GRAND DUCHY OF LUXEMBOURG

*EJR Sen Rating(Curr/Prj) AAA/ AAA

Rating Analysis - 8/16/24

In 2023, Luxembourg's real GDP contracted by 1.1%, primarily due to a decline in net exports and a contraction in investment. This downturn was most evident in the financial and construction sectors, which saw significant drops in gross value added due to high interest rates, elevated real estate prices, and supply constraints. Domestic demand is further bolstered by increased government consumption, reflecting higher employee compensation and intermediate consumption. However, investment is expected to recover only modestly in 2024, as high interest rates persist in the first half of the year and residential investment continues to decline. A decrease in service exports linked to investment funds is likely to negatively impact net exports, resulting in a projected GDP growth of 1.4% for 2024.

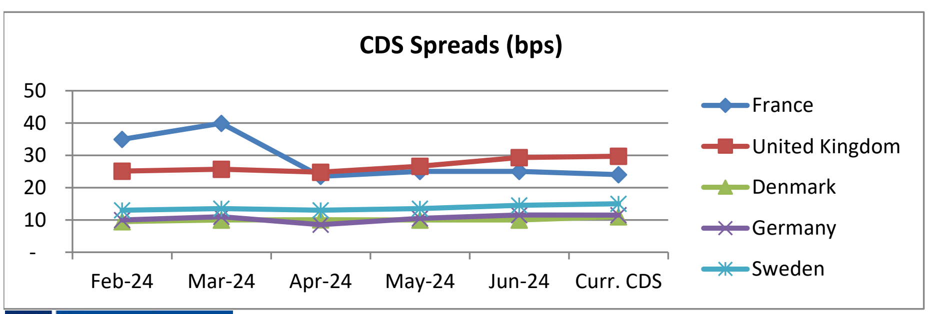
In 2025, interest rates are expected to fall, and economic activity in the euro area and the EU's external environment is anticipated to improve. Real GDP is projected to accelerate to 2.3%, driven mainly by a recovery in investment and a positive contribution from net exports, while private consumption is expected to normalize. Affirming.

Annual Ratios (source for past results: IMF)

CREDIT POSITION	2021	2022	2023	P2024	P2025	P2026
Debt/ GDP (%)	31.4	29.5	30.8	30.6	30.0	29.3
Govt. Sur/Def to GDP (%)	2.3	1.3	0.7	1.2	1.7	1.9
Adjusted Debt/GDP (%)	31.4	29.5	30.8	30.6	30.0	29.3
Interest Expense/ Taxes (%)	0.6	0.6	1.0	0.9	0.9	0.8
GDP Growth (%)	12.1	7.1	2.3	2.5	3.6	3.6
Foreign Reserves/Debt (%)	0.7	0.8	0.7	0.7	0.7	0.7
Implied Sen. Rating	AAA	AAA	AA+	AA+	AA+	AA+

INDICATIVE CREDIT RATIOS	AA	A	BBB	BB	B	CCC
Debt/ GDP (%)	100.0	115.0	130.0	145.0	170.0	200.0
Govt. Sur/Def to GDP (%)	2.5	0.5	-2.0	-5.0	-8.0	-10.0
Adjusted Debt/GDP (%)	95.0	110.0	125.0	140.0	160.0	190.0
Interest Expense/ Taxes (%)	9.0	12.0	15.0	22.0	26.0	35.0
GDP Growth (%)	3.5	3.0	2.0	1.0	-1.0	-5.0
Foreign Reserves/Debt (%)	3.0	2.5	2.0	1.5	1.0	0.5

