# Creditreform Sovereign Rating

Creditreform Rating

| Rating Object | Rating Information | |
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| GRAND DUCHY OF LUXEMBOURG | Assigned Ratings/Outlook: **AAA /stable** | Type: Monitoring, Unsolicited with participation |
| Long-term sovereign rating<br>Foreign currency senior unsecured long-term debt<br>Local currency senior unsecured long-term debt | Initial Rating Publication Date:<br>Rating Renewal:<br>Rating Methodologies: | 29-07-2016<br>20-05-2022<br>"Sovereign Ratings"<br>"Rating Criteria and Definitions" |

## Rating Action

Neuss, 20 May 2022

Creditreform Rating has affirmed the unsolicited long-term sovereign rating of "AAA" for the Grand Duchy of Luxembourg. Creditreform Rating has also affirmed Luxembourg's unsolicited ratings for foreign and local currency senior unsecured long-term debt of "AAA". The outlook is stable.

**Contents**



## Key Rating Drivers

1. Luxembourg's economy ranks among the most advanced economies worldwide in terms of per capita income and features a flexible and well-performing labor market; real GDP recovered sharply last year, and while we expect the economy to continue expanding in 2022, the Russian attack on Ukraine will make a significant dent on Luxembourg's growth performance, mainly due to its adverse impact on confidence and global financial conditions
2. Having shown a robust growth trend prior to the Covid-19 pandemic, we assume Luxembourg's medium-term growth and potential growth to outpace that of the euro area; while being a source of resilience during the pandemic, we continue to view the substantial importance of the financial sector and related volatility and vulnerability to external shocks as a weakness; high private sector debt, skilled labor shortages and rapidly rising residential property prices constitute further pockets of vulnerability
3. Exceptionally strong performance regarding the sovereign's institutional set-up, which is further buttressed by benefits from membership in the EU and EMU; high degree of political stability and policy continuity remains in place, being conducive to Luxembourg's consensus-driven and forward-looking policy-making
4. Very sound public finances and prudent fiscal policy-making; fiscal metrics improved materially in 2021, with strong revenue performance having resulted in a headline surplus and a decline in the sovereign's public debt ratio; the war in Ukraine will weigh on Luxembourg's public finances, as we expect the government's response to shield households and businesses from the related negative repercussions to prompt a renewed, albeit moderate, rise in debt-to-GDP; contingent liability risks and fiscal risks entailed by the international corporate tax reform should be mitigated by ample fiscal headroom and highly affordable debt over the medium term

5. Recurrent current account surpluses cater for a large and positive net international investment position (NIIP), which should attenuate external vulnerabilities stemming from Luxembourg's role as an international financial hub

## Reasons for the Rating Decision and Latest Developments[1]

### Macroeconomic Performance

*The sovereign's exceptionally high creditworthiness remains decisively supported by its very strong macroeconomic performance profile, which largely rests on the outstanding prosperity of Luxembourg's economy as well as a strong track record in terms of economic growth. Although long-term unemployment has risen more recently, and shortages of skilled labor increase, we continue to view labor market performance as credit positive. Whilst debt of non-financial corporations (NFCs) is inflated by the presence of multi-national enterprises (MNEs), extensively stretched private sector balance sheets generally constrain room to maneuver with a view to economic shocks. Notwithstanding Luxembourg's diversification efforts, its role as a global financial center leaves the economy susceptible to external shocks and represents a source of macro-financial volatility. Investments and structural reforms included in the national Recovery and Resilience Plan (RRP) should help to tackle longer-standing challenges, in particular regarding labor market policies and stepping up the supply of available housing.*

Following the relatively moderate pandemic-related decline in economic activity in 2020, with real GDP contracting by 1.8% as compared to -6.4% in the euro area (EA), Luxembourg's economy staged a robust and broad-based recovery last year. According to Eurostat data, total output expanded by 6.9% in 2021, representing one of the higher readings among euro area peers (EA: 5.3%, EU27: 5.3%).

While the strong outturn was driven by all expenditure components, the main contribution to last year's real GDP growth came from private consumption (+2.3 p.p.). Although the Omicron strain and related confinement measures prompted a slight drop in household spending towards the end of the year (Q4-21: -0.5% q-o-q), consumption rose by 7.4% in 2021 overall, supported by the government's aid measures and progress in the vaccination campaign, as well as by favorable labor market developments.

Investment activity rebounded sharply. Gross fixed capital formation increased by 12.3% on the year, buttressed by construction investment (+11.3%) and investment in machinery and equipment alike (+16.4%), benefiting from robust business sentiment, favorable financing conditions and a vivid residential property market – but also from one-off effects related to the purchase of a satellite. Net external trade also contributed significantly to Luxembourg's economic expansion in 2021(+2.1 p.p.). Positive financial market developments translated into brisk growth of financial services exports (+17.2%, Eurostat BOP data), joining exports of transport services as drivers (+21.0%).

Thanks to dynamic economic growth and very high productivity, Luxembourg's economy continues to enjoy extremely high wealth levels, which we deem as one of the sovereign's key rating

[1] This rating update takes into account information available until 13 May 2022.

strengths. Being one of the most productive economies in Europe - reflected by nominal labor productivity per hour worked standing 97.5% above the EU27 average (2021) - Luxembourg's GDP per capita is estimated to have totaled USD 132,875 in 2021 (IMF data, PPP terms, current prices), up from USD 120,086 in the preceding year (+9.8%). Hence, the Grand Duchy remains the world's leading economy in terms of per capita incomes, well above the level of its European peers and more than twice the GDP p.c. recorded for other AAA-rated sovereigns from our rating universe.

