

GRAND DUCHY OF LUXEMBOURG

Rating Analysis - 8/31/21

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

*EJR CP Rating: A1+

EJR's 7 yr. Default Probability: 0.0%

Luxembourg's GDP is expecting to return to growth this year as easing restrictions prompt a rebound in domestic and foreign demand, unleashing pent-up spending. Inflows of EU funds and expansionary fiscal and monetary policies should further support activity. That said, risks are tilted to the downside due to prolonged uncertainty over the course of the pandemic amid new variants of the virus.

After a relatively mild contraction in 2020, the economy is projected to expand by 4.8% in 2021 and by 2.8% in 2022. The recovery of domestic demand will gather pace on the back of the gradual strengthening of private consumption and investment. The unemployment rate is expected to peak in the third quarter of 2021 at around 6.6%, as short-time work schemes are terminated, and to decline to 6.1% at the end of 2022. Downside risks to the projection include worse-than-expected epidemiological developments that may delay the full phase-out of containment measures, and a persistent labour market weakness. On the upside, an earlier completion of the vaccination campaign could ensure faster control of the pandemic, leading to a stronger rebound in private consumption and investment. Affirming.

CREDIT POSITION

	2018	2019	2020	P2021	P2022	P2023
Debt/ GDP (%)	28.8	29.9	32.5	34.8	39.6	43.2
Govt. Sur/Def to GDP (%)	4.8	4.2	-1.3	-5.3	-8.4	-9.5
Adjusted Debt/GDP (%)	28.8	29.9	32.5	34.8	39.6	43.2
Interest Expense/ Taxes (%)	1.2	1.2	0.9	0.9	0.9	0.9
GDP Growth (%)	5.7	5.8	1.0	2.3	2.5	2.5
Foreign Reserves/Debt (%)	0.9	1.1	1.1	1.0	0.8	0.7
Implied Sen. Rating	AAA	AAA	AA+	AA+	AA+	AA+

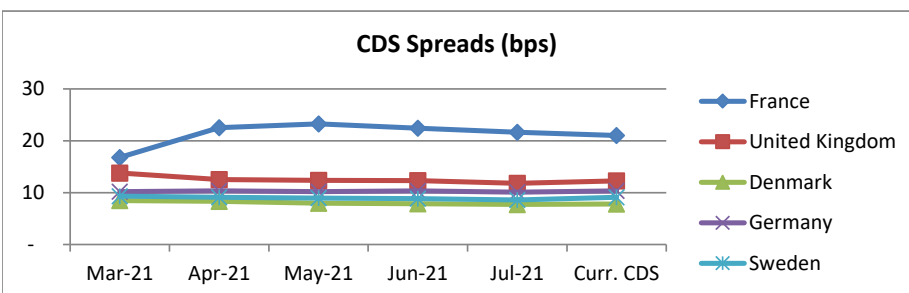
Annual Ratios (source for past results: IMF)

