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# Rating Methodology (2017 Revised)

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*English versions, the original version in Chinese shall prevail.)*

## I. Fundamentals of Sovereign Credit Rating

quality, rather than a ranking of comprehensive national strengths. On the perspective of credit

obligations in full and on time, to nonofficial (commercial) creditors, which is

For local currency or foreign currency bonds or notes issued by a sovereign government, if the issuer failed to repay its debt on maturity date, or undertake a debt restructuring, or any other action that damages the interests of creditors, such acts are identified as credit default. Failure to serve obligations to governments, official creditors, supranational organizations (such as the International Monetary Fund or the World Bank) or other public sectors, or failure to serve guarantee obligations, shall not be identified as credit default. However, failure to serve these obligations would be considered as signals of political or fiscal crisis, as well as signals of lacking of ability and willingness to service its other obligations, all of which need to be taken into consideration during sovereign rating.

Sovereign credit rating includes local currency and foreign currency credit ratings (both short-term and long-term), which are assessments on the -term and long-term debt repayment ability and its willingness to service debts, and the rating results are illustrated with designated and concise rating symbols. Generally, vast majority of income generated by the sovereign countries are in the form of their local currencies, and their domestic capital financing capacity are usually strong;However, the funds used to repay foreign debt could only be purchased or borrowed from the foreign exchange market. Therefore, the ability to repay foreign debt depends on the foreign currency earning capacity of domestic enterprises, the willingness of market participants to exchange foreign currency and the ability of the government to levy or allocate foreign currency reserves. If the sovereign government is unable to repay the debt in full, it will prioritize the repayment of local currency debt in order to maintain the stability of the country. Theref

credit rating is no lowerthan foreign currency credit rating.

## II. Sovereign Rating Categories and Rating Definitions

-term local currency or foreign currency sovereign rating is classified into 3 grades and 10 categories, which are $AAA_i$, $AA_i$, $A_i$, $BBB_i$, $BB_i$, $B_i$, $CCC_i$, $CC_i$, $C_i$ and $D_i$ $_i$ $_i$

by the addition of a plus (+) or minus (-) sign to show relative standing within the major rating categories.

**rating symbols and definitions**

| Grades | Categories | Definitions |
|---|---|---|
| Investment Grade | $AAA_i$ | The lowest expectation of credit risk. The obligor's capacity to meet its financial commitment on the obligation is extremely strong. This capacity is highly unlikely to be adversely affected by foreseeable events. |
| | $AA_i$ | Expectations of very low credit risk. The obligor's capacity to meet its financial commitment on the obligation is very strong. This capacity is not significantly vulnerable to foreseeable events. |

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|---|---|---|
| | $A_i$ | Expectations of low credit risk. The obligor's capacity to meet its financial commitment on the obligation is considered strong. This capacity may, nevertheless, be more vulnerable to adverse business or economic conditions. |
| | $BBB_i$ | Expectations of credit risk are currently low. The obligor's capacity to meet its financial commitment on the obligation is considered adequate but adverse business or economic conditions are more likely to impair this capacity. |
| Speculative Grade | $BB_i$ | An elevated vulnerability to credit risk, particularly in the event of adverse changes in business or economic conditions over time; however, business or financial flexibility exists which supports the servicing of financial commitments. |
| | $B_i$ | Material credit risk is present, but a limited margin of safety remains. Financial commitments are currently being met; however, capacity for continued payment is vulnerable to deterioration in the business and economic environment. |
| | $CCC_i$ | Expectations of credit risk are high. The obligor's capacity to meet its financial commitment on the obligation is limited. Default is a real possibility, with increasing indication occurring credit risk. |
| | $CC_i$ | Expectations of credit risk are very high. Default of some kind appears probable. |
| | $C_i$ | Expectations of credit risk are extremely high. Default is imminent or inevitable, or the issuer is in standstill. |
| Default Grade | $D_i$ | Has experienced an uncured payment default on a bond, loan or other material financial obligation, or entered into bankruptcy filings |

## III. Sovereign Credit Rating Methodology

rating mainly evaluate five aspects of a sovereign (a country or region), which are country governance, macroeconomic policies and performance, structural features, public financing strengths, and external financing strengths.

