rating methodology provides a guideline that summarizes the important factors used in assigning ratings, but does not include an exhaustive description of all factors that CCXAP may use in its rating considerations. Thus, the mapped rating may not match the final rating of each rated entity.

Key Rating Determinants

Rating factors and sub-factors are discussed in detail in this section, including the rationale and measurement of these factors and how they will affect the rating.

1. Fundamental Strength

(1) Economic Strength

Economic strength is one of the key factors for the assessment of the debt serviceability of a country or region. Stable long-term economic growth with a diverse and resilient economic structure indicates solid revenue stream for the government. This, in turn, improves the government's debt tolerance and the flexibility of its fiscal and monetary policies. Therefore, in evaluating its economic strength, CCXAP considers a range of economic factors, such as national income, economic growth, economic stability and economic structure.

(i) National Income

Nominal GDP is the indicator of a country or region’s economic scale, which indicates the shock-absorption capability of a country or region. Small economies are less able to deal with abrupt changes effectively and timely, making them vulnerable to economic cycles.

GDP per capita, measured in purchasing power parity terms, indicates the average income and living standard of a country or region. Higher GDP per capita suggests that it is less vulnerable to economic cycle as the country or region’s GDP relies on the high value-added activities which provide more consolidated shock-absorption capability. A higher credit score is given to countries or regions with improving living standards and equally distributed income as they can better withstand abrupt changes.

(ii) Economic Growth

A country or region’s economic strength and global influence are closely related to its economic growth. High economic growth can provide more working opportunities and improve a country or region’s wealth as well as debt serviceability. In the evaluation of economic growth, CCXAP considers the real GDP growth and its volatility. A longer sampling period is used in the evaluation as it can provide a more comprehensive understanding of economic growth. For the evaluation of real GDP growth, the average of a country or region's real GDP growth from t-5 to t+2 is considered. The standard deviation of the real GDP growth from t-8 to t+1 is employed for the evaluation of volatility in real GDP growth.

(iii) Economic Stability

Economic stability is another factor that affects a country or region's economic strength. Developing countries or regions may experience high economic growth but render serious inflation issues that may cause economic fluctuations and social conflicts, hindering the improvement of people's livelihood. Therefore, CCXAP considers inflation volatility as the indicator of assessing economic stability, and the standard deviation of the annualized CPI from t-9 to t is employed in the assessment.

(iv) Adjustment Factors

The adjustment factors mainly include economic structure and economic growth potential.

- The economic structure is a key consideration in evaluating a country or region's economic stability and sustainability. A diversified economic structure is less vulnerable to economic cycles, while a monotonous economy is exposed to higher risks. An appropriate and effective monetary policy is also favorable for economic strength.
- The main influencing factors of economic growth potential include the demographic structure of the country or region, technological changes, etc. The demographic structure is closely related to economic development. Changes in demographics, such as aging, immigration, and negative population growth, will affect the long-term development trend of a country or region's economy. In addition, science and technology are the productive forces of the form of knowledge and play a decisive role in the development of contemporary productive forces, and technological progress has become the primary factor driving economic growth.

(2) Fiscal Strength

Fiscal strength reflects the overall health of government finances while healthy government finance represents stronger debt serviceability. In the evaluation of fiscal strength, CCXAP considers the financial stability of a country or region by quantifying the resources that can be used for debt repayment to understand the government's financial fragility.

(i) Fiscal Deficit Ratio

A fiscal deficit is an important indicator that affects the debt repayment capacity of a sovereign country. Long-term fiscal deficit requires the central government to operate on debt, and the increasing debt burden will eventually lead to the central government's inability to repay debts. The fiscal deficit ratio is calculated by dividing the general government financial balance by GDP. Generally speaking, a deficit ratio of 3% is a warning line. A deficit ratio exceeding 3% will increase the government's fiscal burden and weaken its debt repayment ability.

(ii) Debt Burden

The debt burden is calculated by dividing the general government debt by GDP while the general government debt includes both central and local government debt. A country or region with a high debt burden generally incurs more debt to cover its government expenditures, which may indicate that it is more likely to default in economic downturns.

(iii) Debt Affordability

Debt affordability is calculated by dividing general government interest payment by revenue. With the same level of interest expenses, a country region that has higher fiscal revenue is more capable of fulfilling debt obligations and has lower liquidity risk. Weak debt affordability reflects that the government needs to spend a high proportion of its revenue on repaying the debt, resulting in a large fiscal deficit and the need to reduce its fiscal expenditure. Eventually, this will lower the country's long-term economic growth.