Looking ahead, economic prospects have darkened more recently. Even though we still see lingering downside risks stemming from the Covid-19 pandemic, in particular regarding new variants or repercussions sent through supply chains (e.g. via China), the immediate economic threat appears to have waned for the time being, as the adverse economic impact from the Omicron strain should be rather limited as well as short-lived. This is also mirrored by the sharp decline in infection cases, with the 14-day cumulative infection rate having plummeted from a peak of 13,728 in week 2022-06 to 543 in week 16 (ECDC data).

By contrast, the substantial economic shock entailed by the Russian military aggression against Ukraine, and the related sanctions imposed by the international community which are targeted towards pressuring the Russian Federation to end its invasion, will likely have a significant impact on Luxembourg's economy. To be sure, the direct effects should be very modest. The share of exports to Russia accounts for a mere 1% and 0.2% of Luxembourg's total goods and services trade respectively. Indirect effects, however, will very likely be felt via financial market conditions, a lower degree of confidence and inflationary pressures, with the extent of the impact depending on the length of the war in Ukraine.

We expect private consumption to remain supportive of Luxembourg's economic expansion, though spending growth is likely to weaken somewhat as compared to 2021. HICP inflation surged to 3.5% in 2021, and we assume that inflationary pressures will intensify throughout 2022 and remain high next year in light of soaring petrol and heating prices, which should dampen households' purchasing power. Indeed, the war in Ukraine has seriously dented consumer sentiment, which has dropped its lowest level since the outbreak of the pandemic back in April 2020. We note that households' expectations regarding their financial situation over the next 12 months fell to their lowest level on Eurostat records (from 2002).

That said, we expect these effects to be balanced by two packages of government measures implemented in February (Energiedësch) and in March (Solidaritéitspak) of this year which aim to limit the detrimental effects of rising consumer prices and the postponement of automatic wage indexations in 2022 and 2023, with the latter having been decided in March's Tripartite agreement. Brisk consumer price inflation had already triggered two automatic wage indexations in Oct-21 and Apr-22. Moreover, real disposable income is set to be backed by favorable labor market developments (see below) as well as by ongoing employment and wage growth, while households should also draw on still very high levels of savings. The savings rate posted at roughly 20% of disposable income in Q3-21 (2016-19 average: 13%, Statec data), but households may prefer to act cautiously against the backdrop of uncertainty as regards their financial situation.

Investment growth should decrease noticeably, although funding costs remain comparatively low, essentially boding well for investment growth going forward. Gross fixed capital formation will be mainly carried by public investment. From a European angle, investment by the public sector is already high (2012-21 avg. 4.0% of GDP, EA: 2.8% of GDP) and should continue to grow briskly. According to the recently published Stability Program (SP22), public investment is envisaged to be ramped up by 7.4% and 11.2% in 2022 and 2023 respectively.

However, industry business sentiment took a deep hit, having fallen to its lowest level since April 2021. Additionally, new orders in the industry sector have declined. While we would have expected supply bottlenecks and inflationary pressures to ease throughout 2022, the Russian invasion adds to the series of supply shocks witnessed over the last two years. The war will aggravate supply shortages in certain equipment and materials and raise production costs via input and energy prices, adversely affecting the production industry and construction, with negative reverberations for investment activity.

Likewise, the Russian military aggression against Ukraine and the associated escalation in terms of sanctions against the Russian Federation caused a reevaluation of financial market risks and prompted a decline in asset prices as well as a spike in volatility. In view of the pivotal role of the financial sector for Luxembourg, this should curb export growth, as the deteriorating stock market momentum is likely to weigh on financial sector performance. In this vein, Eurostat's financial services confidence indicator nose-dived, as did expected demand for financial services over the next three months.

As a corollary, we expect to see negative effects on the earnings of financial and insurance companies as well as of providers of auxiliary financial services, which will test the resilience of the external balance. More generally, Luxembourg's export growth tends to hinge on economic activity in the euro area overall, which we also expect to see decelerate significantly in 2022 (EA estimated real GDP: 3.0%). We highlight that uncertainty regarding the magnitude of the crisis remains high, and assume Luxembourg's net external balance will turn negative in 2022 before shifting into positive territory next year.

Overall, we tentatively pencil in real GDP growth of 1.6% for this year and 2.5% for 2023. Although Luxembourg's economy would thus continue to grow, this represents a sharp deceleration from last year's outturn and posts well below the pre-pandemic annual average of 2.8% observed in 2015-19 (EA: 2.0%). These forecasts are surrounded by a substantial degree of uncertainty, which was already unusually high before the Russian intervention.

Despite the significant adverse impact of recent geopolitical tensions, we assume that Luxembourg will experience robust medium-term growth and continue to outpace real GDP growth in euro area as a whole. Luxembourg's underlying growth will also surpass that of the euro area. The European Commission (EC) estimates Luxembourg's potential growth to amount to 2.8% and 2.9% in 2022 and 2023 (EA: 1.6% and 1.7%). Luxembourg's Ministry of Finance (MOF) gauges potential growth to post at 2.4% in both years.

We think that the underlying strength of Luxembourg's economy is well reflected by its labor market metrics, which also tend to be less volatile than national accounts data in Luxembourg. Labor market conditions thus remain favorable, also creating a positive backdrop for medium-term perspectives. While employment was certainly aided by the government's pandemic support measures and in particular by the short-term work scheme, unemployment declined significantly last year. After spiking to 6.8% in 2020, annual LFS-adjusted unemployment dropped to 5.3%, the lowest reading since 2012 (5.1%), and well below the euro area average of 7.7%. In the current year, unemployment has continued to fall, with the monthly average dwindling to as low as 4.5% in March, its lowest level since August 2010.