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

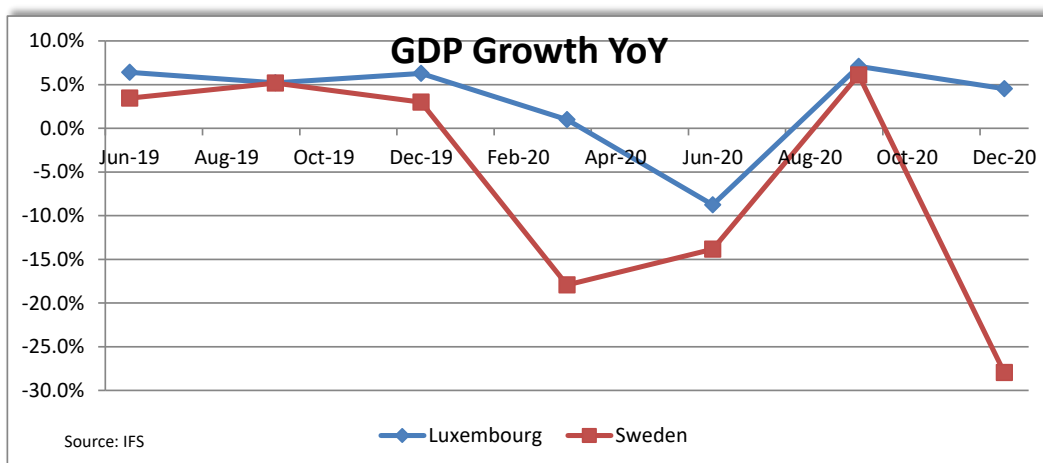
	Other NRSRO Sen.	Debt as a % of GDP	Govt. Surp. Def to GDP (%)	Adjusted Debt/ GDP	Interest Expense/ Taxes %	GDP Growth (%)	Ratio-Implied Rating*
Kingdom Of Sweden	AAA	63.5	-1.3	63.5	0.8	-1.4	AA+
Kingdom Of Denmark	AAA	58.8	0.2	58.8	1.2	0.5	AA
Federal Republic Of Germany	AAA	79.7	-4.2	79.7	2.9	-3.3	A+
French Republic	AA	145.9	-8.8	145.9	4.2	-5.5	BBB
United Kingdom	AA	187.8	-12.8	187.8	7.2	-4.8	BBB-



Country	EJR Rtg.	CDS
France	A+	21
United Kingdom	A+	12
Denmark	AA	8
Germany	AA	10
Sweden	AA+	9

Economic Growth

Luxembourg's economy grew by 1.4% in Q1'21, following an upwardly revised 1.9% expansion in the previous period and an unprecedented 7.1% contraction in April-June 2020. Government spending advanced 3.8% (vs 0.7% in Q4) while net external demand contributed negatively to the GDP as exports (1.2%) rose less than imports (2%). At the same time, household consumption shrank 2.4% (the same pace as in Q4) and fixed investment continued to fall although much less (-0.8% vs -11.5%). GDP is projected to grow by 4.8% in 2021, and then slow to 2.8% in 2022. Domestic demand will gradually strengthen through 2021 and 2022.



Fiscal Policy

Large tax, expenditure and financial measures were put in place in 2020 to mitigate the impact of the pandemic on the economy. Tax and social contributions deferrals were introduced to alleviate the liquidity situation of businesses and the self-employed during the lockdown. Eligible companies benefited from repayable advances, which aimed to support SMEs affected by the COVID-19 outbreak. Additional funds have been budgeted for 2021 to support firms and the most affected activities, such as hotels, restaurants and bars, for a total of about EUR 100M.

	Surplus-to-GDP (%)	Debt-to-GDP (%)	5 Yr. CDS Spreads
Luxembourg	-1.33	32.50	0.00
Sweden	-1.32	63.50	9.09
Denmark	0.20	58.84	7.82
Germany	-4.19	79.69	10.34
France	-8.79	145.87	21.00
United Kingdom	-12.82	187.83	12.28

Sources: Thomson Reuters and IFS

Unemployment

The health crisis has led to an increase in unemployment. The rebound in economic activity after the lock down and the government's short-term work scheme have supported employment levels. The slowdown in the labour market is projected to put pressure on wages while disposable income is supported by government measures in 2020 and should recover in 2021 and 2022.

	Unemployment (%)	
	2019	2020
Luxembourg	5.36	6.96
Sweden	6.77	8.29
Denmark	4.91	5.66
Germany	3.20	4.31
France	8.43	8.62
United Kingdom	3.74	4.34

Source: Intl. Finance Statistics

Banking Sector

Average solvency ratio of Luxembourg banks is at 22.1% and Tier 1 Capital ratio is at 21.4% - suggesting adequate strength. The sector is well-diversified in areas such as investment funds, wealth management and insurance, which all have heterogenous risk profiles which mitigate the sovereign's contingent liability risk.