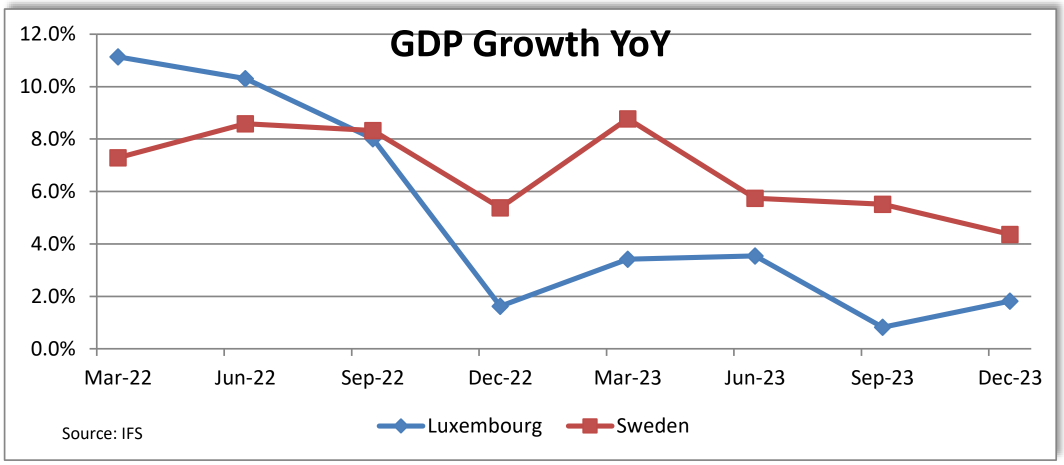
PEER RATIOS	Other NRSRO Sen.	Debt as a % GDP	Govt. Surp. Def to GDP (%)	Adjusted Debt/ GDP	Interest Expense/ Taxes %	GDP Growth (%)	Ratio-Implied Rating*
Kingdom Of Sweden	AAA	50.6	0.8	50.6	1.9	5.8	AAA
Kingdom Of Denmark	AAA	33.9	4.0	33.9	1.3	-1.7	A-
Federal Republic Of Germany	AAA	64.0	-2.6	64.0	3.8	6.3	BBB
French Republic	AA	117.2	-4.8	117.2	5.9	6.2	BB+
United Kingdom	AA	143.8	-6.2	143.8	10.5	7.2	BBB-



Country	EJR Rtg.	CDS
France	A+	24
United Kingdom	A+	30
Denmark	AA	11
Germany	AA	12
Sweden	AA+	15

Economic Growth

According to the latest forecasts from STATEC, Luxembourg's real GDP is expected to rise by 1.5% this year and strengthen to 3.0% in 2025. Following a slight recession in 2023, the recovery in 2024 is likely to be moderate due to weakened investment from persistently high interest rates and sluggish exports. The anticipated easing of monetary policy, marked by the first key rate cut in early June, should stimulate both domestic and foreign demand next year, though this will depend on inflationary trends in the coming months. Headline inflation is expected to decelerate over the forecast horizon, driven mainly by slowing food prices and moderating wage growth. While budget deficits are forecasted to increase, raising the general government debt-to-GDP ratio, it is projected to remain at a relatively low level.



Fiscal Policy

In 2023, Luxembourg's government budget deficit increased to 1.3% of GDP, driven by a 12.2% rise in spending while government revenue grew by 10.1%, bolstered by strong corporate income tax growth. Measures to mitigate the impact of high energy prices accounted for 0.9% of GDP. For 2024, the deficit is projected to increase to 1.7% of GDP due to a more significant slowdown in revenue growth compared to expenditure growth. Assuming unchanged policies, the deficit is set to rise to 1.9% of GDP in 2025, as expenditure growth slightly outpaces revenue growth. Energy-related measures are expected to remain until year-end, with a net budgetary cost of 0.3%.