Buoyant employment growth underscores the excellent shape of the Grand Duchy's labor market. In 2021 employment jumped by 3.1%, one of the highest rates in Europe, after being one of the few EU27 members which were able to expand employment in 2020 (+1.9%). Whilst expecting employment to grow somewhat less dynamic going forward, mainly due to base effects and weaker business employment prospects, the outlook remains favorable overall as reflected by record high vacancy rates (Q4-21: 2.2, all-time high).

Increasing labor market tightness is partly due to a diminishing availability of skilled workers. Skills shortages are one of the key challenges to Luxembourg's economy and may act as a drag on the economy's growth potential if left unaddressed. Survey data indicates that growing skills shortages may indeed begin to hamper productivity, in particular in the construction sector, where 65.7% of the respondents cite labor shortages as a factor limiting production, the highest reading in the EU. Rising long-term unemployment (Q4-21: 39.9% of total unemployment) also hints at increasing skill mismatches, as particularly unskilled and elderly people seem to experience difficulties in finding employment.

In our view, the RRP should help to address skills shortages, as it includes a plethora of reforms and investments geared towards the labor market. Inter alia, investments in vocational training programs for job seekers should enhance skills development in Luxembourg. The EC estimates that the RRP could raise Luxembourg's GDP by 0.5% to 0.8% by 2026. What is more, the raft of measures to support the green and digital transformation of the Grand Duchy's economy, as well as initiatives to drive new areas of specialization, should contribute to a more diversified economy. We note that we nevertheless hold the financial sector as a source of heightened macro volatility and a catalyst of exogenous shocks. Although too premature to judge, the current geopolitical situation may serve as a case in point in this respect.

Further medium-term risks pertain to persistently high private sector indebtedness. Although inflated by MNE activities, Luxembourg continues to display the highest NFC debt in the EU27, though having significantly declined from the pandemic-related peak (Q2-20: 289.9% of GDP). Drawing on ECB data, NFC debt decreased from 254.3% of GDP in the fourth quarter of 2020 to a still very high 237.7% of GDP in Q4-21. The corporate sector remains healthy, with large-scale bankruptcies having been avoided so far following the wind-down of government support measures. Insolvencies rose only marginally, by 0.2% in 2021 (Statec, 2020: -4.3%), thus posting on par with the level observed in 2018.

At the same time, Luxembourg's households remain heavily indebted, mainly due to brisk mortgage lending (see below). Household debt equaled approx. 174% of disposable income in Q2 2021 (Banque central du Luxembourg, BCL data), corresponding to one of the highest levels in Europe.

## Institutional Structure

*The sovereign's AAA rating continues to reflect the exceptionally high quality of its institutional framework and authorities' sound and responsive policy-making. Particularly in the context of its role as an international financial center, Luxembourg draws significant benefits from EU/EMU membership, implying free movement of capital and persons. The sovereign's very high level of effectiveness in policy formulation and implementation are further backed by government authorities facilitating a prudent fiscal (CNFP) and supervisory (CSSF) framework. The sovereign shows a high degree of reform ownership concerning the OECD's (BEPS) and the EU's (ATAD) initiatives.*

The exceptionally high quality of the Grand Duchy's institutional set-up and its reform-oriented, prudent and efficient policy-making is ultimately highlighted by the World Bank's assessment of good governance. According to the World Bank's Worldwide Governance Indicators (WGI), the sovereign is persistently ranked among the world's top performers across all WGI dimensions, outstripping respective euro area and EU averages by far.

With regard to the most recent vintage, referencing 2020 as the reporting year, we would stress three aspects in particular: First and foremost, the sovereign is placed in the top ten with a view to the WGIs we consider the most important within our rating framework. Secondly, Luxembourg's ranking in terms of the WGI political stability continues to stand out. Although having slipped somewhat, its 14th rank out of 213 economies (2019: 11/213) still represents the highest relative ranking among the EU member states. Thirdly, Luxembourg was not only found to feature a still very high quality of policy formulation and implementation, but also improved its relative ranking for the WGI government effectiveness from rank 9 to rank 7 out of 209 economies worldwide, which corresponds to the best outcome since 2002.

Likewise, very strong institutional quality is mirrored by pronounced freedom of expression, association, and free media, as the sovereign achieved a good 8th rank as compared to a euro area median rank 33. The same holds for the WGIs rule of law and control of corruption. When it comes to the perceived quality of contract enforcement, courts, and property rights, Luxembourg is ranked at 10/209, whilst coming in 8th concerning the perception of capture of the state by elites and private interests.

Tying in with the rule of law, we note that the reform of the Constitution has advanced since our last review. We gather that legislators have enacted proposals to make targeted amendments to several chapters of the Constitution. Thus, reforms of the chapter concerning the organization of the state and the chapter governing public freedoms and fundamental rights were passed. At the same time, a reform of the sixth chapter, which aims at strengthening judicial independence, is pending. The request to hold a referendum on the proposal regarding revision of Chapter VI was unsuccessful, as the number of signatures failed to reach the required minimum. Meanwhile, the reform of the insolvency code seems set to be amended within the current year. The reform bill was divided into two draft laws and is geared towards enhancing the efficiency of the judicial system by streamlining the efficiency of bankruptcy proceedings.