Bank Assets (billions of local currency)		
	Assets	Mkt Cap/ Assets %
BCEE	43.5	0.00
Total	<u>43.5</u>	
EJR's est. of cap shortfall at 10% of assets less market cap		4.3
Luxembourg's GDP		64.1

Funding Costs

Bank Lending Rate in Luxembourg decreased to 1.39% in June from 1.41% in May of 2021. This is expected to be 1.39% by the end of this quarter, and is projected to trend around 1.39% in 2022. Harmonized inflation came in at 3.3% in July, down from May's 3.4%. Annual average harmonized inflation ticked up from 1.0% in June to 1.3% in July.

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	2020	<u>Change in</u>
	<u>Rank</u>	<u>Rank</u>	<u>Rank</u>
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 76.0 for Economic Freedom with 100 being best.

Heritage Foundation 2021 Index of Economic Freedom				
World Rank 76.0*				
	2021	2020	Change in	World
	Rank**	Rank	Rank	Avg.
Property Rights	85.7	86.4	-0.7	53.6
Government Integrity	77.6	90.3	-12.7	45.9
Judicial Effectiveness	92.5	74.4	18.1	45.4
Tax Burden	63.4	64.1	-0.7	77.7
Gov't Spending	46.2	45.4	0.8	67.1
Fiscal Health	99.0	99.0	0.0	72.1
Business Freedom	66.1	66.8	-0.7	63.2
Labor Freedom	45.9	45.3	0.6	59.5
Monetary Freedom	76.5	76.4	0.1	74.7
Trade Freedom	84.0	86.4	-2.4	70.7

*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 seen a decline in taxes of 3.4% per annum in the last fiscal year which is disappointing. We expect tax revenues will decline by approximately 3.4% per annum over the next couple of years and 0.5% 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 2.4% decline in total revenue over the next two years.

Income Statement	Peer Median	Issuer Avg.	Assumptions	
			Yr 1&2	Yr 3,4,5
Taxes Growth%	(4.2)	(3.4)	(3.4)	0.5
Social Contributions Growth %	0.6	5.2	5.0	5.0
Grant Revenue Growth %	0.0	NMF		
Other Revenue Growth %	0.0	NMF		
Other Operating Income Growth%	0.0	(5.3)		
Total Revenue Growth%	(2.9)	(1.2)	(2.4)	(2.2)
Compensation of Employees Growth%	2.6	9.8	9.8	9.8
Use of Goods & Services Growth%	4.5	8.2	6.6	6.6
Social Benefits Growth%	6.9	16.4	16.4	14.8
Subsidies Growth%	79.3	12.6		
Other Expenses Growth%	0.0			
Interest Expense	1.8	0.7	0.7	
Currency and Deposits (asset) Growth%	33.8	0.0		
Securities other than Shares LT (asset) Growth%	(3.7)	0.0		
Loans (asset) Growth%	20.2	(43.0)	(3.4)	(3.4)
Shares and Other Equity (asset) Growth%	5.0	(50.5)	2.0	2.0
Insurance Technical Reserves (asset) Growth%	2.5	0.0		
Financial Derivatives (asset) Growth%	6.7	20.8	(3.4)	(3.4)
Other Accounts Receivable LT Growth%	12.8	(4.7)	(4.7)	(4.7)
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%	15.1	(4.6)	3.0	3.0
Currency & Deposits (liability) Growth%	3.6	1.6	1.6	1.6
Securities Other than Shares (liability) Growth%	17.0	20.3	14.2	14.2
Loans (liability) Growth%	3.6	(1.6)	0.5	0.5
Insurance Technical Reserves (liability) Growth%	0.0	0.0		
Financial Derivatives (liability) Growth%	5.5	0.0		
Additional ST debt (1st year)(millions EUR)	0.0	0.0		