	Surplus-to-GDP (%)	Debt-to-GDP (%)	5 Yr. CDS Spreads
Luxembourg	0.74	30.80	0.00
Sweden	0.81	50.59	15.01
Denmark	4.03	33.89	11.01
Germany	-2.55	64.01	11.51
France	-4.84	117.19	24.00
United Kingd	-6.24	143.77	29.72

Sources: Thomson Reuters and IFS

Unemployment

The labor market in Luxembourg is expected to weaken in 2024 before recovering in 2025, mirroring the projected decline in real estate and construction activity. Employment growth is set to decelerate from 2.2% in 2023 to 1.4% in 2024, before rebounding to 1.9% in 2025, still below the historical trend. In the long term, the Luxembourg Unemployment Rate is projected to trend around 6.00% in 2025.

Unemployment (%)	2022	2023
Luxembourg	4.60	5.18
Sweden	7.48	7.67
Denmark	4.48	5.12
Germany	3.07	3.03
France	7.32	7.34
United Kingd	3.90	3.80

Source: Intl. Finance Statistics

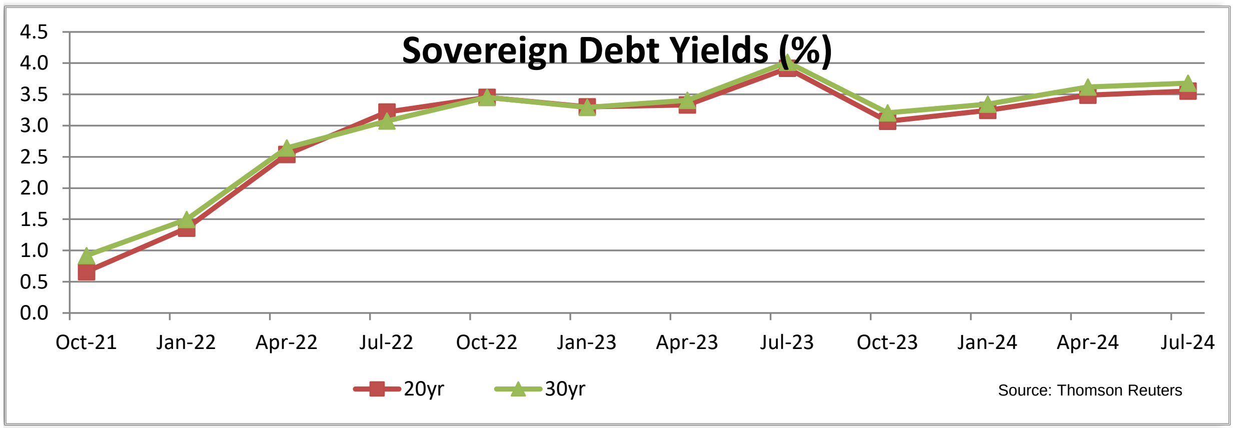
Banking Sector

Luxembourg's banking sector, known for its resilience and robust governance, faces significant challenges ahead due to crises in the non-financial sector. The top five banks in Luxembourg have CET1 and LCR ratios well above Basel III minimums. Looking ahead, Net Interest Income is expected to decline at a Compound Annual Growth Rate (CAGR 2024-2029) of -5.28%, reaching $2.76 billion by 2029.

Bank Assets (billions of local currency)	Assets	Mkt Cap/ Assets %
BCEE	50.2	0.00
Deutsche Bank Luxembourg S.A.	30.1	0.00
Total	80.4	
EJR's est. of cap shortfall at 10% of assets less market cap		8.0
Luxembourg's GDP		79.3

Funding Costs

According to Trading Economics' global macro models and analysts' expectations, the Luxembourg interest rate is projected to be 2.50% by the end of the current quarter and trend around 3.50% in 2023 and 2.75% in 2024 in the long term. The bank lending rate in Luxembourg decreased to 4.45% in May 2024 from 4.46% in April, averaging 2.88% from 2003 to 2024, with a high of 6.24% in October 2008 and a low of 1.30% in December 2021.



Ease of Doing Business

Major factors for growing the economy are the ease of doing business and the economic freedom; although not the sole factor for determining economic growth, a country which makes it easy for businesses to operate and provides a reasonably free environment to conduct business has a good chance for growth. The chart on the right indicates that with an overall rank of 72 (1 is best, 189 worst) is mediocre.

