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In-depth review for Luxembourg

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European Commission

Luxembourg

In-Depth Review 2023



On the basis of this in-depth review for Luxembourg undertaken under Regulation (EU) No 1176/2011 on the prevention and correction of macroeconomic imbalances, the Commission has considered in its Communication "European Semester – 2023 Spring Package" (COM(2023) 600 final) that:

Luxembourg is not found to experience imbalances. Vulnerabilities relating to high house prices and high household debt have recently increased but overall seem to be contained so far and are expected to ease over the medium term. Strong population growth alongside increased mortgage credit, incentivised by fiscal support, has pushed up demand for housing, while supply has been restricted by the limited land available for construction and by land hoarding. The widening gap between housing demand and supply has resulted in strong house price increases with growing risks of house prices overvaluation and deteriorating affordability. House prices clearly cooled in late 2022, and the number of housing transactions declined sharply, as the rise in interest rates have led to a turn in the market. However, a sharp correction in house prices is not expected as incomes are holding up well and the supply shortage is expected to continue. Household debt is very high in terms of disposable income and has been increasing while borrowing cooled somewhat in late 2022. Households' financial assets are also substantial, indebtedness increases towards the higher levels of income and wealth, and the banking sector is sound, which overall mitigates macro-financial risks. Additional policy efforts, including by stepping up and prioritising the adoption and implementation of recent measures, including recurrent taxes to increase the supply of buildable land, combined with the ongoing reform of land-use planning, could help to boost housing supply, including through the supply of affordable and social housing targeted to those most in need. The efficiency of the rental market could be improved too. In addition, reducing the mortgage interest deductibility, which was recently significantly increased, would reduce the fiscal incentives to borrow which supports high house prices.

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1. INTRODUCTION

In 2022, over the previous annual cycle of surveillance under the Macroeconomic Imbalance Procedure (MIP), Luxembourg was not subject to an in-depth review to assess its vulnerabilities. ([1]) The 2023 Alert Mechanism Report published in November 2022 concluded that an in-depth review (IDR) should be undertaken for Luxembourg this year, with a view to examine newly emerging vulnerabilities and their implications. ([2]) The AMR concluded that in Luxembourg, concerns related to house price developments and high household debt had increased. Nominal house price growth was among the highest in the EU, raising concerns about overvaluation and high household debt. Household debt as a percentage of household gross disposable income was declining but remained very high. The banking sector was stable but faced some risks. Some competitiveness concerns may have been emerging, amid continued unit labour cost growth.

Luxembourg's GDP growth was above the EU average in recent years driven by solid domestic demand and net exports. The economy fared relatively well during the COVID-crisis mainly due to the large share of services in the economy and significant government support. Following a strong recovery from the pandemic in 2021, with GDP growth of 5.1%, Luxembourg's economic activity slowed to 1.5% in 2022. This decline was mainly due to lower private consumption and a fall in investments following high inflation, tighter financing conditions and geopolitical uncertainty. Going forward, real GDP growth is projected to be at 1.6% in 2023, before recovering to 2.4% in 2024, mainly due to an improvement in net exports and investments. ([3]) Following the headline inflation peak of 8.2% in 2022, on the back of elevated energy and food prices, inflation is projected to decrease significantly to 3.2% in 2023. This can be explained by the projected decrease in energy prices in combination with the fiscal support measures to limit inflation that were extended until end 2024. A further decline to 2.6% is forecast for 2024, due to a fall in all inflation components. Core inflation is expected to remain high in 2023 mainly driven by the increase in compensation of employees, before declining in 2024.

This in-depth review presents the main findings of the assessment of macroeconomic vulnerabilities for Luxembourg. The assessment is backed by a thematic section on the housing market. Vulnerabilities related to housing in Luxembourg are also discussed in a horizontal thematic note that was recently published. ([4]) The MIP assessment matrix is published in the 2023 Country Report for Luxembourg. ([5])

([1]) European Commission (2022), European Semester Spring Package 2022, COM(2022) 600 final.

([2]) European Commission (2022), Alert Mechanism Report 2023, COM (2022) 381 final.

([3]) European Commission (2023), European Economic Forecast: Spring 2023, Institutional Paper 200.

([4]) European Commission (2023), Housing Market Developments: Thematic Note to Support In-Depth Reviews, European Economy: Institutional Papers, 197.

([5]) European Commission (2023), Country Report Luxembourg 2023, SWD(2023) 616 final.

2. ASSESSMENT OF MACROECONOMIC VULNERABILITIES

Gravity, evolution and prospects

On 5 April 2023 the Commission presented a horizontal thematic note on housing market developments, including Luxembourg. It demonstrated that house prices in Luxembourg have more than doubled in nominal terms over the last decade, with a large share of this increase taking place over the last four years. As a result, the price-to-income ratio experienced one of the highest increases in the EU, reflecting affordability issues. Strong economic and demographic dynamics have driven housing demand, while supply has persistently lagged. However, a potential correction of house prices, following a significant increase in interest rates and an increase in unemployment, and considering the high household mortgage debt, raises financial stability concerns for the domestically oriented banks, which hold roughly 90% of mortgage debt.

Over the last decade, house prices in Luxembourg have increased markedly. Between 2012 and 2022, house prices have increased by 118% in nominal terms (44% in the euro area), with half of this increase taking place over the last four years. The continued strong increase of house prices in 2021, led the ESRB to conclude in February 2022 that real-estate related risks were high and that the measures in place were only partially appropriate and partially sufficient and argued for additional income-based measures, such as debt-to-income limits. ([6]) In 2022, a slowdown in house price growth was observed following the tightening of financing conditions. The y-o-y growth in 2022 still amounted to 9.6% (13.9% in 2021 and 14.5% in 2020), but the fourth quarter saw a decline in prices versus the previous quarter (-1.4%). Also the number of transactions and the mortgage volumes showed a decrease in line with the slowdown of the housing market. In 2022, house prices in Luxembourg have remained less sensitive to changes in the economic and financial environment, compared to other Member States.

Statistical indicators suggest that the long-term price increases have led to an overvaluation in the Luxembourg housing market. The Commission estimates the overvaluation gap in Luxembourg at 63% in 2022. ([7]) This is an unweighted average of three indicators in the range of 10% to 97%, which shows the wide variety of these estimates, although all point to an overvaluation. ([8])

House prices have increased faster than income, raising affordability concerns. The affordability issue is evidenced by the growth divergence between households' income and house prices, especially since 2015; real disposable income per head grew by 8%, while real house prices increased by 63% between 2015 and 2022. Therefore, the price to income ratio has risen by around 50% since 2015, one of the highest increases among the euro area Member States in

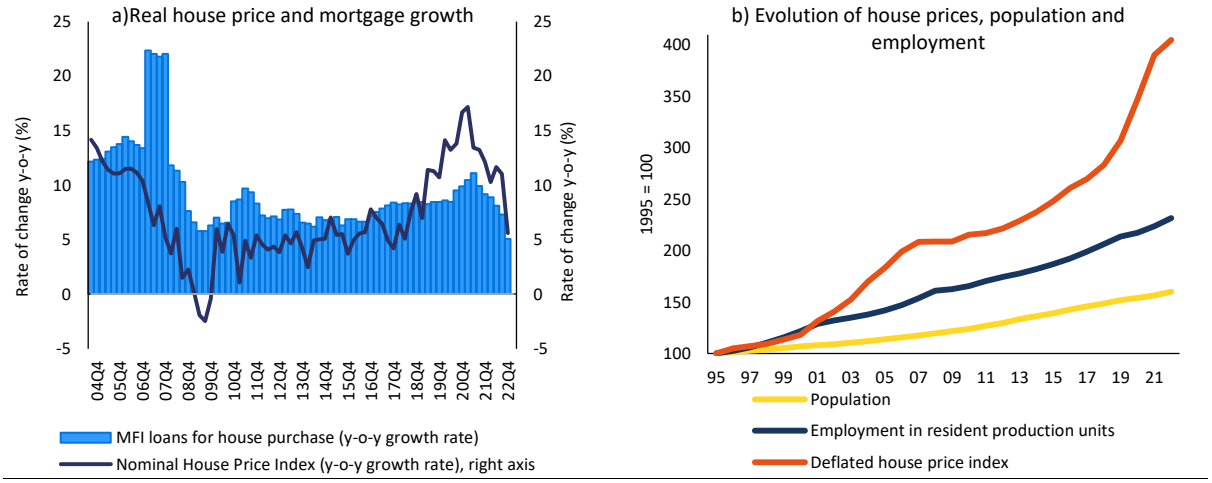
([6]) ESRB, Vulnerabilities in the residential real estate sectors of the EEA countries February 2022.