While the EC, in its Rule of Law Report (Jul-21), concluded that room for improvement remains with regard to staffing in the prosecution service, as well as regarding provisions on revolving doors and lobbying, whistleblower protection appears to be taking shape. Authorities introduced a bill to transpose the EU Whistleblower Directive at the beginning of the year, foreseeing, inter alia, the implementation of a whistleblower office.

The sovereign's responsiveness and reform ownership is, in our view, further underscored by headway being made with regard to GRECO's recommendations on the prevention of corruption for members of parliament, judges, and prosecutors. In its third interim report of the fourth evaluation round, published this March, GRECO concludes that six of the 14 recommendations have been satisfactorily dealt with, whilst the other eight have been partially implemented.

By the same token, we are aware of several legislated initiatives aiming at achieving the green transition of its economy. Besides launching two advisory bodies, namely the Platform for Climate Action and Energy Transition and the Climate Policy Observatory, as well as the "Citizen's Office for Climate" (KlimaBiergerRot), authorities transposed the Clean Vehicles Directive by adopting the respective regulation in November 2021. The decarbonization of transport is planned to be further advanced by the implementation of an aid scheme geared towards the build-up of EV charging infrastructure. Furthermore, the government has established the 'Naturpakt', a legislative, financial, technical and advisory framework for municipalities, in order to facilitate conservation and biodiversity.

Latest data highlights Luxembourg's formidable challenges in this respect, as the Grand Duchy continues to lead the EU in terms of greenhouse gas emissions (GHG) per head, which remained virtually unchanged between 2015 and 2019, posting at 20.3 tons p.c. in 2019 (EU average: 8.4). Moreover, there is ample scope to rake up the use of renewable energy, since Luxembourg exhibits the second-lowest overall share of energy of renewable sources (2019: 11.7%).

## Fiscal Sustainability

*Public finances are a further key support for the sovereign's credit rating, as these are in excellent shape. Luxembourg's fiscal authorities have a track record of fiscal prudence and remain firmly committed to fiscal sustainability. Moreover, government debt remains highly affordable and the sovereign commands over ample fiscal leeway in light of the still very low public debt ratio. These key strengths of the sovereign, in our view, mitigate fiscal risks associated with contingent liabilities and repercussions from the Russian war against Ukraine. The government's fiscal policy measures to cushion the impact of the geopolitical situation should ultimately result in a moderate headline deficit in 2022. The public debt ratio should rise only slightly, according to our forecast, and remain well below the self-imposed 30% threshold over the medium term. At this stage, we also view medium-term risks related to Luxembourg's revenue base, following the international community's tax deal for the digital age, as contained.*

The fiscal outturn for 2021 once again demonstrates the sovereign's ability to meet its fiscal objectives, mirroring prudent and rigorous budget execution as well as robust revenue growth. Public finances improved impressively, with the headline balance shifting from a pandemic-related and record-high deficit of 3.4% of GDP in 2020 to a surplus of 0.9% of GDP last year, outperforming the MOF's forecast published in the Draft Budgetary Plan 2022 (DBP22, -0.6% of GDP), as well as our projection (21-May-21: -1.0%), by far. Apart from Denmark, the Grand Duchy was thus the only EU member state to realize a general government surplus last year. As a point of reference, the headline balance on the euro area level amounted to -5.1% of GDP in 2021.

The strong performance was largely driven by buoyant tax receipts, given the strong economic recovery and favorable labor market conditions. Whilst taxes on income and wealth expanded by 12.1% in 2021, the VAT intake jumped by 19.6%, or from 5.8% to 6.1% as measured by GDP. Net social contributions also rose noticeably, by 5.8% on the year. General government revenue grew by 12.7% overall, significantly outpacing expenditure growth, which came in at 2.4%.

Growth in government spending thus dropped significantly (2020: 12.7%), in line with the decline in outlays related to Covid-19 measures. As of 31-Mar-22, the budgetary effect of pandemic-related aid measures amounted to 1.0% of GDP (MOF data), with the Recovery and Solidarity Fund (0.3% of GDP) and short-term work (0.3% of GDP) being the most important items. Additionally, compensation of employees in the public sector increased by 5.1%. We note that authorities kept the level of public investment high, although gross fixed capital formation at the general government level edged down from 4.7% of GDP to 4.0% of GDP in 2020-21.

We believe that the Russian invasion of Ukraine will have a considerable impact on public finances going forward. Luxembourg's economic performance will prospectively be dragged down. As the Russia-Ukraine conflict unfolds, adverse effects on the tax intake should be increasingly felt. We have to highlight that gauging the effects on the tax base is a very challenging task at the current juncture.

At the same time, the government has decided on fiscal measures to cushion the negative repercussions of the geopolitical situation on households and the corporate sector which may come on the back of inflationary pressures, supply chain shortages, and confidence effects. To this end, the government put in place the Energiedësch package in Feb-22, which includes an energy bonus for lower-income households, a higher state compensation with a view to renewables, and subsidies regarding gas network costs. Under the Solidaritéitspak, on the other hand, policy-makers adopted a raft of measures against the backdrop of the postponement of the automatic wage indexation (see above). The package foresees, inter alia, the introduction of an energy tax credit, financial support for businesses affected by the marked increase in energy prices, and a transitory cut in fuel and heating oil prices. According to the SP22, total outlays for the two packages combined add up to EUR 827.5mn, or 1.1% of our estimated 2022 GDP. Also, the government shells out an additional EUR 500mn or 0.6% of GDP for a new state guarantee scheme aimed at helping severely affected companies.