The World Bank's Doing Business Survey*	2021 Rank	2020 Rank	Change in Rank
Overall Country Rank:	**72**	**72**	**0**
Scores:			
Starting a Business	76	76	0
Construction Permits	14	14	0
Getting Electricity	45	45	0
Registering Property	93	93	0
Getting Credit	176	176	0
Protecting Investors	97	97	0
Paying Taxes	23	23	0
Trading Across Borders	1	1	0
Enforcing Contracts	18	18	0
Resolving Insolvency	93	93	0

* Based on a scale of 1 to 189 with 1 being the highest ranking.

Economic Freedom

As can be seen below, Luxembourg is strong in its overall rank of 79.2 for Economic Freedom with 100 being best.

Heritage Foundation 2024 Index of Economic Freedom
World Rank 79.2*

	2024 Rank**	2023 Rank	Change in Rank	World Avg.
Property Rights	96.9	96.8	0.1	53.4
Government Integrity	84.9	89.7	-4.8	43.7
Judical Effectiveness	95.8	96.5	-0.7	48.8
Tax Burden	64.6	64.8	-0.2	78.1
Gov't Spending	40.6	41.6	-1.0	64.2
Fiscal Health	97.6	80.0	17.6	52.1
Business Freedom	89.5	85.5	4.0	62.1
Labor Freedom	57.7	56.8	0.9	55.9
Monetary Freedom	69.1	75.1	-6.0	67.2
Trade Freedom	79.2	78.6	0.6	69.8

*Based on a scale of 1-100 with 100 being the highest ranking.

**The ten economic freedoms are based on a scale of 0 (least free) to 100 (most free).

Source: The Heritage Foundation

Credit Quality Driver: Taxes Growth:
GRAND DUCHY OF LUXEMBOURG has grown its taxes of 9.7% per annum in the last fiscal year which is more than the average for its peers. We expect tax revenues will grow approximately 9.7% per annum over the next couple of years and 8.7% per annum for the next couple of years thereafter.

Credit Quality Driver: Total Revenue Growth:
GRAND DUCHY OF LUXEMBOURG's total revenue growth has been more than its peers and we assumed a 10.7% growth in total revenue over the next two years.

Income Statement	Peer Median	Issuer Avg.	Assumptions Yr 1&2	Yr 3,4,5
Taxes Growth%	2.5	9.7	9.7	8.7
Social Contributions Growth %	4.5	10.0	10.0	10.0
Grant Revenue Growth %	0.0	NMF		
Other Revenue Growth %	0.0	NMF		
Other Operating Income Growth%	0.0	12.9	19.4	19.4
Total Revenue Growth%	2.4	10.1	10.7	9.6
Compensation of Employees Growth%	6.1	11.8	11.8	11.8
Use of Goods & Services Growth%	6.8	12.8	12.8	12.8
Social Benefits Growth%	4.8	8.3	8.3	8.3
Subsidies Growth%	(5.2)	43.2		
Other Expenses Growth%	0.0			
Interest Expense	1.8	1.0	1.0	
Currency and Deposits (asset) Growth%	(8.1)	0.0		
Securities other than Shares LT (asset) Growth%	8.2	0.0		
Loans (asset) Growth%	(57.9)	(3,600.0)	9.7	9.7
Shares and Other Equity (asset) Growth%	(100.2)	(182.6)	2.0	2.0
Insurance Technical Reserves (asset) Growth%	0.0	0.0		
Financial Derivatives (asset) Growth%	(0.9)	(50.3)	(10.0)	(10.0)
Other Accounts Receivable LT Growth%	1.1	8.0	8.0	8.0
Monetary Gold and SDR's Growth %	0.0	0.0	5.0	5.0
Other Assets Growth%	0.0	0.0		
Other Accounts Payable Growth%	(2.5)	(6.9)	3.0	3.0
Currency & Deposits (liability) Growth%	(2.8)	3.2	3.2	3.2
Securities Other than Shares (liability) Growth%	3.8	12.7	8.9	8.9
Loans (liability) Growth%	(3.6)	5.2	5.2	5.2
Insurance Technical Reserves (liability) Growth%	0.0	62.5	2.0	2.0
Financial Derivatives (liability) Growth%	(9.9)	(12.9)	(12.9)	(12.9)
Additional ST debt (1st year)(millions EUR)	0.0	0.0		