([7]) The Commission overvaluation gap is the unweighted average of the price-to-income (81%), price-to-rent (97%) and model valuation gaps (10%). The latter is an econometric model based on fundamental drivers; population, interest rates and housing supply (see also table 2.4).

([8]) BCL reported in their Financial Stability report 2022 an 26% overvaluation in first trimester 2022, the ECB reports a 54% average overvaluation gap end 2022.

2021. ([9]) The affordability concern is aggravated by the fact that only 2% of the total housing stock is rented at social and affordable prices. ([10])

Graph 2.1: **House price, credit, population, and employment**



Source: Eurostat, ECB and European Commission services

The strong economic growth has led to a high increase in employment and disposable income, also stimulating demand for housing and mortgage credit. An uneven acceleration of demand across income quartiles was observed in recent years. It was especially strong among the higher income levels, while demand from the bottom quartiles decreased in relative terms. Four packages of high energy price support measures have been adopted by the government since 2021, supporting income and employment until the end of 2024.

Demand was further stimulated by a higher participation of (foreign) investors attracted by the high house price increases. The higher participation from investors, notably in the market segment of newly built apartments, also contributed to pushing up house prices. Over 40% of this type of dwellings were purchased by investors between 2015 and 2021 ([11]), pointing to a demand shift towards buy-to-let investments. The fall in real ([12]) rental yields did not discourage buy-to-let investors. This implies positive expectations on tax advantages and capital gains. ([13]) Investors' participation seems to have started to decline in 2021 following the 80% loan-to-value (LTV)-limit and more strongly in 2022 following the rise in interest rates. Despite the increases, buy-to-let housing remains limited in the housing market. ([14])

The strong increase in mortgage credit has fuelled the large house price increases, and fiscal support has contributed to this. The growth in employment and income combined with very low financing costs and strong fiscal support have spurred mortgage growth since the 2008-2009 financial crisis. Borrowers benefited from historically low mortgage rates, which increased their capacity to borrow. The large fiscal support to home ownership partly explained the higher credit growth in recent years, compared to other Member States (see also Box 1). The 2017 tax

([9]) ESRB, 2022.

([10]) Note-30-en-bref.pdf (public.lu).

([11]) Ministry of housing, 2022.

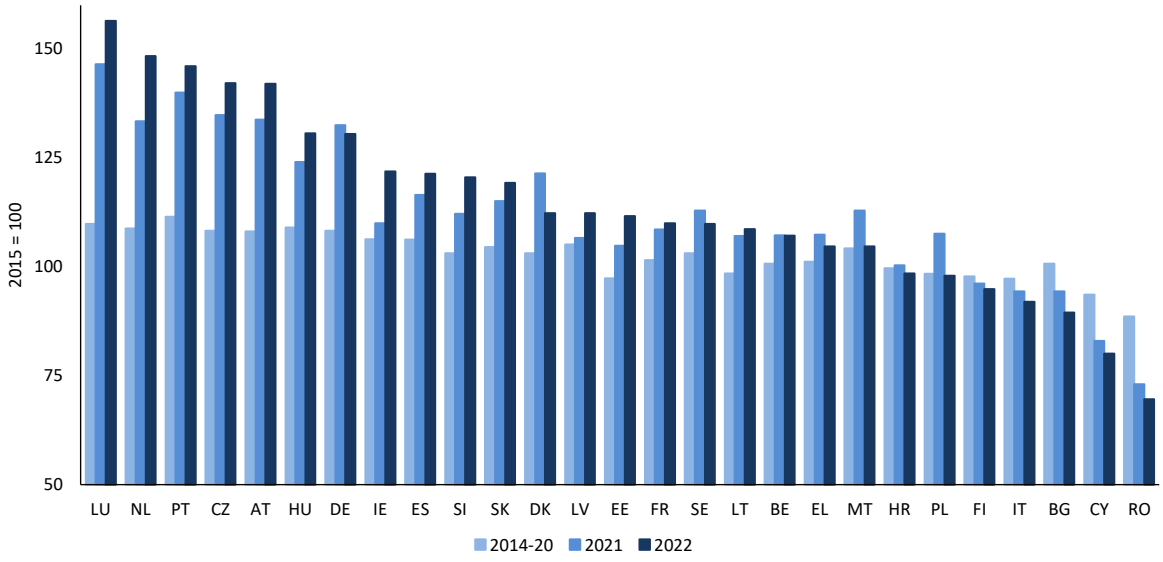
([12]) In January 2021, differentiate loan-to-value limits were enforced: 100% for first time buyers, 90% for primary residents and 80% buy-to-let and other investors.

([13]) Rental income is also capped at 5 percent of the purchase value of the dwelling, but tax deductions stimulate the return on investment during the first five years after purchase. Rents can be revalued when tenants change.

([14]) Eurostat House or flat – owning or renting (europa.eu).

reform abolished the taxable rental value and increased mortgage interest deduction for the main residence and introduced an increased threshold for deducting home purchase savings contributions. In 2015, the ceiling for the VAT super reduced rate on newly constructed home, previously linked to the value of the house, was replaced by a ceiling on deductibility. In 2017, the temporary budgetary compensation tax of 0.5 percent was abolished, and several tax credits have been introduced. Together, these various fiscal measures represent large support. ([15]) This makes Luxembourg as one of the highest spenders on housing subsidies in advanced economies. The borrowing capacity of most households have decrease due to higher mortgage rates in 2022 and a deterioration of real incomes due to elevated inflation. This is slowing down demand and a sharp decline in the growth rate of mortgages has been observed. ([16]) In the last high energy price support package, the government took two fiscal measures to support mortgage demand (see also policy section).

Graph 2.2: **Price-to-income ratio**



Source: Eurostat and European Commission services

Strong demographic dynamics have driven up the housing demand, with housing supply persistently lagging demand. Between 2010 and 2021, the population increased by around 30% (versus 5% in the euro area), more than 7,000 households per year ([17]). Meanwhile, the pace of production of new dwellings was below 4,000 units per year (Graph 2.6, panel b), significantly below estimated demand between 6,200 and 8,000 ([18]). This has resulted in a structural housing shortage and increased pressure on house prices. This has been partly mitigated by the cross-border housing market, with an increasing number of non-resident workers commuting across borders every day, mainly from Germany, France and Belgium. Commuting workers reached 204.6 thousand in 2021, around 42% of domestic employment. This creates a large pool of pending demand for housing in Luxembourg. The low supply of housing is also due to the high concentration

([15]) Estimated at 2.5% of GDP by Girshina, A. et al. 2022.

([16]) BCL statistic tables (11.7 and 11.9).

([17]) Furthermore, population is playing a critical role in the county's broad economic performance, and in particular in the sustainability of public finances over the long term. In this regard, Luxembourg has been repeatedly addressed Country Specific Recommendations to ensure the sustainability of its public finances. This is part of the macroeconomic and budgetary surveillance carried out by the Commission in the framework of the European Semester (see Council Recommendation, 2022, and European Commission, 2021, for a detailed presentation of estimates).

([18]) Estimated housing demand range between 6,200 and 8,000 housing units per year, from 2018 to 2030, required to achieve a GDP growth of 3% on average per year, depending on the assumptions on the share of cross-border workers STATEC, 2019.

of land ([19]) which allows landowners to adjust markups and reap a larger share of the fiscal support to homeowners. ([20])

The stock of social housing is one of the lowest in the EU. The limited stock partly reflects the preference of public providers who used to allocate about one third of constructed units to renting and two thirds for sale and the past practice of allowing re-sale of subsidised housing on the non-subsidised housing market.