These measures come on top of the discretionary measures on the spending side which had already been decided in 2021, namely an increase in outlays geared towards public transport, infrastructure, environmental protection, and digitalization. Judging by last year's DBP22, these are budgeted to come at a cost of roughly EUR 237mn, or 0.3% of GDP. Furthermore, it is worth pointing out that the government envisaged to retain the high level of public investment, presumably amounting to about 4.1% of estimated GDP.

While we have to emphasize substantial uncertainty underlying any forecast given the current geopolitical circumstances, we tentatively pencil in a headline deficit of approx. 0.5% of GDP for this year, before the deficit should narrow, implying a broadly balanced budget in 2023, assuming that the adverse effects wane to some extent.

We think that the sovereign continues to display plenty of fiscal space to implement the abovementioned discretionary measures to alleviate the effects of the exogenous shock on the private sector. Luxembourg's public debt ratio was at a very low 24.4% of GDP in 2021, down from a multi-year high of 24.8% of GDP, then and now corresponding to one of the lowest readings in Europe. In light of the moderate deficit and the slower assumed growth dynamics, we expect a renewed, albeit slight, rise in general government debt as measured against GDP to 25.0% in 2022 (2023e: 25.5% of GDP). Over the medium term, we project that debt-to-GDP will stabilize before again beginning to follow a slight downward trend, given our assumption of prudent budget execution translating into broadly balanced primary budgets, as well as firm GDP growth.

In general, we believe that fiscal sustainability risks are very low over the near to medium term, reflecting very low debt levels, low gross financing needs, virtually non-existent short-term debt, no foreign currency-denominated debt, and ample financial assets on the general government debt level. The sovereign remains the only member state in the EU boasting a (positive) net asset position (Q4-21: 10.6% of GDP). The MOF reckons that Luxembourg's financial assets total approx. 48% of GDP, as per SP22. Concurrently, we assume favorable financing conditions will persist and that government debt will remain highly affordable. Interest expenditure continued to decrease last year, dwindling to 0.4% of general government revenue or 0.2% of GDP (2020: 0.5% of total revenues or 0.2% of GDP), still the second-lowest level in the EU.

While Luxembourg's Fonds de Compensation provides for sizable fiscal buffers (year-end-21: 37% of GDP) with a view to longer-term sustainability risks linked to age-related expenditure for the time being, we closely follow medium- to long-term fiscal risks pertaining to a significant overhaul of the international landscape for corporate taxation and to contingent liabilities.

Concerning the former, we witnessed a landmark agreement struck by the international community last year. As of 4-Nov-21, 137 member jurisdictions passed the document, which sets out the OECD/G20 inclusive framework on BEPS. The major reform consists of a two-pillar solution. Under the first pillar, taxing rights over 25% of the residual profit of very large and profitable MNEs will be re-allocated to the jurisdiction where their customers/users are actually located. As regards pillar 2, a minimum tax of 15% on all MNEs with an annual turnover of more than EUR 750mn will be established.

The international taxation reform is foreseen to be effectively implemented in 2023 and poses risks to the sovereign's tax receipts going forward. To be sure, the actual impact on Luxembourg's public finances is clouded by significant uncertainty, as it not only depends on policy-changes implemented on the government level, but also essentially on the behavior of MNEs. A preliminary analysis conducted by Statec shows that the effects of pillar 1 are likely to be moderately negative. At the same time, Luxembourg is highly dependent on MNEs covered under pillar 2, and in case that low taxation is key for explaining these MNEs' presence, Statec concludes that the introduction of a CIT rate floor may induce many MNEs to cease activities in the Grand Duchy. IMF simulations indicate that the revenue loss from MNEs could amount to 6% to 11%.

We highlight prevalent contingent liability risks, mainly due to Luxembourg's extremely large financial sector. Drawing on MOF data, public guarantees stood at 6.2% of GDP as of 31-Dec-21, whereas the maximum amount of contingent liabilities is capped at 12.1% of GDP, with 0.5% and 3.8% of GDP linked to the government's Covid-19 response respectively. We note that the estimated take-up has been significantly adjusted downwards as compared to figures provided last October, which referenced year-end 2020 (11.4% of GDP).

Partly backed by loan moratoria and greater flexibility around prudential regulation over large parts of the pandemic, Luxembourg's massive banking sector, coming with total assets amounting to almost 14 times its GDP as of Q3-21, has maintained a sound position in terms of capitalization and asset quality. The NPL ratio had doubled from 0.9% in Q4-19 to 1.8% in Q4-20 in light of the corona crisis, but has declined since then, posting at 1.3% as of Q4-21, thus remaining slightly above the pre-crisis level (EBA data). Still, the ratio remains one of the lowest among the EU member states (EU average: 2.0% in Q4-21). According to ECB data, the NPL ratio slightly increased from 0.78% in Q4-19 to 0.80% in Q4-20, dropping to 0.58% as of Q4-21 (EU: 2.06% as of Q4-21).

Given a CET1 ratio of 20.3% as of Q4-21 (Q4-20: 20.2%, EBA data), the sector continues to be equipped with a comfortable capital buffer by EU comparison (EU: 15.7% in Q4-21). Moreover, drawing on return on assets as an indicator for profitability, Luxembourg's banking sector has shown relatively stable development over the course of the pandemic, mostly outperforming the EU as a whole with respect to this metric, although profitability remains a challenge in this long phase of a very low interest environment more generally.