ANNUAL INCOME STATEMENTS

Below are GRAND DUCHY OF LUXEMBOURG's annual income statements
with the projected years based on the assumptions listed on page 5.

ANNUAL REVENUE AND EXPENSE STATEMENT
(MILLIONS EUR)

	2020	2021	2022	2023	P2024	P2025
Taxes	17,350	19,781	21,164	23,227	25,480	27,952
Social Contributions	8,116	8,600	9,299	10,226	11,249	12,373
Grant Revenue						
Other Revenue						
Other Operating Income	2,628	3,015	3,276	3,699	3,699	3,699
Total Revenue	28,094	31,396	33,739	37,152	40,428	44,024
Compensation of Employees	6,947	7,374	7,933	8,873	9,924	11,100
Use of Goods & Services	2,792	3,043	3,471	3,915	4,416	4,981
Social Benefits	13,368	13,187	14,547	15,754	17,061	18,477
Subsidies	737	720	884	1,266	1,266	1,266
Other Expenses				4,253	4,253	4,253
Grant Expense						
Depreciation	1,584	1,752	2,028	2,264	2,264	2,264
Total Expenses excluding interest	28,601	29,592	32,571	36,325	39,184	42,341
Operating Surplus/Shortfall	-507	1,804	1,168	827	1,243	1,683
Interest Expense	148	116	125	239	241	244
Net Operating Balance	-655	1,687	1,043	588	1,002	1,439

ANNUAL BALANCE SHEETS

Below are GRAND DUCHY OF LUXEMBOURG's balance sheets with the projected years based on the assumptions listed on page 5.

ANNUAL BALANCE SHEETS
(MILLIONS EUR)

Base Case ASSETS	2020	2021	2022	2023	P2024	P2025
Currency and Deposits (asset)	10,314	11,992	12,943	11,851	13,947	15,247
Securities other than Shares LT (asset)	10,954	12,146	10,436	12,048	12,048	12,048
Loans (asset)	53	147	-1	35	38	42
Shares and Other Equity (asset)	341	-768	757	-625	-638	-650
Insurance Technical Reserves (asset)					0	0
Financial Derivatives (asset)	64	39	145	72	65	58
Other Accounts Receivable LT	5,465	5,185	5,320	5,747	6,208	6,707
Monetary Gold and SDR's						
Other Assets					32,185	32,185
Additional Assets	26,424	31,288	29,487	32,185		
Total Financial Assets	53,615	60,029	59,087	61,313	63,854	65,637

LIABILITIES	2020	2021	2022	2023	P2024	P2025
Other Accounts Payable	4,502	4,583	5,526	5,146	5,300	5,459
Currency & Deposits (liability)	322	330	341	352	352	352
Securities Other than Shares (liability)	12,520	14,590	13,849	15,608	16,996	18,507
Loans (liability)	3,852	3,210	3,146	3,309	2,307	868
Insurance Technical Reserves (liability)	3	8	8	13	13	14
Financial Derivatives (liability)	5	8	31	27	24	20
Other Liabilities	-1					
Liabilities	21,203	22,729	22,901	24,455	25,993	26,337
Net Financial Worth	32,412	37,301	36,186	36,859	37,861	39,300
Total Liabilities & Equity	53,615	60,030	59,087	61,314	63,854	65,637

Comments on the Difference between the Model and Assigned Rating

In this case, there has been little change in the recent results and therefore we have used our best judgement in making adjustments which are reflected in the results for the projected ratings. We have assigned a rating of "AAA" whereas the ratio-implied rating for the most recent period is "AA+"; we expect results to improve.