### 1. Country governance

Evaluation of country governance factors in country profile, political system, national security, and governance capacity.

**(3) National security**

War, terrorism and ethnic tension are more related to national security and social stability. Generally, a country at war or threatened by war may have increasing military expenses, as well as heightening government fiscal pressure, which have negative impact on the stability of economic development. Moreover, terrorism and ethnic tension may also undermine social stability and economic development.

**(4) Governance capacity**

governance capacity and maturity of institutional system. A stable and efficient government usually has better governance capacity with stronger ability and willingness to serve its debts, and is less vulnerable to instability factors by resisting negative shocks. Governance can be evaluated via World Bank Governance Indicators, including political stability, government effectiveness, rule of law, control of corruption, voice and accountability, and regulatory quality.

**Political stability**

Political stability refers to assessment of the likelihood of political instability and/or politically-motivated violence, including terrorism. Risks caused by political instability include weaken ruling ability, incapacity to serve debts

credit profile. A stable political environment or a stable ruling body is the

implementation, and payment of debts.

Government effectiveness is the most important indicator to assessing governance capacity, which reflects the quality of public or civil services, 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. An efficient government performs well in providing public services, implementing policies, and managing public finances, which is beneficial to stability of society and economic development. Regulatory quality reflects the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Control of corruption reflects the extent to which public power is exercised for private gains, including both petty and grand forms of

Governments that are of high transparency with perfect accountability system usually perform well in controlling of corruption; however, serious corruption problems may undermine local economic development and government finance, and even result in political instability.

**Maturity of institutional system**

A mature legal system plays a significant role in protecting the legal rights of individuals and maintaining social order. Rule of law reflects the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Voice and accountability reflects the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. Voice is the basic rights of citizens to express opinions or ideas, but high centralized country or region is more likely to produce bureaucracy privilege to affect social justice, and more likely to discontent citizens to affect the stability of ruling body.

**Table 2 Country governance quantitative indicators**

| Sub-factors | Indicators | Descriptions |
|---|---|---|
| Political stability | Political stability | Worldwide Governance Indicators published by the World Bank. |
| governance capacity | Government effectiveness | |
| | Control of corruption | |
| | Regulatory quality | |
| Maturity of | Rule of law | |

| | | |
|---|---|---|
| institutional system | Voice and accountability | |

## 2. Macroeconomic policies and performance

economic development, we mainly analyze the appropriateness of

- and long-term economic performances, including four aspects: economic performance, economic sentiment, inflation level, and employment.

(1) **Macroeconomic policies**

The appropriateness and sustainability of economic policies is an essential factor in ensuring stable and sustainable economic development. Macroeconomic policies include fiscal policy, monetary policy, and exchange rate policy. It is believed that the coordination of fiscal and monetary policies, aiming to achieve production maximization and minimization of inflation, would be the most appropriate macroeconomic policy framework to ensure stable economic growth. Sovereigns with long period of sound macroeconomic policies are likely, other things being equal, to enjoy stable and higher non-inflationary growth, leading to higher income levels and greater resilience to shocks.

(2) **Economic performance**

Large economies that sustained a long period of sound economic growth generally have greater resilience to shocks, lower volatility in public finance and higher growth rate in household income and wealth. Such economies often have higher credit ratings. For economies with high growth volatility, its banking industry development, their public finance revenue and expenditure are relatively unstable. Such economies have lower resilience to shocks and may lead to a suspension of foreign debt repayment. Quantitative indicators of economic performance include Gross Domestic Product (GDP), economic growth rate and economic volatility.