(iv) Debt ratio

When the debt level is determined, the more government revenue it has, the more funds it can use to repay its debts, and the stronger its ability to repay its debts. The debt ratio is calculated by dividing general government debt by revenue. This ratio indicates the government's repayment capability of the actual revenue base. A lower ratio reflects that the government is more capable of repaying its debt obligations.

(v) Adjustment Factors

The adjustment factors affecting fiscal strength mainly include debt structure and government financing convenience.

- Debt structure is the key factor for evaluating fiscal strength. Countries or regions with a high proportion of short-term debt have relatively weak fiscal strength. Apart from that, a country or region with a high proportion of debt denominated in foreign currency may be exposed to higher default risk as debt burden and financing cost will increase if the local currency depreciates significantly. In addition, the proportion of foreign currency debt in government debt is an important factor in considering the government debt structure. Since local currency is relatively easy to obtain, local currency debt imposes a smaller fiscal burden on a country or region. However, some countries have limited channels for obtaining foreign currency, and an excessively high proportion of foreign currency debt will affect their fiscal strength.
- The convenience of government financing is important to the government debt persistence. A country or region's government debt will continue to exist, making the country or region's government have continuous refinancing needs. Generally, the more convenient the government's financing, the stronger its ability to refinance, and the pressure on debt repayment is relatively limited.

(3) External Payment

The external payment evaluates a country or region's ability to access foreign currency for fulfilling its foreign debt obligations. In the evaluation of external payment, CCXAP considers the international payment balance and repayment capacity for foreign debt. Since repayment ways and sources of developed and developing countries tend to differ, CCXAP typically evaluates developed and developing countries by different indicators, with developed countries focusing on their currency status while developing countries focusing on their ability to pay off short-term external debt.

(i) International Payment Balance

The international payment balance is calculated by dividing the current account and net foreign direct investment (Net FDI) by GDP. A current account deficit occurs when the value of goods and services a country or region imports exceeds the value of goods and services it exports. As such, a sustained current account deficit may indicate a decrease in the net foreign asset of a country or region, and hence, the local currency is depreciated, and the official foreign reserve is diminished. FDI is one of the main forms of modern capital internationalization. It refers to an investment in which enterprises operating in countries other than the investor's country have continuous interests. Multinational companies are the main form of FDI. If a country or region has a long-term deficit in its current balance of payments or an explosive growth of the deficit for a period, without the support of foreign investment, as a result, the country or region’s external indebtedness increases and its external repayment capacity is weakened.

(ii) External Assets and Liabilities

The external assets and liabilities are determined by external debt by dividing the foreign exchange reserve. Foreign exchange reserves are assets in foreign currencies held on reserve by the country’s central bank. It can be utilized to stabilize the country or region’s economy or repay debt. Higher foreign exchange reserve reflects the country or region has higher liquidity as well as debt serviceability. Especially for countries with a low currency status, sufficient foreign exchange reserves will provide a guarantee for their foreign debt repayment.

(iii) Currency Status

The international status of the currency of a country or region plays a key role in its external payment. In countries or regions with high international currency status, the currency value and exchange capacity of their currencies are not easily affected by fluctuations in international capital markets and changes in investor confidence, thus ensuring that the government of the currency-issuing country or region faces unfavorable situations. Monetary funds as international reserves have high liquidity, these assets are used internationally, and the government can use them for international payments or intervene in the foreign exchange market at any time.

(iv) Adjustment Factors

The adjustment factors affecting external payment mainly include net international investment position (NIIP), exchange rate system, financing channels and convenience.

- NIIP is the value of foreign assets owned by the private and public sectors of a country minus the value of domestic assets owned by foreigners, and is an important part of a country or region's balance of payments system. A country is said to be a net creditor when its net external creditor-debt position is positive. If a country's foreign investment is mainly based on direct investment, private portfolio investment and other investments, its creditor country status can be called "private creditor country" status; if a country's foreign investment is in the form of reserve assets or official loans are the main form, and creditor countries are called "official creditor countries". Net creditor countries have sufficient external assets, most of which are developed countries, and can benefit from the economic growth of other countries (especially fast-growing emerging economies).
- The exchange rate system refers to the systematic regulations made by a country, region, or the international community on the principles, methods, and institutions for determining, maintaining, adjusting and managing exchange rates. According to the range of exchange rate changes, the exchange rate system is usually divided into a fixed exchange rate system, intermediate exchange rate system and floating exchange rate system. CCXAP considers the perfection of the country or region’s exchange rate

system and the degree of adaptation of the exchange rate system to its current economic development, and evaluates the effectiveness of its exchange rate system and the stability of the financial system.