Changes in Indicative Ratios

We have not made any adjustment in the indicative ratios at this time.

SEC Rule 17g-7(a) Disclosure

Below are the disclosures as required by Paragraph (a) of Rule 17g-7.

1. The symbol in the rating scale used to denote the credit rating categories and notches within categories and the identity of the obligor, security, or money market instrument as required by Paragraph (a)(1)(ii)(A) of Rule 17g-7:
For the issuer GRAND DUCHY OF LUXEMBOURG with the ticker of 1110Z LX we have assigned the senior unsecured rating of AAA. There are three notches in our rating categories (e.g., A-, A, and A+) other than those deep into speculative grade; for CC, C, and D there are no notches.

2. The version of the procedure or methodology used to determine the credit rating as required by Paragraph (a)(1)(ii)(B) of Rule 17g-7:
We are using the methodology version #16 available via egan-jones.com under the tab at the bottom of the page "Methodologies".

3. The main assumptions and principles used in constructing the procedures and methodologies used to determine the credit rating as required by Paragraph (a)(1)(ii)(C) of Rule 17g-7:
The credit rating assigned reflects our judgement regarding the future credit quality of the issuer. Regarding the specific assumptions used, please refer to page 3 of this Rating Analysis Report.

4. The potential limitations of the credit rating as required by Paragraph (a)(1)(ii)(D) of Rule 17g-7:
Our rating pertains solely to our view of current and prospective credit quality. Our rating does not address pricing, liquidity, or other risks associated with holding investments in the issuer.

5. Information on the uncertainty of the credit rating as required by Paragraph (a)(1)(ii)(E) of Rule 17g-7:
Our rating is dependant on numerous factors including the reliability, accuracy, and quality of the data relied used in determining the credit rating. The data is sourced from publicly-available 10Q and 10K statements, quarterly reports, 8K filings, earnings reports, and other similar sources. In some cases, the information is limited because of issues such as short operating histories, the lack of reported data, a delay in reporting data, restatements, inaccurate accounting, and other issues. Such shortcomings are not always readily apparent. EJR aims to identify such shortcomings and make adjustments using its best judgement.

6. Whether and to what extent third-party due diligence services have been used in taking the rating action as required by Paragraph (a)(1)(ii)(F) of Rule 17g-7:
EJR does not utilize third-party due diligence services.

7. How servicer or remittance reports were used, and with what frequency, to conduct surveillance of the credit rating as required by Paragraph (a)(1)(ii)(G) of Rule 17g-7:
Servicer or remittance reports normally pertain to structured finance issuers; this report does not pertain to a structured finance issuer (EJR is not an NRSRO for structured finance or sovereigns/ municipal issuers). Regarding surveillance, the minimum time period for corporation issuers is normally one year.

8. A description of the data that were relied upon for the purpose of determining the credit rating as required by Paragraph (a)(1)(ii)(H) of Rule 17g-7:
EJR uses 10Q and 10K statements, quarterly reports, 8K filings, earnings reports, governmental filings and other similar sources for ratings on publicly-traded issuers. In the case of private issuers, EJR relies on information provided mainly by issuers.

9. A statement containing an overall assessment of the quality of information available and considered in the credit rating as required by Paragraph (a)(1)(ii)(I) of Rule 17g-7: The information is generally high quality and readily avail.

10. Information relating to conflicts of interest as required by Paragraph (a)(1)(ii)(J) of Rule 17g-7:
This rating is unsolicited.

11. An explanation or measure of the potential volatility of the credit rating as required by Paragraph (a)(1)(ii)(K) of Rule 17g-7:
Our rating aims to assess the probability of the payment of obligations in full and on-time. Factors which affect such probability, and in turn our rating, include changes in the operating performance of the issuer, changes in capital structure, and merger and acquisition events.