ANNUAL OPERATING 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)					
	2017	2018	2019	2020	P2021	P2022
Taxes	15,089	17,130	17,794	17,193	16,608	16,044
Social Contributions	6,921	7,304	7,715	8,115	8,521	8,947
Grant Revenue						
Other Revenue						
Other Operating Income	<u>2,752</u>	<u>2,811</u>	<u>2,872</u>	<u>2,721</u>	<u>2,721</u>	<u>2,721</u>
Total Revenue	24,762	27,245	28,381	28,029	27,850	27,712
Compensation of Employees	5,548	5,955	6,321	6,942	7,624	8,373
Use of Goods & Services	2,353	2,472	2,668	2,888	3,079	3,282
Social Benefits	10,388	10,930	11,533	13,430	15,639	18,211
Subsidies	609	653	676	761	761	761
Other Expenses				3,143	3,143	3,143
Grant Expense						
Depreciation	1,324	1,401	1,479	1,567	1,567	1,567
Total Expenses excluding interest	<u>22,753</u>	<u>24,136</u>	<u>25,500</u>	<u>28,731</u>	<u>31,813</u>	<u>35,337</u>
Operating Surplus/Shortfall	2,009	3,109	2,881	-702	-3,963	-7,626
Interest Expense	<u>215</u>	<u>212</u>	<u>207</u>	<u>149</u>	<u>150</u>	<u>151</u>
Net Operating Balance	1,795	2,897	2,674	-851	-4,113	-7,777

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	2017	2018	2019	2020	P2021	P2022
ASSETS						
Currency and Deposits (asset)	8,997	9,416	11,663	10,743	10,743	10,743
Securities other than Shares LT (asset)	9,292	9,254	10,108	10,852	10,852	10,852
Loans (asset)	23	97	86	49	47	46
Shares and Other Equity (asset)	456	1,036	604	299	305	311
Insurance Technical Reserves (asset)					0	0
Financial Derivatives (asset)	34	13	53	64	62	60
Other Accounts Receivable LT	4,765	5,535	5,369	5,118	4,879	4,651
Monetary Gold and SDR's						
Other Assets					25,500	25,500
Additional Assets	<u>21,635</u>	<u>21,660</u>	<u>24,758</u>	<u>25,500</u>		
Total Financial Assets	45,202	47,011	52,641	52,625	52,388	52,162
LIABILITIES						
Other Accounts Payable	3,343	4,002	4,299	4,100	4,223	4,350
Currency & Deposits (liability)	291	301	311	316	316	316
Securities Other than Shares (liability)	9,028	8,932	10,425	12,542	14,325	16,361
Loans (liability)	4,177	4,060	3,950	3,887	8,000	15,777
Insurance Technical Reserves (liability)				3	3	3
Financial Derivatives (liability)	7	11	5	5	5	5
Other Liabilities	<u>-1</u>			<u>1</u>	<u>1</u>	<u>1</u>
Liabilities	16,845	17,306	18,990	20,854	24,729	32,281
Net Financial Worth	<u>28,357</u>	<u>29,705</u>	<u>33,650</u>	<u>31,771</u>	<u>27,658</u>	<u>19,881</u>
Total Liabilities & Equity	45,202	47,011	52,640	52,625	52,388	52,162

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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 adjustment 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 (Non-NRSRO)

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+) except for AAA and those deep into speculative grade, i.e., CC, C, and D do not have 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 Methodologies for Determining Credit Ratings (Main Methodology) version #15a 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 projections on pages 1, 6, and 7 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 dependent on numerous factors including the reliability, accuracy, and quality of the data relied upon in determining the credit rating. The data is sourced from publicly available information from the IMF and other similar sources. In some cases, the information is limited because of issues such as the lack of reported data, a delay in reporting data, restatements, inaccurate accounting and other issues. Such issues 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 publicly available information from the IMF, governmental filings and other similar sources for ratings on sovereign 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%	(3.4)	0.6	(7.4)	AA	AA-	A+
Social Contributions Growth %	5.0	8.0	2.0	AA-	AA-	A+
Other Revenue Growth %	0.0	3.0	(3.0)	AA-	AA-	AA-
Total Revenue Growth%	(2.4)	0.1	(4.4)	AA-	AA-	AA-
Monetary Gold and SDR's Growth %	(4.7)	(2.7)	(6.7)	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

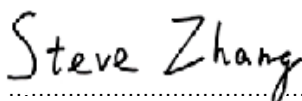


Subramanian NG
Senior Rating Analyst

August 31, 2021

Reviewer Signature:

Today's Date



Steve Zhang
Senior Rating Analyst

August 31, 2021

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.