- Financing channels and convenience refer to the ability of the government, financial institutions, and enterprises of a country or region to raise funds in the international market. Optimizing the financing structure and expanding financing channels will help a country or region obtain funds for continuity and stability. At the same time, the status of a country or region as a financial center will also enhance its financing convenience and provide support for its repayment strength.

2. Institutional Strength

(1) Institutional Feature

Institutional Feature is crucial for the performance of debts. In the evaluation of institutional feature, CCXAP mainly considers factors such as government efficacy, political stability, laws and regulations, etc.

(i) Government Efficacy

Government efficacy includes two indicators, namely, government efficiency and infrastructure completeness. Government efficiency reflects the quality of governmental bureaucracy and administration, which ensure policies released by governments are valid and smoothly implemented. This indicator refers to the level and ability of the government to realize optimal output with lower cost and fewer resources as well as to achieve the predetermined administration targets in public administration, which is crucial for government strategic planning and implementation. In the evaluation of government efficiency, CCXAP adopts the World Governance Index (WGI) released by the World Bank. Higher government efficiency could promote economic growth and bodes for greater respect for covenants as well as sounder debt management, and thus lower default rates. At the same time, wholesome infrastructure not only reflects the strong working ability and sound historical work made by the government, but also helps improve the accessibility of government policies and thus the efficiency of government operations. For the measurement of infrastructure completeness, CCXAP adopts the Global Competitiveness Index released by the World Economic Forum.

(ii) Political Stability

Political stability plays a critical role in debt performance. Political stability, which measures the maintenance and continuity of the dynamic order in the political system, could have a significant impact on the government's ability to repay debts in an orderly way. This sub-factor includes two indicators, with the first one being political stability and elimination of violence and the second one the level of security. Political stability and the elimination of violence refer to the possibility of the government losing stability in its governance given the outbreak of unconstitutional or violent means. In the event of such crises, the government's ability to repay debts would be severely affected. In the evaluation of political stability, CCXAP adopts the World Governance Index (WGI) released by the World Bank. The level of security measures the crime rate, suicide rate, and crime incident detection of a country or region, and a higher level of security is an important guarantee of political stability. CCXAP typically uses the World Economic Forum's Global Competitiveness Index to measure the level of security.

(iii) Laws and Regulations

Laws and regulations are important guarantees for a government to perform its debts. Indicators under this sub-factor include the control of corruption and the protection of property rights. On the one hand, serious corruption in a country or region would affect the enforcement of laws and regulations, reducing the credibility of the government. On the other hand, it has a negative impact on the government's ability to collect taxes and attract investments, which in turn dampens the government's ability to repay debts. CCXAP measures the control of corruption by reference to the Global Governance Index. Property rights protection is an important foundation for economic development and a significant reflection of laws and regulations. Sound property rights protection could help to maintain the business environment, stimulate enterprise vitality, and ensure the long-term development of a country or region. CCXAP generally uses the World Economic Forum's Global Competitiveness Index to measure property rights protection.

(iv) Adjustment Factors

Government strategy and execution capability, transparency of information, the likelihood of political events, and default history are the adjustment factors of the institutional feature.

- Government strategy is the blueprint developed to achieve the country’s targets. The government needs to plan nation-building and development, ensure national security, achieve national goals based on conditions at home and abroad, and reconcile the use of political, military, economic, technological, cultural, and other national forces. CCXAP puts particular focus on whether the strategic planning of a country or region is prudent and conductive to its economic development and social stability. CCXAP also takes into account the strategic implementation and execution carried out in this country or region, specifically the implementation progress and the continuity of structural reforms, if any.
- In terms of information transparency, CCXAP mainly measures the richness, availability, timeliness and accuracy of a country or region's government and other relevant data. Low information transparency leads to a low level of understanding of government operations and economic development, which affects the efficiency and effectiveness of decision-making, and is not conducive to the development of a country or region, nor is it conducive to government financing in the market.
- The likelihood of political emergencies measures the probability of extreme political conflicts in a country or region in the short term. Amid geopolitical complexity, some countries or regions may render relatively stable political situations, yet with noticeable political differences in its interior, and the outbreak of military coups and political purges could suffer from low political stability and government effectiveness.
- The default history of a country or region is an adjustment factor for institutional strength, and it reflects a country or region’s debt payment culture or propensity to default. In the evaluation of default history, CCXAP considers the track record for the last 30 years. Since creditors have limited legal redress to deal with sovereign default, and hence, the sovereign can default selectively even though it is capable of fulfilling its debt obligations in a timely manner. Therefore, the propensity to default is an important factor in the evaluation of a country or region’s creditworthiness. A country or region with a default history may find it difficult to finance its debt. As a result, a country or region with no default history is reluctant to default to sustain its financing capability.