12. Information on the content of the credit rating as required by Paragraph (a)(1)(ii)(L) of Rule 17g-7:
Regarding the historical performance of the credit rating, our rating transition matrix is available in our Form NRSRO, exhibit 1. The expected probability of default and the expected loss in the event of default is listed on the first page of this report.

13. Information on the sensitivity of the credit rating to assumptions as required by Paragraph (a)(1)(ii)(M) of Rule 17g-7:
Below is a summary of the impact of the 5 assumptions which independently would have the greatest impact on our "ratio-implied rating":

	Assumptions			Resulting Ratio-Implied Rating		
	Base	Optimistic	Pessimistic	Base	Optimistic	Pessimistic
Taxes Growth%	9.7	13.7	5.7	AA+	AA+	AA+
Social Contributions Growth %	10.0	13.0	7.0	AA+	AA+	AA+
Other Revenue Growth %		3.0	(3.0)	AA+	AA+	AA+
Total Revenue Growth%	10.7	12.7	8.7	AA+	AA+	AA+
Monetary Gold and SDR's Growth %	5.0	7.0	3.0	AA+	AA+	AA+

14. If the credit rating is assigned to an asset-backed security, a description of: (i) the representations, warranties, and enforcement mechanisms available to investors; and (ii) how they differ from the representations, warranties, and enforcement mechanisms in issuances of similar securities, as required by Paragraph (a)(1)(ii)(N) of Rule 17g-7:
This credit rating is not assigned to an asset-backed security.

ATTESTATION FORM

In compliance with the US Securities and Exchange Commission (SEC) Rule 17g-7(a), the Egan-Jones analyst who published the report is responsible for the rating action and to the best knowledge of the person:

1) No part of the credit rating was influenced by any other business activities,
2) The credit rating was based solely upon the merits of the obligor, security, or money market instrument being rated, and
3) The credit rating was an independent evaluation of the credit risk of the obligor, security, or money market instrument.

Analyst Signature: **Today's Date**

Aug 16, 2024

Subramanian NG
Senior Rating Analyst

Reviewer Signature: **Today's Date**

Steve Zhang

Aug 16, 2024

Steve Zhang
Senior Rating Analyst

Sovereign Rating Methodology (Non-NRSRO)

Scope and Limitations: Sovereign Issuer Credit Quality Ratings (CQR) are a forward-looking assessment of a sovereign's capacity and willingness to honor its existing and future obligations in full and on time. Sovereigns are assigned two CQRs: a Local-Currency CQR, which reflects the likelihood of default on debt issued and payable in the currency of the sovereign, and a Foreign-Currency CQR, which is an assessment of the credit risk associated with debt issued and payable in foreign currencies.

Key Rating Drivers: EJR's approach to sovereign risk analysis is a synthesis of quantitative and qualitative judgments. The quantitative factors EJR uses are:

- Debt in relation to GDP.
- Surplus or deficit in relation to GDP.
- Debt plus potential under-funding of major banks in relation to GDP.
- Interest expense in relation to taxes.
- GDP growth.
- Foreign reserves in relation to debt.

Debt levels for many sovereign issuers have increased at an accelerating rate over the past decade, affecting implied ratings. EJR also considers unemployment levels and funding costs. EJR recognizes that no model can fully capture all the relevant influences on sovereign creditworthiness, meaning that the its sovereign ratings can and do differ from those implied by the rating model. Some of the qualitative factors that impact its ultimate assessment of credit quality include the flexibility, stability and overall strength of the economy, efficiency of tax collection, acceptance of contract law, ease of doing business, trade balances, prospects for future growth and health and monetary policy, and economic freedom. These subjective and dynamic qualitative issues are not captured by the model but affect sovereign ratings

For additional information, please see Exhibit 2: Methodologies in EJR's Form NRSRO.