Construction activity has slowdown in 2022, driven by the rise in interest rates, but the impact on GDP is expected to be small. Construction activity started to slow down in 2021, following disruptions in production chains and higher inflation, which significantly raised construction costs. With the rise in interest rates housing demand from households and buy-to-let investors ([21]) weakened, slowing down supply and reducing construction activity. The lower activity in residential construction is expected to have a small impact on the country's aggregate economic growth, since its weight is less than 5% in GDP. ([22])

Existing rental prices have increased much slower than consumer prices, in contrast with advertised rents that have even accelerated in the short term. Rental prices increased by 1.3% on average per year from 2010 to 2022, which was lower than growth of the harmonised consumer prices, despite a small acceleration in 2022 to 2%. Existing rents are not regularly adjusted for inflation, partly because automatic indexations are not enforceable in lease contracts and need to be negotiated between the owner and the tenant. New rents are significantly higher than existing ones. Advertised ([23]) rental prices increased by around 3%, on average per year, in line with inflation, and accelerated significantly, (by 8.0% in Q4-2022 year-on-year) in line with the harmonised index of consumer prices (8.4% in Q4-2022 year-on-year). This increase might be explained by further demand shifting from home ownership towards renting, a trend also observed in previous years (between 2017 and 2021 the share of tenants increased by 3.6pps to 28.9%). ([24]) This could be due to increased affordability problem, which is likely to be aggravated by the introduction of loan-to-value limits in 2021 and the rise in interest rates in 2022.

The rise in interest rates has led to a turn in the housing market but a sharp correction in house prices is not expected. While the financial cycle has entered a downward trend a sharp housing price drop is not expected. The impact on prices tends to be dampened by supply adjustments ([25]), therefore price volatility from a cyclical downturn is expected to be weaker in Luxembourg, compared with other Member States. Although house prices declined q-o-q in Q4-2022, for the full year a still high price growth of 9.6% was observed. Considering the sharp decline in the number of transactions and mortgage credit amounts, such a steady growth in house prices appears remarkable. It also results from the practice of sales retention by developers to

([19]) Despite the relative abundance of constructible land in Luxembourg, land supply appears to be a key limiting factor for housing supply, supporting house price inflation. The price of constructible land, which accounts for 20%-40% of the housing sales value, increased by 136.5% between 2010 and 2021, higher than house prices.

([20]) Girshina, A. et al. 2022.

([21]) Since rising interest rates makes real estate investment more expensive, and at the same time alternative investments become relatively more profitable.

([22]) According to Luxembourg Annual National Accounts, Gross fixed capital formation dwellings and GDP (EUROSTAT).

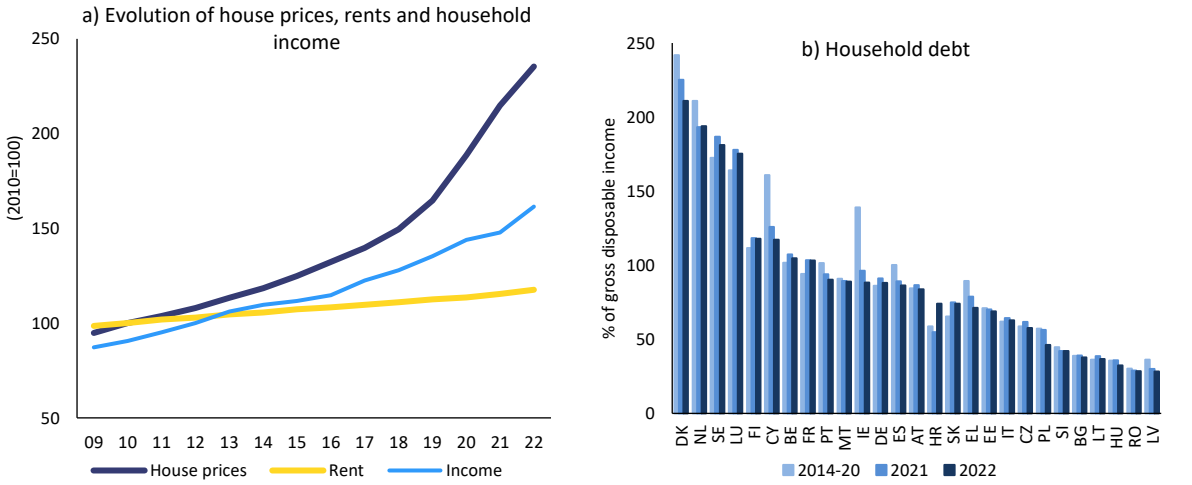
([23]) This indicator is published by STATEC based on data collected from estate retailers and provides a gauge of current prices for households accessing the rental market, as opposed to the standard indicator of rental prices, which includes all existing rents. Figures need to be taken with care though, since they are not adjusted for the characteristics of the dwellings announced and may diverge from the rent eventually agreed between owner and tenant.

([24]) Eurostat: Statistics | Eurostat (europa.eu).

([25]) In this line, house sellers respond swiftly, adjusting activity, to dampen negative short-term price dynamics.

sustain price levels ([26]), in expectation of demand to recover momentum. ([27]) The labour market is expected to remain resilient with solid domestic employment growth of 2.4% in 2023 and 2.3% in 2024 and a low level of unemployment (4.8% in 2023 and 5.0% in 2024) (Commission Spring 2023 forecast). Therefore, disposable income, supported by the automatic wage indexation, is expected to continue to grow. After the 'absorption' of the interest rate shock, the structural higher demand versus supply is expected to continue to drive house price increases.

Graph 2.3: **House price, rent and income (nominal terms) in Luxembourg and household debt-to-income ratio in EU Member States**



Source: Eurostat and European Commission services

In recent years, concerns have increased with regard to the housing market because of the high household debt, especially in terms of disposable income. Household debt as percentage of disposable income continued trending upward and is substantially higher compared to other Member States. At an aggregate level, household debt reached 180% of disposable income in 2022, 61% above its long-term average, which is one of the highest deviations from its historical average among the EU Member States. Household debt is largely attributable to the strong growth in residential real estate loans, as bank mortgages account for more than 80% of household debt (146% of disposable income). A long period of supportive financial conditions and fiscal policies have favoured home ownership over tenancy contributing to sustain mortgage credit growth. In line with growth of house prices, mortgage credit increased steadily since 2009, at a stable rate of 5.4% on average in real terms (Graph 2.3). Households require a larger share of their income to pay their mortgages, which limits the access to home ownership for an increasing proportion of the population, especially among lower income households, such as starters and young households.

The risk for the domestic banks is mitigated because a large share of debt is owed by wealthy households. Luxembourg's has a large financial sector but just a few national banks are exposed to the housing market. Domestic banks are exposed to vulnerabilities related to high housing price declines and the high household debt. However, a significant share of the financial sector is internationally oriented and with a high level of foreign ownership. The activities of foreign banks are mainly cross-border intra-company and international corporate finance and investment focused and therefore have a limited interaction with domestically oriented banks. Households' financial assets are also high, therefore mortgage debt appears to be well covered by the liquid financial assets at an aggregate level. Net financial assets compared to the national income are

([26]) The construction sector is run by a few large companies, which also own land (Observatoire de l'Habitat, 2022 and 2021).

([27]) STATEC, 2023.

close to the euro area aggregate, at 267%, and total savings and deposits, which reached EUR 54.7 billion in Q3-2021, are above the aggregate stock of debt of EUR 50.9 billion. Moreover, a distributional perspective on mortgage affordability and debt-to-income and wealth levels point to lower vulnerabilities in the household sector than the aggregate measures might suggest. In addition, lower income households hold lower debt, as breakdowns of households by both income and wealth show. Among the lower income households there are relatively fewer homeowners and more tenants. Whereas the average cost of mortgage loans increased over the period 2020 to 2022, it remains low, rising from 1.32% to 1.46%, while only 5.4% of homeowners with a mortgage had a housing debt burden above 25% of their disposable income, compared with 13.6% in the EU. ([28]) Furthermore, the proportion of mortgages at adjustable rates has significantly decreased recently and currently stands at 40%, while most of the mortgages granted in recent years were at fixed rates. ([29]) Finally, the highly resilient labour market and very low unemployment rates, sound public finances and strong social security are important factors supporting borrowers' debt servicing capacity and contributing to the high level of financial stability in Luxembourg.