(3) **Economic sentiment**

The change in economic sentiment index reflects the economic cycle of relevant economic activities and overall growth or decline of industries. It is a dynamic indicator to illustrate the current macroeconomic condition. It is usually measured by the comprehensive purchasing managers' index of manufacturing and service industries.

(4) **Inflation level**

Price stability is an important condition for a stable economic growth and prosperity**.** Sovereigns that have benefited from a track record of low inflation and stable economic growth will tend to be rated higher than those that have experienced chronic inflation and severe economic cycles. The deterioration in inflation level is usually an indicator of political and economic instability, as high inflation may seriously undermine market confidence in the local currency and cause its real value to decline, even leading to substantial capi1[()-31(e)-3(c)1e6dyttio EMC /P <</MCID 30>>BDC BT1 0 0 1 413.83 642.19 Tm[(ca)-3(p

structural unemployment is also taken into account, as sovereigns with high unemployment rate over a long period may have structural problems that would increase government fiscal pressure. Higher unemployment rate of younger generation might be a sign of sluggish economic growth or economic recession.

**Table 3  Macroeconomic performances quantitative indicators**

| Sub-factors | Indicators | Descriptions |
|---|---|---|
| Economic performance | GDP Volume | To measure the scale of economy |
| | Economic Growth Rate | Real GDP growth rate |
| | Economic Volatility | Standard deviation of real GDP growth rate |
| Economic sentiment | Service sentiment | Purchasing Managers Index of service sector |
| | Manufacture sentiment | Purchasing Managers Index of manufacture sector |
| Inflation level | Consumer Price Index | CPI growth rate (annual) |
| | Price Index Volatility | Standard deviation of CPI growth rate (annual) |
| Employment | Unemployment Rate | Total unemployment rate, long-term unemployment rate and youth unemployment rate |

### 3. Structural Features

Structural features of the economy, including economic structure, industrial structure, demographic structure, economic and financial openness, effectiveness of banking system, etc., are important factors to estimate the economic growth potential and identify certain risks in the economy, primarily utilizing quantitative analysis. Economies with more stable and flexible performances in responding to shocks are generally those with relatively optimal and rational economic and industrial structures, effective and sound financial system, openness to international investment flows and trade, attractive business environment, and flexible labor market. This kind of sovereign would be rated higher than those with relatively inflexible structural features and incapable in responding and resisting to shocks.

#### (1) Economic structure

In terms of economic structure, consumption driven is an important indicator for a mature economy. This type of economy usually grows more stable than investment or trade-driven economies, and are more resilient to external risks.

This is because consumption can support and stabilize the investment cycle, guide the efficiency of resource allocation and prevent economic fluctuations. In terms of industrial structure, compared with other industries, tertiary sector driven economy is more stable and is less affected by the external environment. To certain extend, it represents the level of the economic development, as the tertiary sector has better advantage in absorbing labor force, activating consumption and stimulating domestic demand.

**(2) Level of national development**

s GDP per capita, the degree of social development and business environment. High GDP per capita is an indication of a highly developed nation, because it implies that the labor force is engaged in high-value-added activities and hence the economy is less vulnerable and better able to absorb adverse shocks. Nation with high degree of development also indicated by high social development. The human development index in the Human Development Report published by the United Nations Development Program (UNDP) published the life expectancy, educational level and quality of life of

Economies with better business environment are usually more competitive in the world, especially in attracting foreign investments and providing opportunities for local businesses.

**(3) Stability in banking sector**

Stable and efficient financial and banking system could not only distribute social savings effectively to improve economic efficiency, but also provide funding support to government to resist risks to some extent. This also means governments and central banks are highly likely to intervene to prevent a systemic banking failure. This intervention can be through supervision and regulation, but can also take the form of financial support, including socialization of bank liabilities to ensure the solvency of the banking system. Thus, in most cases risks in banking sector may impute to sovereign, thereby to affect sovereign credit quality.

### (4) Degree of external dependency

For an economy, a higher degree of dependence on foreign trade and foreign investment reflects a higher degree of openness to the outside world. It is conducive to technological progress and international competitiveness, but it also makes the economy vulnerable to external environment changes, thus leading to possible economic difficulties.

