GRAND DUCHY OF LUXEMBOURG

Rating Analysis - 12/6/19

Luxembourg is considered to be at a high level in terms of competitiveness, although despite stability, improvements could still be made. The economy is expected to expand by 2.6% this year and the two following years. Consumer price inflation is predicted to be considerably lower than the growth rate and the EU Commission outlook said it would be 1.7% in 2019, 1.6% in 2020 and 1.9% in 2021. Luxembourg government gross debt is expected to remain under 20% of GDP during the same timeframe - which provides significant comfort.

With prospects for external trade weakening, growth is expected to be mainly driven by domestic demand, supported by stronger labour market conditions. The headline budget surplus is forecast to decline, but remains high. We are affirming.
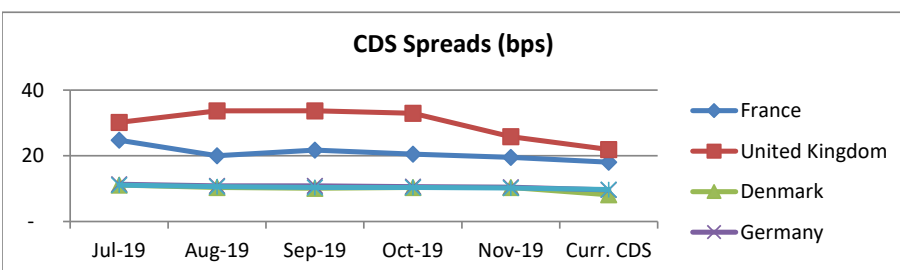
Annual Ratios (source for past results: IMF)

CREDIT POSITION	2016	2017	2018	P2019	P2020	P2021
Debt/ GDP (%)	28.1	29.9	29.4	22.3	13.2	2.2
Govt. Sur/Def to GDP (%)	3.6	3.2	4.4	6.3	8.5	10.5
Adjusted Debt/GDP (%)	28.1	29.9	29.4	22.3	13.2	2.3
Interest Expense/ Taxes (%)	1.2	1.3	1.1	1.0	0.9	0.8
GDP Growth (%)	5.4	3.5	5.7	2.3	2.3	2.5
Foreign Reserves/Debt (%)	1.2	0.9	0.9	0.9	1.6	6.7
Implied Sen. Rating	AAA	AAA	AAA	AA+	AAA	AAA

| 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	56.7	2.4	56.7	1.2	4.6	AA+
Kingdom Of Denmark	AAA	48.0	1.2	48.0	2.4	2.1	AA
Federal Republic Of Germany	AAA	69.2	1.8	69.2	3.9	3.1	AA
French Republic	AA	122.1	-2.4	122.1	5.6	2.5	BBB+
United Kingdom	AA	113.2	-0.4	113.2	9.0	3.3	A+

CDS Spreads (bps)

Country	CDS
France	18
United Kingdom	22
Denmark	8
Germany	10
Sweden	10

GRAND DUCHY OF LUXEMBOURG

Rating Analysis - 12/6/19

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*EJR Sen Rating(Curr/Prj) AAA/ AAA
*EJR CP Rating: A1+
EJR's 7 yr. Default Probability: 0.0%

Economic Growth

Real GDP growth in Luxembourg is expected to reach 2.6% in 2019, a moderate slowdown compared with the 3.1% estimate for 2018. Growth was mainly supported by private consumption, while investment rebounded following the sharp drop recorded last year. Export growth remained subdued, reflecting weaker activity in the international financial sector, with net investment inflows to the fund industry stagnant amid increased uncertainty. Private consumption, the main driver of domestic demand growth, is expected to slow down but remain strong after 2019, benefitting from favourable labour market conditions.