Banks' buffers appear sufficient to absorb potential shocks stemming from the residential real estate market and mortgage debt. Nearly 90% of mortgage debt is held by five domestically oriented banks (out of around 120 MFIs operating in Luxembourg) and accounts on average for around 25% of their total assets. The effects of stress tests carried out by the Central Bank of Luxembourg showed a potential decline in the solvency ratio ranging from 0.8pps to 3.1pps, to reach a ratio of 15.9% in the worst-case scenario of a fall in residential property prices induced by the estimated default probabilities. ([30]) The weighted average loan-to-value ratio of the domestic banks active in the residential real estate market, declined from around 78% to 76% in 2021, while the weighted average loan service to income ratio of the five domestic banks has crept up over the past two years, from 28% in the first half of 2019 to 33% in the second half of 2021, which is relatively low compared to other Member States. Therefore, the data in 2021 suggests that the introduction of additional capital measures and loan-to-value limits had a dampening effect on mortgage loan flows and domestic banks appear to have sufficient capital to absorb housing market shocks.

In general, banks are well capitalised and liquid, and profitability has increased in 2022. Financial risks for the banking sector mainly stem from the impact of further monetary policy tightening and the potential heightened volatility in financial markets. Despite the high level of uncertainty surrounding economic activity, banks' balance sheets are sound. The rising key rates weigh on demand for loans, but also support banks' net interest rate margin, which increased by 39% in 2022 and is expected to increase also in 2023. ([31]) The common equity tier one (CET 1) ratio remains at 17.6% well above the legal threshold, in Q2-2022 (at 21.4% for domestically oriented banks). ([32]) The ESRB and BCL projections show that the credit-to-GDP gap, which is the standard measure recommended by the ESRB to calibrate the counter cyclical capital buffer, turned negative in 2022 and is expected to remain negative over 2023. ([33]) Although the level of credit-to-GDP is below its long-term trend, due to the high degree of uncertainty surrounding these projections, the National Systemic Risk Board decided to maintain the countercyclical capital buffer at the level of 0.5%, in place since January 2021.

([28]) BCL FSR 2022.

([29]) BCL, 2022.

([30]) BCL FSR 2022.

([31]) STATEC, 2023.

([32]) Macro charts Consolidated banking statistics for Luxembourg, domestic stand-alone banks.

([33]) CdRS, 2023.

Assessment of MIP relevant policies

Household debt remains high in Luxembourg and is incentivised by mortgage interest deductibility which was recently increased. The government announced an increase of the mortgage interest rate tax deductibility and a higher tax credit, as part of the government support measures in Solidariteitpak 3.0. The government has announced a 50% increase of the mortgage interest deductibility and an increase in the tax credit from EUR 20 000 to EUR 30 000 for purchasing building land and residential buildings. Although, this measure is in response to the higher interest rates and the currently observed slowdown in the housing market, its permanent nature will further stimulate demand for housing that is already structurally high (see also Box 1). Conversely, Luxembourg implemented LTV-limits in 2021, which should have a dampening effect, although the ESRB concluded in 2022 that measures in place were only partially appropriate and partially sufficient and argued for additional income-based measures, such as debt-to-income limits.

The tax system favours homeownership compared to other housing tenures, such as renting, which contributes to strong housing demand. The favourable tax treatment of owner-occupied housing is likely to benefit high-income households the most. This is particularly true for the deductibility of mortgage interest, which is generally regressive, because high-income households are much more likely to finance their house with mortgage debt. Gradually phasing out mortgage interest rate deductibility would make taxation of owner-occupied property less regressive. The introduction of a progressive recurrent tax schedule to the owner and an increase in the recurrent taxes on immovable property that is based on regularly updated property values also reduce regressivity of tax systems. However, unless cautiously designed, the introduction of higher recurrent taxes can have a negative impact on affordability of households with low incomes and less liquid assets.

The government has presented a package of three tax measures in order to address some of the supply side obstructions. The package contains a reform of the current land tax (IFON), the introduction of a tax on the mobilisation of land (IMOB) and on the non-occupation of dwellings (INOL). The tax measures aim to increase the supply of land and usage of constructable land and unoccupied dwellings and therefore is a step in the right direction. However, the package still needs to pass the legislative process and is implemented over several years, therefore, it's too early to assess its effectiveness in addressing the supply side vulnerabilities. The government also presented some new amendments regarding the *Baulandvertrag* bill on 9 November 2020. This draft law aims to improve the effectiveness of measures relating to the implementation of urban development plans ("PAG") to speed up the construction process for new housing. In addition, the government plans an increase in public investments in housing to support supply, raising them from 3% of total investments in 2022 (EUR 83mln) to 8% (EUR 313mln) in 2026 according to the multi-annual budget.

Luxembourg does not have a dynamic rental market and rent setting is strongly regulated. An increase in the share of rental housing could improve the dynamics of the housing market. The draft law on residential rental lease, tabled on 31 July 2020 by the Luxembourg Minister of Housing, is still being debated and no solution before the elections in October 2023 is foreseen. The law aims to reduce the ceiling on rents, set a maximum deposit amount as guarantee and increase the transparency of the rent setting to get a 'fairer' private rental market. Especially the rent setting policy with the current '5% rule' does not seem to be effective in increasing transparency nor limiting rent increases. In addition, the government aims to increase the construction of rentals in the housing stock via both public and private developers.

The stock of social housing is one of the lowest in the EU. However, efforts to increase the share of social rental housing are underway. The sale of social housing has taken the form of a long-term lease, which is welcome as it effectively captures the value of developed land, which remains a property of the public housing providers. However, the provision of social and affordable housing remains insufficiently for low-income households. To overcome existing municipal resistance to densification, the Housing Pact 2.0 targets were extended to include additional criteria, such as numerical targets for social housing construction for municipalities. ([34]) The government plans to increase public investments to support the supply of affordable housing and affordable and social rentals, in cooperation with the public promoters *Fonds de Logement* and *Société Nationale des Habitations à Bon Marché*. At the start of 2022, Luxembourg announced a reform of the legal framework on housing to improve affordability. Housing support will be reformed by two bills that will replace the current law. The first bill will establish a clear framework for financing affordable housing and supporting its inhabitants. The second bill will extend and simplify individual support schemes for housing, both rented and owned in the private market. The objective of this reform is to ensure the right to housing and foster social cohesion. It is too early to assess the impact of these bills on affordable housing supply at this stage.

The densification of the existing urban and suburban space in the immediate vicinity of transport network hubs, in particular railway stations, facilitates the use of public transport. In that way, densification could lead to shorter commuting trips and encourage alternative means of travel, which tends to be more competitive with car travel over short distances. The measure for free public transport was appropriate in this sense. The recent sustainable mobility strategy emphasises both the multimodal and cross-border dimension and plans to double the number of park and ride facilities, including at the borders, by 2030. As the main transportation flows also involve cross-border travel, infrastructure projects require preparation with support and participation of the neighbouring regions and close involvement of border municipalities, public and private providers of rail and road transport.

([34]) One of the Housing Pact 2.0 objectives is a higher number of affordable housing in each 'plan d'aménagement particulier nouveau quartier' (PAP NQ)": a certain percentage of the constructed gross area for housing (10% min) is reserved for affordable housing. The land on which these houses will be built is transferred to the municipality or the State. In return, the building potential reserved for housing is increased by 10% compared to the 'plan d'aménagement général' (PAG).