In connection with rising household debt, ongoing house price increases remain to be monitored vigilantly, bearing in mind a relatively high share of mortgage loans in total outstanding loans to the private sector (55.2% in Feb-22). According to Eurostat data, the 3-year rate of change in house prices has mounted to 44.7% in Q4-21. The annual growth rate has been in double-digit territory since Q2-19, posting at 12.0% in last year's fourth quarter.

Judging by OECD affordability indicators, there are increasing signs for severe misalignments. In the same vein, the European Systemic Risk Board pointed out that Luxembourg is among the EU countries displaying the most pronounced vulnerabilities relating to residential property markets, chiefly linked to a high level of household debt, with the average overvaluation measure having increased significantly since Q4-19. That said, we are aware of fundamental supply and demand factors playing their part in recent price developments. In order to tackle affordability issues, two draft laws awaiting adoption aim to implement an improved framework, which ensures sustainably affordable housing. With a view to a prospective increase of the ECB monetary policy rates, some incentives fueling house price dynamics may be about to weaken.

In light of the significantly heightened uncertainty, the ECB is likely to maintain a high degree of flexibility at this stage. While the tapering of the monthly net asset purchases (APP) looks likely to be concluded in Q3-22, the Governing Council also signaled readiness to delay such a decision if deemed necessary. However, a first rate-hike in Q3-22, rather than towards the end of the year, currently seems more likely, although we acknowledge that the probability of this happening is heavily dependent on events around the war in Ukraine.

With a view to the wider financial sector beyond the banking sector, we would reiterate pockets of vulnerability, among others relating to a tendency of procyclicality of the investment fund industry, but also concerning cyber-risks. Overall, the wider sector seems to have weathered the pandemic relatively well. Net assets under management by Undertakings for Collective Investment (UCIs) totaled about EUR 5,545.05bn as of Feb-22.

As far as age-related costs are concerned, we reiterate unfavorable long-term projections stemming from rising pension cost as suggested by the EU Ageing Report 2021, with BCL recently (May-22) presenting additional research arguing in favor of introducing measures to ensure financial sustainability of the pension system in the long run, acknowledging a currently favorable reserve position.

## Foreign Exposure

*Due to Luxembourg's very open economy and its role as a global financial center, its high susceptibility to external shocks remains in place. Recently, risks have been added to in the context of the international CIT reform, in the wake of which foreign direct investment should tend to decrease over the medium to longer term. Still, recurring current account surpluses and the resulting large and positive NIIP balance these risks for the time being.*

Following some pandemic-related narrowing in 2020, the comparatively sizeable current account surplus expanded by 0.7 p.p. to 4.8% of GDP in 2021 (Eurostat), mostly on account of a less negative primary income balance (2021: -30.2% of GDP). By contrast, the shrinking surplus in goods trade, which at 1.1% of GDP stood at its lowest level since 2012, exerted a negative effect in the face of an annual percentage increase in goods imports almost twice as strong as the rise in exports.

While the balance of trade in services increased by 14% in absolute terms in 2021, the respective balance in terms of GDP was little changed compared to 2020 (+0.1 p.p. to 34.1% of GDP), given rebounding GDP. In this context, we note contrasting developments with regard to trade in non-financial and financial services, as exports and imports of financial services posted double-digit percentage increases in 2021, compared to single-digit increases concerning exports and imports of non-financial services.

Near-term prospects for the current account surplus seem somewhat clouded by a likely slowed global economic pace owing to geopolitical events and some further monetary policy tightening, possibly hampering trade dynamics and financial market performance. Overall, we expect the current account surplus to moderate somewhat in 2022. Any reversal would likely depend on the duration of the war in Eastern Europe and associated adverse repercussions on macroeconomic and financial market developments, as well as to some extent on the course of the cycle of global monetary policy tightening.

Meanwhile, Luxembourg's NIIP in terms of GDP saw little change in 2021 compared to the preceding year, decreasing by 0.6 p.p. to 52.8%. At this level, it remains among the highest in the EU, characterized by high levels of both gross assets and liabilities owing to Luxembourg's status as international financial center. In view of the agreed changes to international corporate taxation, in particular concerning a minimum corporate tax rate (pillar 2, see above), to be implemented from 2023, there could be a higher level of volatility in the NIIP positions in the first phase as a result.

## Rating Outlook and Sensitivity

Our rating outlook on Luxembourg's long-term credit ratings is stable. Currently more pronounced downside risk to the sovereign's macroeconomic performance and external position, as well as less positive near-term fiscal outlook, are largely balanced by ample fiscal space, the exceptionally high quality of its institutional framework and considerable external buffers. We emphasize that the assessment and interpretation of economic developments remains subject to considerable uncertainty in light of the recent accumulation of crises.

A negative rating action could be triggered by substantial and longer-lasting negative effects on global financial markets and the global economy, conceivably if there is further escalation of Russia's military aggression in Eastern Europe. In such a scenario, Luxembourg's economic performance and respective medium-term outlook could worsen materially.

We could also consider lowering our rating or the outlook if the implementation of agreed changes to international corporate taxation creates a significantly more challenging environment for hosts to multinational enterprises. A considerable tightening of financial conditions could add to this. More generally, a marked deterioration of the global trade environment could create downward pressure on Luxembourg's credit rating and the related outlook.