GDP Growth YoY

Source: IFS

Luxembourg ——— Sweden
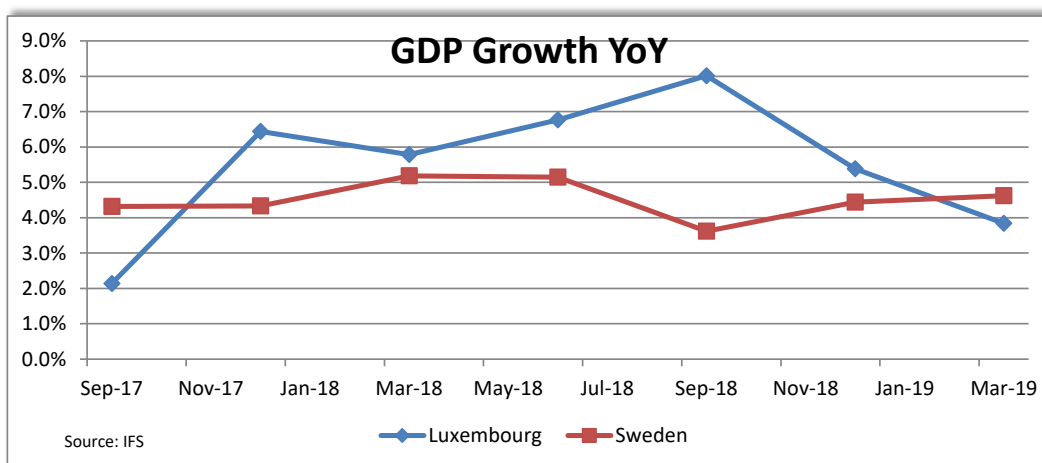
Fiscal Policy

The general government surplus is expected to decline to 2.3% of GDP in 2019, from 2.7% of GDP in 2018. In 2019, total revenues are projected to increase sharply underpinned by direct taxes and to a lesser extent by indirect taxes.

Revenues from current taxes on income and wealth are expected to post a strong increase, in particular as revenues from corporate taxes have increased substantially. In 2019 expenditure growth should also display a dynamic trend. In particular, a significant increase is projected for public investment.

	Surplus-to-GDP (%)	Debt-to-GDP (%)	5 Yr. CDS Spreads
Luxembourg	4.37	29.38	0.00
Sweden	2.45	56.68	9.73
Denmark	1.24	48.01	8.13
Germany	1.77	69.18	9.61
France	-2.35	122.14	18.06
United Kingdo	-0.39	113.24	21.92
Sources: Thomson Reuters and IFS			

Unemployment

In 2019, employment growth is expected to remain around 3.7%, its highest rate since the crisis but job creation is likely to slow in 2020 and 2021. Employment among residents is projected to follow a broadly similar trajectory but at a lower level, with unemployment projected to remain around 5.5% over the forecast period.

Unemployment (%)		
	2017	2018
Luxembourg	5.72	N/A
Sweden	6.68	6.28
Denmark	5.72	4.97
Germany	3.76	3.40
France	9.43	9.11
United Kingd	4.40	4.09
Source: Intl. Finance Statistics		

*EJR Sen Rating(Curr/Prj) AAA/ AAA
*EJR CP Rating: A1+
EJR's 7 yr. Default Probability: 0.0%

Banking Sector

Domestic banks have maintained their profitability, mostly by increasing lending. Employment in the financial sector grew by more than 4.1%. The banking sector is the main economic engine. In 2018, banking was one third of the Gross Domestic Product, 11% of employment and 21% of fiscal revenues. Banks in Luxembourg have sufficient own funds to face potential difficulties with a CET1 ratio of 25.1%.

Bank Assets (billions of local currency)

	Assets	Mkt Cap/ Assets %
DEXIA SA	158.8	0.19
ACKERMANS & VAN	14.2	32.54
KBC GROEP	283.8	9.81
FORTIS	101.7	10.08
Total	558.5	
EJR's est. of cap shortfall at		
10% of assets less market cap		12.8
Luxembourg's GDP		60.1

Funding Costs

Bank Lending Rate in Luxembourg is expected to be 1.73 percent by the end of this quarter, and looking forward, we estimate Bank Lending Rate in Luxembourg to stand at 1.65 in 12 months-time. HICP inflation is forecast to fall to 1.7% in 2019 and 1.6% in 2020 from 2.0% in 2018. Base effects related to lower energy inflation are expected to ease headline inflation in 2019 and 2020.

Sovereign Debt Yields (%) — 5 yr, 10yr. Source: Thomson Reuters
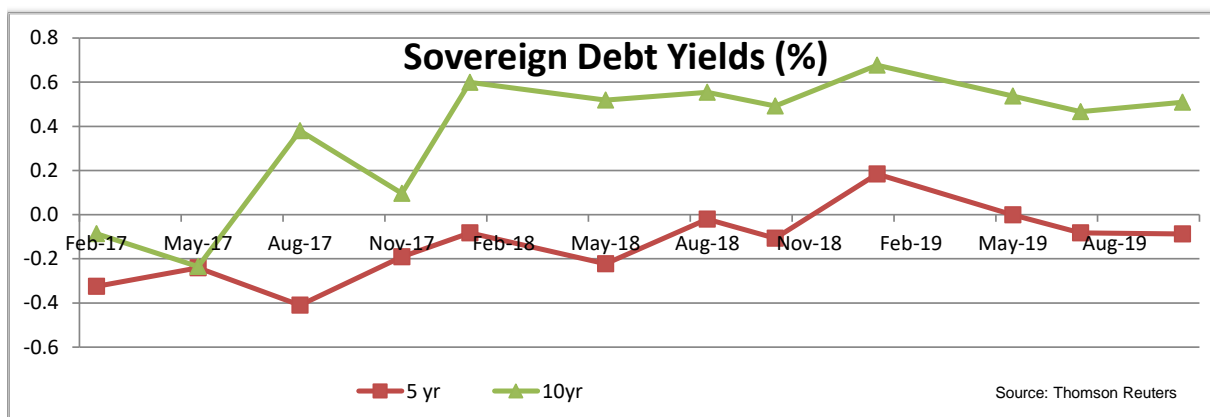
Ease of Doing Business