Box 1: Mortgage Interest Tax Relief in Luxembourg

Taxation has been used in many countries with the objective of subsidising homeownership. One of the most common used tax policies is the possibility for homeowners to deduct the interest paid on their mortgage from their taxable income, reducing the amount of income tax that they owe. This measure is commonly known as Mortgage Interest Deduction (MID) or Mortgage Interest Tax Relief (MITR). MITR has been a part of the Luxembourg's tax code since 1983 and has been updated since then. As Table 2.1 shows, the level has increased over time, and there have been two recent increases in 2017 and 2023. Since the beginning of 2023 interest payments of 3 000 euros per person could be deducted from taxable income by households that have occupied their house in 2018 or after, for the first 6 years of occupancy. This represents an increase of 50% of deductible interest payments from 2022 and corresponds to a deductible amount of 12 000 euros per annum for a family of four.

Table 2.1:**Evolution of maximum mortgage interest deductible from taxable income**

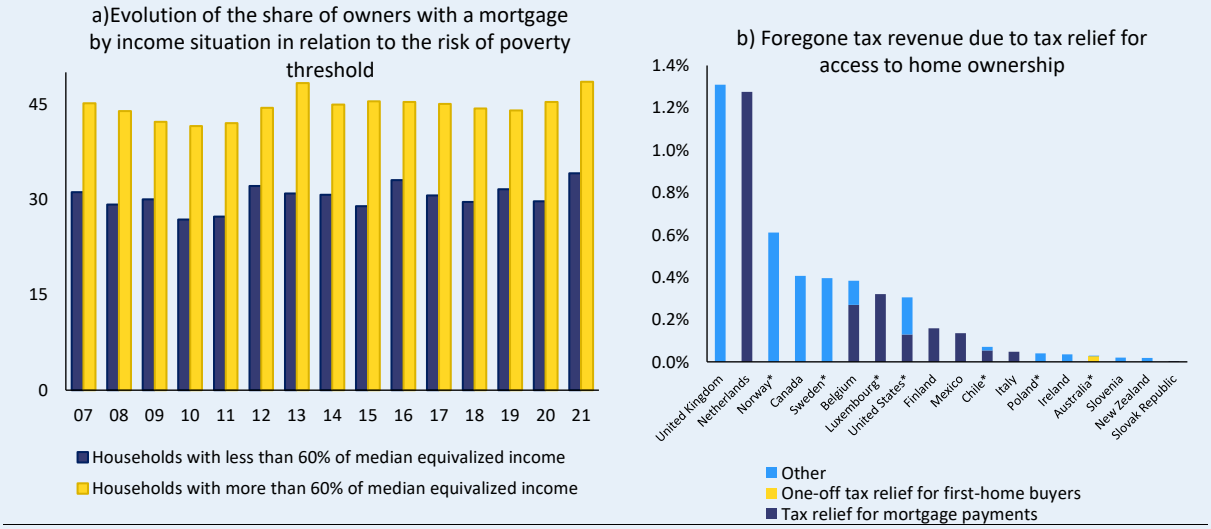
Period		Annual limit per person		
1983-1985	LUF 10000 (EUR 247.89)			
1986-1987	LUF 20000(EUR 495.79)			
1988-1990	LUF 30000(EUR 743.68)			
		Occupied from 1991 onwords:	Occupied between 1981 and 1990	Occupied before 1981
1991-2001	First 6 years of occupancy	LUF 60000 (EUR 1487.36)	LUF 45000 (EUR 1115.52)	LUF 30000(EUR 743.68)
	For each of the next 5 years	LUF 45000 (EUR 1115.52)	LUF 37000 (EUR 917.21)	LUF 30000(EUR 743.68)
	For each year thereafter	LUF 30000 (EUR 743.68)	LUF 30000 (EUR 743.68)	LUF 30000(EUR 743.68)
2002-2016	First 6 years of occupancy	EUR 1 500		
	For each of the next 5 years	EUR 1 125		
	For each year thereafter	EUR 750		
2017-2022	First 6 years of occupancy	EUR 2000		
	For each of the next 5 years	EUR 1500		
	For each year thereafter	EUR 1000		
2023 onwards	First 6 years of occupancy	EUR 3000		
	For each of the next 5 years	EUR 2250		
	For each year thereafter	EUR 1500		

Source: For the legal basis, please follow the link: https://www.legilux.public.lu/eli/etat/leg/rgd/1968/07/12/n2/jo

The objective of governments when they introduce the MITR is to subsidise home ownership, usually for specific groups, by reducing the burden of interest payments on the mortgage. If supply of housing is elastic, it could be expected to increase in response to the increased demand. However, in the case of inelastic, or weakly elastic supply, mortgage interest relief acts only or primarily to increase demand and drives up property prices. It then acts as a transfer to home sellers, who are able to secure higher prices for the homes they sell. This is particularly the case for untargeted measures, which are available to all borrowers, rather than a subset.

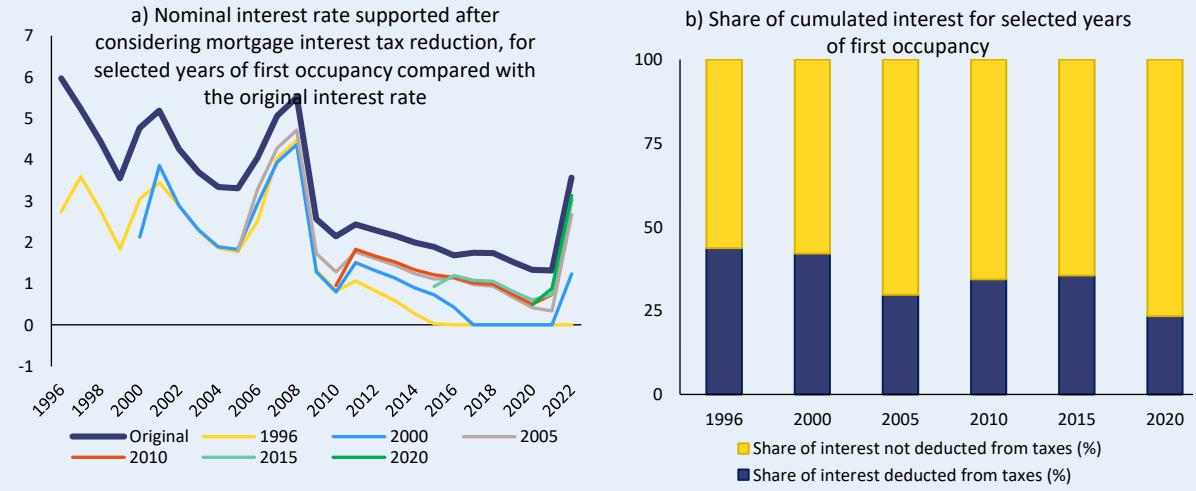
In addition, MITR primarily benefits high-income earners who can afford to purchase expensive homes. This means that lower-income and middle-class families who may struggle to afford a home do not benefit as much from this deduction (Andrews, Dan and Aida Caldera Sánchez (2011)). The evolution of the share of owners with a mortgage (see Graph 2.4 a) in Luxembourg is quite stable and also evidence that high-income families are more likely to have access to mortgages. MITR in the case of Luxembourg is translated in a significant lower effective interest rate (see Graph 2.5 a), in the case of high-income households, which raises households borrowing constraints, driving up prices significantly. Finally, it can lead to a significant loss of revenue for the government, as it reduces the amount of income tax that is collected (see Graph 2.4 b and 2.5 b).

Graph 2.4: **Share of owners and foregone tax revenue**



graph b: OECD Affordable Housing Database, available in https://www.oecd.org/els/family/PH2-2-Tax-relief-for-home-ownership.pdf (please check also for notes).
Source: European Commission services

Graph 2.5: **Nominal interest rate**



The value of the mortgage is the estimated as 100% LTV required to acquire a 100m2 dwelling, by back casting the 2022 price per square meter in 2022 (EUR 8901, source STATEC), max marginal income tax rate of 46.62%, 30 years loan, family size equal to 4 persons. It is assumed that the occupancy in the first year of occupancy starts in beginning of July, meaning that there are only 6 monthly payments.
Source: ECB and European Commission services

For a significant share of potential house buyers their demand is determined by their access to credit or borrowing capacity. The borrowing capacity of a household is the loan that a household can repay using a share of their monthly income. It increases with income and decreases when the interest rate rises. An increase in MITR its equivalent to a decrease in interest rates and therefore it increases the borrowing capacity. Table 2.2 presents an illustrative scenario about how the change in MITR implemented in 2023 affect the amount households can borrow to by property. It shows that the increase in the MITR is equivalent to an increase in the borrowing capacity of 4.4% (see Table 2.2). Conversely, a complete elimination of the MITR would translate into a decrease of the amount that can be borrowed by 11.6%. These scenarios present an illustration of the possible range of impacts that changes to the MITR can have on house prices.