3. Systematic Risk

The systematic risk analysis studies the possibility of unexpected events that could weaken a country or region’s fundamental and institutional strength. In the evaluation of systematic risk, financial system risk, geopolitical risk and ESG risk are the key consideration factors, which can influence the creditworthiness of a country or region and may result in a rating adjustment.

(1) Financial System Risk

Financial system risk relates to the functioning of macro-economy and financial system. The outbreak of risk will not only cause direct financial loss to the government, but also has significant spillover effects and even trigger global financial crisis. CCXAP's consideration of financial system risk includes financial system regulation, the level of interference or support made to the financial system by the government, banking sector stability (e.g. capital adequacy ratio, non-performing loan ratio, return on assets), social sector credit expansion and aggregate bank lending to the private sector. In particular, both financial regulation and the intensity of government intervention/support in the financial system reflect the government's capacity in financial system building and supervision. Different regulatory policies can lead to different risk exposures and may have different impacts. It is worth noting that banking sector is a vital part of a country or region's financial system, and it is particularly important to examine the stability of the banking system in terms of capital adequacy ratio, impairment ratio and profitability ratio. Meanwhile, the credit dynamism of social sector goes along with the economic cycle and would thus reflect a country or region's economic conditions as well as the potential financial risks, while the level of private sector debt affordability can influence the resilience of financial system.

(2) Geopolitical Risk

Geopolitics is a key driver as to the credit profile of a country or region, and bearing intense geopolitical relations could negatively affect the sovereign credit of a country or region. CCXAP evaluates the relationship between the rated entity and neighboring countries/ regions from historical, political, military and territorial aspects, while issues such as geopolitical conflicts, religious conflicts, border conflict and supranational relationship would be particularly addressed.

(3) ESG Risk

ESG is the abbreviation of Environmental, Social and Governance. Its impact on sovereign credit is gaining prominence given that this concept has become a global consensus. CCXAP considers that ESG-related risks will negatively affect the sovereign credit of a country or region. Among them, environmental factors include low-carbon transition, climate risk, sewage and waste treatment, etc. Social factors include human capital, demographic structure and social trends, health and safety, etc. Governance factors include government structure, the credibility and effectiveness of policies, budget management, etc.

Assumptions and Limitations

The final ratings assigned are based on CCXAP's forward-looking opinions, which we assume any changes of the macro environment are aligned with our expectations, and do not incorporate any unanticipated changes, such as outbreak of war and destructive natural disaster.

CCXAP assumes that there is a strong correlation between the sovereign credit risk and the rated entity, while refinancing capability is the key driver of credit risk. The debt rating assigned is based on our view that legal priority of claims is the key factor affecting the ratings for different classes of debt issued by the same issuer. Also, we assume that the data used in the rating is true, legal and does not incorporate misleading statements.

The ratings incorporate our expectations of the rated entity's future performance, which are mainly deduced from the historical information via our forward-looking model. Under some circumstances, the expectations would incorporate confidential information. In addition, our expectations would consider the industrial trend, rival analysis, and other considerations. In any case, predication is subject to substantial uncertainty. Therefore, the mapped ratings may not match our final ratings. The ratings may include some qualitative factors. CCXAP would evaluate these factors in an objective and precise approach, but the assessment may be unavoidably affected by subjective view in some cases. Therefore, the weighting of rating considerations could be varied. Specifically, the variation in weighting would happen if the rated entity were in default or approaching to be in default.

Furthermore, the ratings rely on public information and information provided by the rated entity and underwriters. Despite the fact that CCXAP can ensure the integrity, truthiness, and completeness of the data, due to the delay of information, the ratings may on some occasions not reflect the rated entity’s credit risk in a timely manner.

Apart from that, the ratings are decided by our rating committee and could be influenced by their empirical views which may not be incorporated in the rating methodology. As a result, the final ratings could be varied with the mapped rating from the methodology.

A credit rating is the analytical result of current credit worthiness and forward-looking opinion on the credit risk of a rated entity or a debt issue. Credit ratings issued by CCXAP are opinions on the current and relative future credit risk of the rated entities or debt issues, but do not address any other risks, including but not limited to liquidity risk, market price risk, and interest rate risk.

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