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## Ratings*

| | |
|---|---|
| Long-term sovereign rating | AAA /stable |
| Foreign currency senior unsecured long-term debt | AAA /stable |
| Local currency senior unsecured long-term debt | AAA /stable |

*) Unsolicited

## ESG Factors

While there is no universal and commonly agreed typology or definition of environment, social, and governance (ESG) criteria, Creditreform Rating views ESG factors as an essential yardstick for assessing the sustainability of a state. Creditreform Rating thus takes account of ESG factors in its decision-making process before arriving at a sovereign credit rating. In the following, we explain how and to what degree any of the key drivers behind the credit rating or the related outlook is associated with what we understand to be an ESG factor, and outline why these ESG factors were material to the credit rating or rating outlook. For further information on the conceptual approach pertaining to ESG factors in public finance and the relevance of ESG factors to sovereign credit ratings and to Creditreform Rating credit ratings more generally, we refer to the basic documentation, which lays down key principles of the impact of ESG factors on credit ratings.

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### ESG Factor Box

| | | | | | |
|---|---|---|---|---|---|
| Environmental Quality | Ecological Risks | Ressource Management | Education | Health | Demographics |
| **Labor** | Equality | Technology & Infrastructure | **Safety & Security** | **Judicial system** | **Quality of Public Services** |
| **Integrity of Public Officials** | Quality and Efficacy of Regulations | **Civil Liberties/ Political Participation** | Market Access | Business Environment | Data Transparency |

| | | | | | | |
|---|---|---|---|---|---|---|
| Environment | Social | Governance | Highly significant | Significant | Less significant | Hardly significant |

The governance dimension plays a pivotal role in forming our opinion on the creditworthiness of the sovereign. As the World Bank's Worldwide Governance Indicators Rule of Law, Government Effectiveness, Voice and Accountability, and Control of corruption have a material impact on Creditreform Rating's assessment of the sovereign's institutional set-up, which we regard as a key rating driver, we consider the ESG factors 'Judicial System and Property Rights', 'Quality of Public Services and Policies', 'Civil Liberties and Political Participation', and 'Integrity of Public Officials' as highly significant to the credit rating.

The social dimension plays an important role in forming our opinion on the creditworthiness of the sovereign. Labor market metrics constitute crucial goalposts in Creditreform Rating's considerations on macroeconomic performance of the sovereign, and we regard the ESG factor 'Labor' as significant to the credit rating or adjustments thereof. What is more, exceptionally high perceived political stability would also touch upon the social dimension, which is reflected among other things by the respective WGI, and would ultimately affect the sovereign's institutional performance, so that we regard the ESG factor 'Safety and Security' as significant.

While Covid-19 may have significant adverse effects on several components in our ESG factor framework in the medium to long term, it has not been visible in the relevant metrics we consider in the context of ESG factors – though it has a significant bearing concerning economic prospects and public finances. To be sure, we will follow ESG dynamics closely in this regard.

## Economic Data

| [in %, otherwise noted] | 2016 | 2017 | 2018 | 2019 | 2020 | 2021e | 2022e |
|---|---|---|---|---|---|---|---|
| *Macroeconomic Performance* | | | | | | | |
| Real GDP growth | 5.0 | 1.3 | 2.0 | 3.3 | -1.8 | 6.9 | 1.6 |
| GDP per capita (PPP, USD) | 114,488 | 116,621 | 119,506 | 123,205 | 120,086 | 131,875 | 140,694 |
| Credit to the private sector/GDP | 153.4 | 159.9 | 162.0 | 166.6 | 162.7 | 152.9 | n/a |
| Unemployment rate | 6.3 | 5.5 | 5.6 | 5.6 | 6.8 | 5.3 | n/a |
| Unit labor costs (index 2019=100) | 99.9 | 103.0 | 105.8 | 107.4 | 107.2 | n/a | n/a |
| World Competitiveness Ranking (rank) | 11 | 8 | 11 | 12 | 15 | 12 | n/a |
| Life expectancy at birth (years) | 82.7 | 82.1 | 82.3 | 82.7 | 82.2 | 82.8 | n/a |
| *Institutional Structure* | | | | | | | |
| WGI Rule of Law (score) | 1.8 | 1.7 | 1.8 | 1.8 | 1.8 | n/a | n/a |
| WGI Control of Corruption (score) | 2.1 | 2.0 | 2.1 | 2.1 | 2.1 | n/a | n/a |
| WGI Voice and Accountability (score) | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | n/a | n/a |
| WGI Government Effectiveness (score) | 1.7 | 1.7 | 1.8 | 1.7 | 1.8 | n/a | n/a |
| HICP inflation rate, y-o-y change | 0.0 | 2.1 | 2.0 | 1.6 | 0.0 | 3.5 | 6.6 |
| GHG emissions (tons of CO2 equivalent p.c.) | 20.0 | 20.1 | 20.4 | 20.3 | n/a | n/a | n/a |
| Default history (years since default) | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| *Fiscal Sustainability* | | | | | | | |
| Fiscal balance/GDP | 1.9 | 1.4 | 3.0 | 2.3 | -3.4 | 0.9 | -0.5 |
| General government gross debt/GDP | 19.6 | 21.8 | 20.8 | 22.3 | 24.8 | 24.4 | 25.0 |
| Interest/revenue | 0.9 | 0.9 | 0.8 | 0.7 | 0.5 | 0.4 | n/a |
| Debt/revenue | 46.8 | 51.2 | 46.2 | 49.4 | 56.6 | 56.4 | n/a |
| Total residual maturity of debt securities (years) | 7.2 | 6.9 | 6.0 | 5.1 | 5.7 | 6.3 | n/a |
| *Foreign exposure* | | | | | | | |
| Current account balance/GDP | 4.8 | 4.7 | 4.7 | 4.6 | 4.1 | 4.8 | n/a |
| International reserves/imports | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | n/a |
| NIIP/GDP | 55.5 | 80.6 | 33.0 | 58.2 | 53.4 | 52.8 | n/a |
| External debt/GDP | 7,058 | 6,546 | 6,281 | 5,862 | 5,109 | 4,791 | n/a |