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*

	2019 Rank	2018 Rank	Change in Rank
Overall Country Rank:	**72**	**63**	**-9**
Scores:			
Starting a Business	76	70	-6
Construction Permits	14	7	-7
Getting Electricity	45	31	-14
Registering Property	93	88	-5
Getting Credit	176	173	-3
Protecting Investors	97	119	22
Paying Taxes	23	21	-2
Trading Across Borders	1	1	0
Enforcing Contracts	18	14	-4
Resolving Insolvency	93	86	-7

* 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 75.9 for Economic Freedom with 100 being best.

Heritage Foundation 2019 Index of Economic Freedom World Rank 75.9*	2019 Rank**	2018 Rank	Change in Rank	World Avg.
Property Rights	83.0	82.7	0.3	52.3
Government Integrity	72.4	79.0	-6.6	44.9
Judical Effectiveness	85.8	77.9	7.9	41.5
Tax Burden	65.4	65.1	0.3	77.2
Gov't Spending	46.6	48.5	-1.9	64.2
Fiscal Health	98.9	99.0	-0.1	66.0
Business Freedom	68.8	69.2	-0.4	63.5
Labor Freedom	45.9	46.2	-0.3	59.4
Monetary Freedom	82.6	87.6	-5.0	75.1
Trade Freedom	86.0	86.9	-0.9	74.3
*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				

GRAND DUCHY OF LUXEMBOURG

Rating Analysis - 12/6/19

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

*EJR CP Rating: A1+

EJR's 7 yr. Default Probability: 0.0%

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Credit Quality Driver: Taxes Growth:

GRAND DUCHY OF LUXEMBOURG has grown its taxes of 11.9% per annum in the last fiscal year which is more than the average for its peers. We expect tax revenues will grow approximately 11.9% per annum over the next couple of years and 10.7% 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 no 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%	3.9	11.9	11.9	10.7
Social Contributions Growth %	3.5	5.2	5.0	5.0
Grant Revenue Growth %	0.0	NMF		
Other Revenue Growth %	0.0	NMF		
Other Operating Income Growth%	0.0	2.8	2.8	2.8
Total Revenue Growth%	3.8	9.1	9.1	8.2
Compensation of Employees Growth%	3.0	8.5	8.5	8.5
Use of Goods & Services Growth%	4.1	5.5	5.5	5.5
Social Benefits Growth%	2.3	4.6	4.6	4.6
Subsidies Growth%	8.2	23.2		
Other Expenses Growth%	0.0			
Interest Expense	1.8	1.1	1.1	1.1
Currency and Deposits (asset) Growth%	2.2	0.0		
Securities other than Shares LT (asset) Growth%	(2.4)	0.0		
Loans (asset) Growth%	6.3	2.2	2.2	2.2
Shares and Other Equity (asset) Growth%	1.8	2.1	2.1	2.1
Insurance Technical Reserves (asset) Growth%	0.0	0.0		
Financial Derivatives (asset) Growth%	(8.7)	(92.3)	(10.0)	(10.0)
Other Accounts Receivable LT Growth%	0.8	11.3	11.3	11.3
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%	6.8	23.7	5.0	5.0
Currency & Deposits (liability) Growth%	1.2	3.4	3.4	3.4
Securities Other than Shares (liability) Growth%	(1.8)	(1.1)	(0.7)	(0.7)
Loans (liability) Growth%	1.2	(2.2)	0.5	0.5
Insurance Technical Reserves (liability) Growth%	0.0	0.0		
Financial Derivatives (liability) Growth%	0.0	0.0		
Additional ST debt (1st year)(millions EUR)	0.0	0.0		

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

*EJR CP Rating: A1+

EJR's 7 yr. Default Probability: 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)