Table 2.2:**Impact of different MITR policies in households borrowing capacity**

MITR policy scenario	Supported interest	Interest compensated by tax reduction	Loan amortization	Sum of monthly payments	Borrowing capacity with constant income	Change in borrowing capacity vs MITR in 2022	Change in borrowing capacity vs MITR in 2023
	(euros)	(euros)	(euros)	(euros)	(2022 MITR policy = 100)	(%)	(%)
MITR = 0	31324.7	0	16937.2	48262	92	-7.7	-11.6
MITR = 2000 per person	27595.1	3729.6	16937.2	44532.4	100	0	-4.2
MITR = 3000 per person	25730.3	5594.4	16937.2	42667.6	104	4.4	0

(1) The value of the mortgage is the estimated as 100% LTV required to acquire a 100m2 dwelling, considering the 2022 price per square meter in 2022 (EUR 8901, source STATEC), max marginal income tax rate of 46.62%, 30 years loan, family size equal to 4 persons and the average mortgage interest rate in January 2023 (source ECB)..
Source: European Commission services

References:

Andrews, Dan and Aida Caldera Sánchez (2011), *"The Evolution of Homeownership Rates in Selected OECD Countries: Demographic and Public Policy Influences",* OECD Journal: Economic Studies, Vol. 2011/1.

OECD (2021), *Brick by Brick: Building Better Housing Policies,* OECD Publishing, Paris.

OECD (2022), *Affordable Housing Database.*

OECD (2022), *Housing Taxation in OECD Countries*, OECD Tax Policy Studies, No. 29, OECD Publishing, Paris,

Overall, a number of structural challenges remain to address the mentioned vulnerabilities. The fiscal treatment of housing tenure stimulates homeowner occupancy especially via mortgage interest deductibility and other fiscal instruments supporting homeownership. The recent planned reforms of the recurrent taxation of immovable property based on up-to-date real estate valuations and measures increasing the opportunity costs of unused land in urbanised areas and unoccupied dwellings are focused on supply-side restrictions. These measures combine with ongoing reforms of spatial planning to accelerate a more efficient land-use across the national territory, including measures involving municipalities in selectively increasing residential density in areas well-connected to the transport network. Furthermore, measures aiming to align housing supply and demand are more effective when integrated in policies including local, regional, and national level. This strategy should ensure consistency with complementary critical policy areas, such as transport and education, and their contribution to social impact and environmental sustainability. Housing affordability has been deteriorating in particular for low-income households that do not profit from subsidised social or affordable housing. The increase in supply of social rental housing can reduce the affordability issue, especially if access to it is made conditional on recurrent means testing ensuring better targeting to those most in need. The functioning of the private rental sector can benefit from relaxing the rules on renting parts of housing units and from conversion of existing dwellings into rental housing.

Conclusion

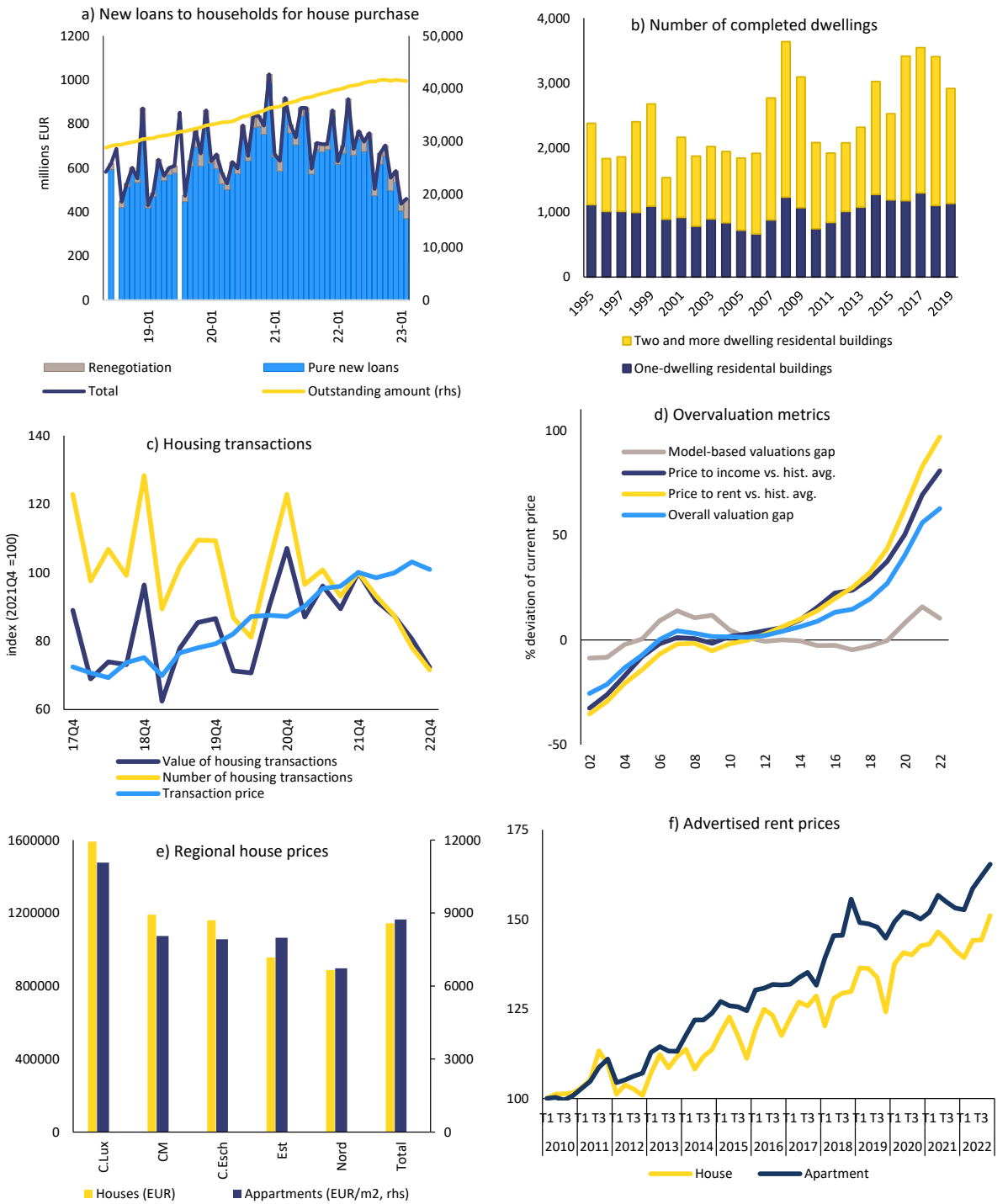
Luxembourg faces vulnerabilities relating to high house prices and high household indebtedness. Strong population growth pushed up the demand for housing in Luxembourg. The supply of housing has not kept up with demand, restricted by the limited use of land available for construction and the practice of land hoarding. The increasing gap between housing demand and supply resulted in strong house price increases and deteriorating affordability of housing. Increases in the price-to-income ratio mainly reflect high valuations of residential real estate, which rose faster than incomes, leading to increasing financial risks related to household indebtedness. This long-term price dynamics have led to an overvaluation in the housing market according to the standard metrics. Affordability concerns have increased in the Luxembourg housing market, as household debt in terms of disposable income continued trending upward and remains substantially higher, compared to other Member States. Despite high household debt, the supply shortage in Luxembourg's housing market helped cushioning the turn of the financial cycle. Strong fiscal position allowed the government to introduce measures to support households and firms and stabilise the economy. Households' financial assets are also high and because indebtedness increases towards the higher levels of income and wealth, this mitigates the risks.