### (5) Demographic structure

Population aging would aggravate government fiscal pressure, therefore high level of government debt is a common feature of aging countries and those debts are unlikely to be cut. Moreover, as the percentage of laboring population reduces, these economies also face more growth pressure.

### (6) Other factors

Different sovereign structures have different characteristics. There may be specific risks to each sovereign, which should be specifically addressed.

**Table 4 Structural features quantitative indicators**

| Sub-factors | Indicators | Descriptions |
|---|---|---|
| Economic structure | Economic structure | Contributions of final consumption expenditure to GDP |
| | Industrial structure | Proportions of tertiary industries in GDP |
| Level of National Development | GDP per capita | A measure of economic development |
| | Human Development Index | A measure of economic and social development |
| | Ease of Doing Business Index | A measure of business environment, comparable to rating peers |
| Degree of external dependency | Total trade volume/GDP | international trade |
| | Foreign direct investment/GDP | foreign direct investment |
| Stability in banking sector | Gross national saving Rate | Ratio of national savings to GDP, a measure of national or regional saving level |
| | Capital adequacy ratio of banks | |
| | Non-performing loan ratio of banks | et quality |
| | Return on equity of banks | |
| Demographic structure | Proportion of aging population | Aging population (population ages 65 and above) in total population |

**4. Public Financing Strengths**

As one of the most significant parts in sovereign local currency credit rating, analysis of public finances includes appropriateness of fiscal policy, fiscal

ability to pay debts and refinancing capacity.

**(1) Fiscal policy**

Effective fiscal policy could benefit government revenue growth by creating a good environment for economic growth. Under an active fiscal policy, when government investment and public spending increases, or tax rate reduces, the average household income will increase, therefore creating macroeconomic expansion effect. However, it will also create fiscal deficit, resulting in the increase of government debt. Financial retrenchment will have a macroeconomic austerity effect. The effectiveness and appropriateness of the fiscal policy is primarily depending on the orientation of fiscal policy and whether it meets the current economic situation and development needs. At the same time, analyses of impacts of the future government budget deficit and changes in government debt on its debt repayment ability shall be evaluated based on current fiscal policy direction.

**(2) Fiscal balance position**

Government fiscal balance position is the most direct indication of a

ndicators include the size of fiscal revenue, the pace of revenue growth, the structures of government revenue and expenditure, and the surplus or deficit of fiscal position.

financial strength, measured by fiscal revenue/GDP. However, the ratio is not always better when it is high. If the ratio is too high or the size of fiscal revenue is too close to the size of GDP, the fiscal revenue is not sustainable and the future growth potential is limited.

The stable and consistent growth of fiscal revenue indicates a healthy growth

economy. It helps to reduce the fiscal deficit or increase the fiscal surplus, enhance government solvency. As tax income serves as a main composition of government revenue, wider tax base and lower tax rate could improve the elasticity of government revenue. On the other hand, narrow tax base usually results in more volatile government revenue.

Fiscal expenditure includes recurrent expenditure and non-recurring expenditure. Government recurrent expenditure items include expenditures in public services, infrastructure, medical service and education, which all have positive effects to support economic development but these expenditures are

greater the burden of fiscal fixed costs, the smaller the financial expenditure flexibility and the ability to repay debt. In addition, effectiveness of these expenditures are also taken into account, because effective recurrent expenditure contributes to satisfying public service demand, providing infrastructure and education to support economic growth.

Governments with higher levels of long-term fiscal deficits face greater financial expenditure pressures and debt burden. When the government trying to reduce the deficit by reduce spending, it will have a negative impact on the economic development.