	2015	2016	2017	2018	P2019	P2020
Taxes	13,718	14,432	15,220	17,032	19,059	21,327
Social Contributions	6,256	6,481	6,918	7,277	7,641	8,023
Grant Revenue						
Other Revenue						
Other Operating Income	2,379	2,392	2,419	2,487	2,487	2,487
Total Revenue	22,353	23,305	24,557	26,796	29,187	31,837
Compensation of Employees	4,593	4,675	4,970	5,393	5,852	6,350
Use of Goods & Services	1,906	1,999	2,056	2,170	2,290	2,417
Social Benefits	10,318	10,503	11,197	11,714	12,255	12,821
Subsidies	628	579	603	743	743	743
Other Expenses				2,663	2,663	2,663
Grant Expense						
Depreciation	1,141	1,197	1,267	1,297	1,297	1,297
Total Expenses excluding interest	20,600	21,139	22,523	23,980	25,100	26,291
Operating Surplus/Shortfall	1,753	2,166	2,034	2,816	4,086	5,545
Interest Expense	188	176	192	191	193	195
Net Operating Balance	1,565	1,990	1,841	2,625	3,893	5,350

GRAND DUCHY OF LUXEMBOURG

Rating Analysis - 12/6/19

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

*EJR CP Rating: A1+

EJR's 7 yr. Default Probability: 0.0%

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ANNUAL BALANCE SHEETS

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

Base Case	ANNUAL BALANCE SHEETS (MILLIONS EUR)					
ASSETS	**2015**	**2016**	**2017**	**2018**	**P2019**	**P2020**
Currency and Deposits (asset)	7,897	7,122	8,935	9,402	12,398	16,615
Securities other than Shares LT (asset)	8,705	9,189	9,271	9,192	9,192	9,192
Loans (asset)	1,180	1,129	1,090	1,114	1,139	1,164
Shares and Other Equity (asset)	18,177	19,830	20,467	20,889	21,320	21,759
Insurance Technical Reserves (asset)					0	0
Financial Derivatives (asset)	15	-7	26	2	2	2
Other Accounts Receivable LT	4,725	4,628	4,724	5,257	5,850	6,510
Monetary Gold and SDR's						
Other Assets						
Additional Assets		1	1			
Total Financial Assets	40,699	41,892	44,514	45,856	49,900	55,242
LIABILITIES						
Other Accounts Payable	3,626	3,403	3,512	4,343	4,560	4,788
Currency & Deposits (liability)	272	281	290	300	300	300
Securities Other than Shares (liability)	7,149	7,231	9,031	8,935	8,869	8,803
Loans (liability)	4,925	4,493	4,156	4,064	171	-5,180
Insurance Technical Reserves (liability)						
Financial Derivatives (liability)						
Other Liabilities	-1					
Liabilities	15,971	15,408	16,989	17,642	17,794	17,785
Net Financial Worth	24,728	26,484	27,525	28,213	32,106	37,457
Total Liabilities & Equity	40,699	41,892	44,514	45,855	49,900	55,242

GRAND DUCHY OF LUXEMBOURG

Rating Analysis - 12/6/19

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

*EJR CP Rating: A1+

EJR's 7 yr. Default Probability: 0.0%

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 "AAA"; we expect results to remain approximately the same.

Changes in Indicative Ratios

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

GRAND DUCHY OF LUXEMBOURG

Rating Analysis - 12/6/19

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

*EJR CP Rating: A1+

EJR's 7 yr. Default Probability: 0.0%

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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 #13 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.

GRAND DUCHY OF LUXEMBOURG

Rating Analysis - 12/6/19

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

*EJR CP Rating: A1+

EJR's 7 yr. Default Probability: 0.0%

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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%	11.9	15.9	7.9	AAA	AAA	AA+
Social Contributions Growth %	5.0	8.0	2.0	AAA	AAA	AAA
Other Revenue Growth %		3.0	(3.0)	AAA	AAA	AAA
Total Revenue Growth%	9.1	11.1	7.1	AAA	AAA	AAA
Monetary Gold and SDR's Growth %	5.0	7.0	3.0	AAA	AAA	AAA

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.
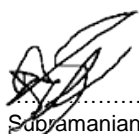
ATTESTATION FORM

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.

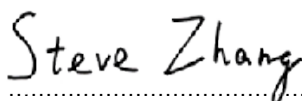**Analyst Signature:**   **Today's Date**

December 06, 2019

....
Subramanian NG
Senior Rating Analyst

Reviewer Signature: **Today's Date**

December 06, 2019

....
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.