Sources: IMF, World Bank, Eurostat, AMECO, ECB, STATEC, IMD Business School, own estimates

## Appendix

### Rating History

| Event | Publication Date | Rating /Outlook |
|---|---|---|
| Initial Rating | 29.07.2016 | AAA /stable |
| Monitoring | 30.06.2017 | AAA /stable |
| Monitoring | 01.06.2018 | AAA /stable |
| Monitoring | 31.05.2019 | AAA /stable |
| Monitoring | 29.05.2020 | AAA /stable |
| Monitoring | 21.05.2021 | AAA/ stable |
| Monitoring | 20.05.2022 | AAA/ stable |

### Regulatory Requirements

In 2011 Creditreform Rating AG (CRAG) was registered within the European Union according to EU Regulation 1060/2009 (CRA-Regulation). Based on the registration Creditreform Rating AG is allowed to issue credit ratings within the EU and is bound to comply with the provisions of the CRA-Regulation. The rating was not endorsed by Creditreform Rating AG from a third country as defined in Article 4 (3) of the CRA-Regulation.

This sovereign rating is an unsolicited credit rating. The Ministry of Finance (MOF) participated in the credit rating process as it provided additional information and commented on a draft version of the report. Thus, this report represents an updated version, which was augmented in response to the factual remarks of MOF during their review. However, the rating outcome as well as the related outlook remained unchanged.

| Unsolicited Credit Rating | |
|---|---|
| With Rated Entity or Related Third Party Participation | YES |
| With Access to Internal Documents | NO |
| With Access to Management | NO |

The rating was conducted on the basis of CRAG's "Sovereign Ratings" methodology (v1.2, July 2016) in conjunction with its basic document "Rating Criteria and Definitions" (v1.3, January 2018). CRAG ensures that methodologies, models and key rating assumptions for determining sovereign credit ratings are properly maintained, up-to-date, and subject to a comprehensive review on a periodic basis. A complete description of CRAG´s rating methodologies and basic document "Rating Criteria and Definitions" is published on our website.

To prepare this credit rating, CRAG has used the following substantially material sources: International Monetary Fund, World Bank, Organization for Economic Co-operation and Development, Eurostat, European Commission, European Banking Authority, European Central Bank, World Economic Forum, IMD Business School, European Center for Disease Prevention and Control (ECDC), Banque Centrale du Luxembourg (BCL), Institute national de la statistique et des étude économiques (STATEC), Grand Duchy of Luxembourg – Ministry of Finance, Commission de Surveillance du Secteur Financier (CSSF).

A Rating Committee was called consisting of highly qualified analysts of CRAG. The quality and extent of information available on the rated entity was considered satisfactory. The analysts and committee members declared that the rules of the Code of Conduct were complied with. No conflicts of interest were identified during the rating process that might influence the analyses and judgements of the rating analysts involved or any other natural person whose services are placed at the disposal or under the control of Creditreform Rating AG and who are directly involved in credit rating activities or approving credit ratings and rating outlooks. The analysts presented the results of the quantitative and qualitative analyses and provided the Committee with a recommendation for the rating decision. After the discussion of the relevant quantitative and qualitative risk factors, the Rating Committee arrived at a unanimous rating decision. The weighting of all risk factors is described in CRAG´s "Sovereign Ratings" methodology. The main arguments that were raised in the discussion are summarized in the "Reasons for the Rating Decision".

As regards the rating outlook, the time horizon is provided during which a change in the credit rating is expected. This information is available within the credit rating report. There are no other attributes and limitations of the credit rating or rating outlook other than displayed on the CRAG website. In case of providing ancillary services to the rated entity, CRAG will disclose all ancillary services in the credit rating report.

The date at which the credit rating was released for distribution for the first time and when it was last updated including any rating outlooks is indicated clearly and prominently in the rating report; the first release is indicated as "initial rating"; other updates are indicated as an "update", "upgrade or downgrade", "not rated", "affirmed", "selective default" or "default".

In accordance with Article 11 (2) EU-Regulation (EC) No 1060/2009 registered or certified credit rating agency shall make available in a central repository established by ESMA information on its historical performance data, including the ratings transition frequency, and information about credit ratings issued in the past and on their changes. Requested data are available on the ESMA website: [https://cerep.esma.europa.eu/cerep-web/statistics/defaults.xhtml](https://cerep.esma.europa.eu/cerep-web/statistics/defaults.xhtml).

An explanatory statement of the meaning of each rating category and the definition of default are available in the credit rating methodologies disclosed on the website.

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Future events are uncertain, and forecasts are necessarily based on assessments and assumptions. Hence, this rating is no statement of fact but an opinion. Neither should these ratings be construed as recommendations for investors, buyers or sellers. They should only be used by market participants (entrepreneurs, bankers, investors etc.) as one factor among others when arriving at investment decisions. Ratings are not meant to be used as substitutes for one's own research, inquiries and assessments. Thus, no express or implied warranty as to the accuracy, timeliness or completeness for any purpose of any such rating, opinion or information is given by Creditreform Rating AG in any form or manner whatsoever. Furthermore, Creditreform Rating AG cannot be held liable for the consequences of decisions made on the basis of any of their ratings.



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