**(3) Debt burden**

The core indicator to measure sovereign indebtedness are the ratio of gross general government debt to GDP. Although high level and increasing trend of

degree of economic development. Thus, credit rating and level of government debt is generally uncorrelated. However, when other things are equal, smaller debt/GDP ratio indicates lighter debt burden and lower sovereign credit risk. General government net debt to GDP is also an important indicator to measure sovereign indebtedness. Generally, lower ratio of government net debt to GDP ratio indicates lower level of debt burden. The negative net government debt to GDP means the financial assets held by the government is higher than its debt, which indicates strong local-currency debt paying ability.

**(4) Debt Structure**

Effective public debt management is also an important factor to assess debt risks. Generally, a weak debt structure can render public finances vulnerable to liquidity, interest rate or exchange rate risks. A reasonable structure of public debt refers to that the majority of debts are in local currency, fixed interest rate and long maturity. When other things are equal, credit rating of sovereigns with low financing costs and stable level of debt is higher than those with high financing costs and fluctuated debt trend. Stability of debt can be evaluated through sensitivity test of fluctuations in economic growth rate, exchange rate and interest rate. In these scenarios, lower debt fluctuation indicates higher debt stability. Further, when other things are equal,

debts to total debts are higher.

**(5) Debt affordability**

Government revenue is the primary source of local debt repayment; therefore,

y to generate revenue directly reflects its ability to repay debt. Lianhe Ratings uses the ratio of total government revenue

capacity. Higher ratio represents better ability to service government debt. Interest payment pressure, especially long-term interest payment pressure,

fiscal expenditure. Thus, high level of interest payment would negatively affect the sustainability of public finances by limiting other government spending, thus undermining long-term economic stability and development.

### (6) Government refinancing capacity

evaluate the governme

sources of refinancing are mainly from domestic savings and external financing. Therefore, higher household and private-sector leverages are negative rating factors, which limits the feasibility of domestic refinancing, while strong external financing ability would be rating positive. Furthermore, countries with high domestic saving rates are, other things are equal, able to sustain higher fiscal imbalances and debt load than low-saving economies, where government borrowing can quickly absorb domestic savings, forcing the sovereign and the private sector to borrow externally.

**Table 5 Public financing strengths quantitative indicators**

| Sub-factors | Indicators | Descriptions |
|---|---|---|
| Fiscal balance position | General government revenue/ GDP | A measure of fiscal revenue level |
| | Growth rate of general government revenue | A measure of fiscal revenue growth |
| | General government balance/ GDP | balance. |
| Debt burden | General government gross debt / GDP | A measure of public debt level |
| | General government net debt/ GDP | A measure of net public debt level |
| Debt affordability | General government revenue/ General government gross debt | A measure of coverage for public debt by fiscal revenue |

### (5) External Financing Strengths

As one of the most significant part in sovereign foreign currency credit rating, analysis of external finances includes international balance of payments, level of external debt, structure of external debt, external debt repayment ability, and exchange rate risk. Sovereigns that perform well in these factors usually have higher credit ratings.

### (1) International balance of payments

foreign exchange. As international trade serves as an important way to generate foreign exchange, foreign trade volume of a sovereign can reflect its external financing strength. Level of current account receipts (CAR) can

**(4) External debt affordability**

which could also improve its ability in dealing with emergency events and avoiding financial risks, especially for sovereigns with non-internationalized currency. For those sovereigns with open foreign exchange market and free floating exchange rate regimes, especially for sovereigns with internationalized currency, less foreign reserves are required than those with non-internationalized currency. Thus, these factors should be considered in rnal debts by foreign reserves.

Foreign assets and external net assets are indicators that reflect the

capacity.

**(5) Exchange rate risk**

Fluctuation in exchange rate affect

volumes, price level, or international capital flow, but also result in volatility of foreign reserves.

**Table 6 External financing strengths quantitative indicators**

| Sub-factors | Indicators | Descriptions |
| --- | --- | --- |

| | | |
|---|---|---|
| Exchange rate risk | Change in real exchange rate | A measure of changes in exchange rate and its |
| | Exchange rate volatility | A measure of stability of exchange rate |