Significant policy measures have been adopted, which will contribute to addressing vulnerabilities relating to housing debt and house prices in the medium term, but structural challenges remain. National authorities activated both capital and borrower-based macroprudential measures with effect from 1 January 2021 to reduce mortgage credit related financial risks. The measures adopted to increase the supply of housing, include tax reforms for unused land and empty dwellings, the promotion of affordable and social housing, and the reform of the rental market, which constitute a significant progress in addressing the housing market issues. However, considering the current slowdown a step-up in efforts and prioritise their implementation can stimulate housing supply more swiftly. The supply side fiscal measures can be more effective in combination with the ongoing reform of land-use planning. Moreover, a reduction or elimination over time of the mortgage interest rate tax deductibility, that was recently increased, would reverse the current situation where fiscal policy subsidises indebtedness, increases borrowing and stimulates demand and provide a windfall gain to home sellers. The structural imbalance between housing demand and supply is expected to continue to drive up house prices in the medium term. An increase in the supply of social rental housing and better targeted to the most in need can alleviate the affordability issue. Lastly, a better collection of data in the real estate market can improve the design of policies and to monitor their implementation.

Based on the findings in this in-depth review, the Communication "European Semester – 2023 Spring Package" sets out the Commission's assessment as to the existence of imbalances or excessive imbalances in Luxembourg, in line with Regulation 1176/2011. ([35])

([35]) European Commission (2023), European Semester Spring Package 2022, COM(2023) 600 final.

Graph 2.6: **Selected graphs, Luxembourg**



graph e Publicité Foncière, STATEC calculations - Habitat Observatory, transactions from January 1, 2022 to December 31, 2022; Note: C.Lux stands for the canton de Luxembourg, CM stands for the combined area of the cantons of Capellen and Mersch, C.Esch stands for the canton d'Esch-sur-Alzette. The east zone corresponds to the cantons of Echternach, Grevenmacher and Remich. Finally, the northern zone includes the cantons of Clervaux, Diekirch, Redange, Vianden and Wiltz

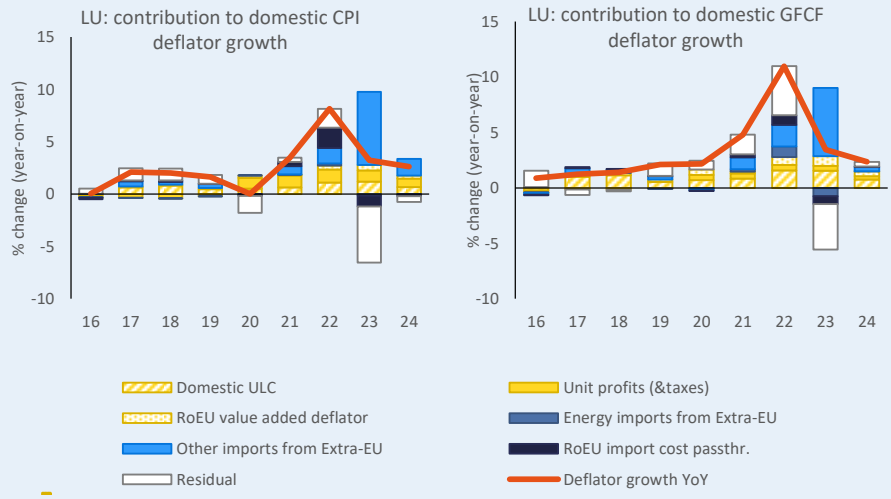
Source: Statec, Eurostat and European Commission services

Box 2: Inflation exposures and cross-border pass-through

This box sheds light on the sources of inflation in Luxembourg and its spill-overs with EU partners. The period since 2021 has been characterized by pandemic aftershocks and global supply chain disruptions compounding global inflationary pressures and a surge in commodity prices triggered by Russia's war of aggression against Ukraine. As a result, inflation in Luxembourg surged to unprecedented levels. In response, wages and profits also picked up across the EU, which further added to price pressures in Luxembourg. With input-output data, domestic inflation can be decomposed into the contributions from key cost factors. Taking into account some data limitations, the framework can be used to attribute consumer and investment price changes to i) extra-EU import price changes, which include both directly imported inflation and inflation passed through from EU partners import costs ii) domestic unit labour cost changes iii) domestic unit profit changes, including indirect taxation changes and iv) rest-of-EU value added price changes. ([36])

Data suggests that much of inflation in Luxembourg in 2022 reflected surging import prices, which are projected to continue driving inflation over the forecast horizon. In 2022, as shown in Graph 2.7, extra-EU price changes and costs passed through EU partners were a key driver of consumption and investment inflation. Energy inflation contributed only mildly. Spill-overs from value added inflation in other EU countries also remained limited. The contribution from domestic value-added inflation, which covers wages and profits, was significant in 2022 and is expected to remain sizeable in 2023 and 2024. This reflects increases in both, unit profits and unit labour cost, with a slightly stronger impact from the latter. Still, consumer and investment inflation is expected to be sustained mainly by non-energy imports from outside the EU. Value added inflation in EU partners is also set to contribute somewhat, particularly to investment inflation.

Graph 2.7: **Components of gross fixed capital formation deflator growth and consumer price inflation**



Source: European Commission services

([36]) The graphs below are based on national accounts data and the Commission's Spring 2023 forecast, which are combined through a 'Ghosh' matrix based on Eurostat's Figaro input-output available for 2015-2020. HICP is taken as the measure of the price of private consumption, including non-residents. Energy import prices from extra-EU reflect realised median prices until 2022, and energy price assumptions underlying the Spring forecast thereafter. Other goods prices reflect median Eureopan prices per industry until 2022, and forecast non-energy goods and service trade prices for 2023-2024. Value added deflators are assumed to affect all industries within a country to the same degree. For a similar analysis using an input-output-based methodology, see "Inflation Differentials in Europe and Implications for Competitiveness: Thematic Note to Support In-Depth Reviews" European Commission 2023, Institutional paper 198.

Table 2.3:**Selected economic and financial indicators (Part 1), Luxembourg**

all variables y-o-y % change, unless otherwise stated	2003-07	2008-12	2013-18	2019	2020	2021	2022	forecast 2023	2024
Real GDP	4.7	0.6	2.6	2.3	-0.8	5.1	1.5	1.6	2.4
Potential growth (1)	3.9	2.2	2.2	2.2	1.9	1.9	2.2	2.3	2.3
Contribution to GDP growth:									
Domestic demand	1.8	1.9	1.4	2.7	-1.7	5.0	1.4	0.9	1.5
Inventories	0.3	-0.1	0.2	0.1	-0.3	0.4	-0.1	0.0	0.0
Net exports	2.5	-1.3	1.0	-0.4	1.2	-0.3	0.2	0.7	0.9
Contribution to potential GDP growth (1)									
Total Labour (hours)	1.9	1.3	1.6	1.7	1.4	1.4	1.9	2.2	2.1
Capital accumulation	1.3	1.3	1.0	0.8	0.7	0.8	0.7	0.6	0.6
Total factor productivity	0.7	-0.3	-0.5	-0.3	-0.2	-0.3	-0.5	-0.5	-0.4
Output gap (2)	1.1	-1.5	-0.8	-0.5	-3.2	-0.1	-0.8	-1.5	-1.4
Unemployment rate	4.4	4.9	6.0	5.6	6.8	5.3	4.6	4.8	5.0
Harmonised index of consumer prices (HICP)	3.0	2.7	1.1	1.6	0.0	3.5	8.2	3.2	2.6
GDP deflator	3.7	3.8	2.7	1.4	4.7	6.2	6.4	5.5	3.4
External position									
Current account balance (% of GDP), balance of payments	6.9	5.7	4.7	3.4	3.2	4.6	5.0	6.1	5.9
Trade balance (% of GDP), balance of payments	28.7	36.5	40.6	32.6	32.7	34.7	28.4	.	.
Primary income balance (% of GDP)	-22.0	-30.6	-36.4	-29.5	-29.3	-31.0	-24.2	.	.
Secondary income balance (% of GDP)	0.2	-0.2	0.5	0.3	-0.3	0.9	0.8	.	.
Current account explained by fundamentals (CA norm, % of GDP) (3)	3.7	4.3	4.7	5.1	5.2	5.2	5.3	5.2	5.1
Required current account to stabilise NIIP above -35% of GDP over 20Y (% of GDP) (4)	2.7	1.4	4.4	4.8	4.6	2.9	2.2	2.3	2.5
Capital account balance (% of GDP)	0.3	-0.4	0.0	-0.1	-0.1	1.2	0.5	.	.
Net international investment position (% of GDP)	22.7	12.1	64.9	67.8	63.9	40.4	28.2	.	.
NENDI - NIIP excluding non-defaultable instruments (% of GDP) (5)	.	.	-3442.3	-4153.8	-4148.8	-4638.1	-3767.0	.	.
Net FDI flows (% of GDP)	.	.	47.8	107.6	-32.2	173.6	47.6	.	.
Competitiveness									
Unit labour costs (ULC, whole economy)	1.9	4.3	3.2	3.1	3.8	3.9	7.4	7.8	3.3
Nominal compensation per employee	3.5	2.2	2.3	1.9	1.2	6.0	5.4	6.9	3.4
Labour productivity (real, hours worked)	1.7	-1.1	-0.1	-0.8	3.4	-2.0	-2.3	-1.8	-0.9
Real effective exchange rate (ULC)	0.6	2.1	1.5	1.0	-0.4	3.5	3.6	1.9	-0.2
Real effective exchange rate (HICP)	1.6	0.4	0.6	-0.4	0.1	0.8	-1.1	.	.
Export performance vs. advanced countries (% change over 5 years)	25.8	16.5	17.8	5.2	18.4	19.0	.	.	.
Private sector debt									
Private sector debt, consolidated (% of GDP)	217.9	287.4	298.9	310.8	320.3	340.6	337.1	.	.
Household debt, consolidated (% of GDP)	45.5	55.1	60.5	67.2	68.5	66.0	66.3	.	.
Household debt, fundamental benchmark (% of GDP) (6)	53.6	61.6	69.2	69.9	77.5	77.0	79.3	.	.
Household debt, prudential threshold (% of GDP) (6)	155.6	153.2	169.3	113.1	115.6	100.6	99.4	.	.
Non-financial corporate debt, consolidated (% of GDP)	172.4	232.3	238.4	243.6	251.7	274.6	270.8	.	.
Corporate debt, fundamental benchmark (% of GDP) (6)	62.6	72.1	79.0	79.1	86.6	85.0	86.3	.	.
Corporate debt, prudential threshold (% of GDP) (6)	175.0	170.9	183.6	137.2	143.5	126.5	123.2	.	.
Private credit flow, consolidated (% of GDP)	46.1	5.1	13.3	24.9	42.9	53.9	21.3e	.	.
Corporations, net lending (+) or net borrowing (-) (% of GDP)	6.2	0.5	-0.1	-5.8	-0.4	0.7	1.8	4.6	5.6
Households, net lending (+) or net borrowing (-) (% of GDP)	-0.1	0.2	0.5	1.1	6.1	2.8	2.8	3.8	2.7
Net savings rate of households (% of net disposable income)	5.5	6.1	7.9	8.3	19.1	12.4	.	.	.

(e) estimate based on ECB quarterly data

(1) Potential output is the highest level of production that an economy can reach without generating inflationary pressures. The methodology to compute the potential output is based on K. Havik, K. Mc Morrow, F. Orlandi, C. Planas, R. Raciborski, W. Roeger, A. Rossi, A. Thum-Thysen, V. Vandermeulen, The Production Function Methodology for Calculating Potential Growth Rates & Output Gaps, COM, European Economy, Economic Papers 535, November 2014.

(2) Deviation of actual output from potential output as % of potential GDP.

(3) Current accounts in line with fundamentals ("current account norms") are derived from reduced-form regressions capturing the main determinants of the saving-investment balance, including fundamental determinants, policy factors and global financial conditions. See L. Coutinho et al. (2018), "Methodologies for the assessment of current account benchmarks", European Economy, Discussion Paper 86/2018, for details.

(4) This benchmark is defined as the average current account required to halve the gap between the NIIP and the indicative MIP benchmark of -35% of GDP over the next ten years, or to stabilise the NIIP at the current level if it is already above the indicative MIP benchmark. Calculations make use of Commission's T+10 projections.

(5) NENDI is a subset of the NIIP that abstracts from its pure equity-related components, i.e. foreign direct investment (FDI) equity and equity shares, and from intracompany cross-border FDI debt, and represents the NIIP excluding instruments that cannot be subject to default.

(6) Fundamentals-based benchmarks are derived from regressions capturing the main determinants of credit growth and taking into account a given initial stock of debt. Prudential thresholds represent the debt threshold beyond which the probability of a banking crisis is relatively high, minimising the probability of missed crisis and that of false alerts. Methodology to compute the fundamentals-based and the prudential benchmarks based on Bricongne, J. C., Coutinho, L., Turrini, A., Zeugner, S. (2019), "Is Private Debt Excessive?", Open Economies Review, 1- 42.

Source: Eurostat and ECB as of 2023-04-28, where available; European Commission for forecast figures (Spring forecast 2023)

Table 2.4:**Selected economic and financial indicators (Part 2), Luxembourg**

all variables y-o-y % change, unless otherwise stated	2003-07	2008-12	2013-18	2019	2020	2021	2022	forecast 2023	forecast 2024
Housing market									
House price index, nominal	10.9	3.1	5.6	10.1	14.5	13.9	9.6	.	.
House price index, deflated	8.2	1.2	4.2	8.3	13.1	12.4	3.8	.	.
Overvaluation gap (%) (7)	-7.5	1.9	11.1	26.9	40.3	56.0	62.6	.	.
Price-to-income overvaluation gap (%) (8)	-10.4	1.5	17.7	37.5	50.2	69.3	80.7	.	.
Residential investment (% of GDP)	3.1	3.2	3.7	4.0	3.8	3.3	3.2	.	.
Government debt									
General government balance (% of GDP)	1.0	0.8	1.6	2.2	-3.4	0.7	0.2	-1.7	-1.5
General government gross debt (% of GDP)	7.9	17.7	21.3	22.4	24.5	24.5	24.6	25.9	27.0
Banking sector									
Return on equity (%)	.	-1.1	5.7	4.4	3.0	3.8	.	.	.
Common Equity Tier 1 ratio	.	15.9	26.4	21.1	22.0	22.4	.	.	.
Gross non-performing debt (% of total debt instruments and total loans and advances) (9)	.	0.2	0.8	0.5	0.6	0.5	.	.	.
Gross non-performing loans (% of gross loans) (9)	.	.	1.0	0.6	0.7	0.6	0.7	.	.
Cost of borrowing for corporations (%)	4.0	2.8	1.5	1.4	1.3	1.3	3.1	.	.
Cost of borrowing for households for house purchase (%)	3.9	2.6	1.8	1.4	1.3	1.4	3.1	.	.

(7) Unweighted average of price-to-income, price-to-rent and model valuation gaps. The model valuation gap is estimated in a cointegration framework using a system of five fundamental variables; total population, real housing stock, real disposable income per capita, real long-term interest rate and price deflator of final consumption expenditure, based on Philiponnet, N., Turrini, A. (2017), "Assessing House Price Developments in the EU," European Economy - Discussion Papers 2015 - 048, Directorate General Economic and Financial Affairs (DG ECFIN), European Commission. Price-to-income and price-to-rent gaps are measured as the deviation to the long term average (from 1995 to the latest available year).
(8) Price-to-income overvaluation gap measured as the deviation to the long term average (from 1995 to the latest available year).
(9) Domestic banking groups and stand-alone banks, EU and non-EU foreign-controlled subsidiaries and EU and non-EU foreign-controlled branches.
Source: Eurostat and ECB as of 2023-04-28, where available; European Commission for forecast figures (Spring forecast 2023)