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In-depth review for Ireland

in accordance with Article 5 of Regulation (EU) No. 2011/1176 on the prevention and correction of macroeconomic imbalances

Accompanying the document

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On the basis of this in-depth review for Ireland undertaken under Regulation (EU) No 1176/2011 on the prevention and correction of macroeconomic imbalances, the Commission has considered in its Communication “European Semester – 2022 Spring Package” (COM(2022)600 final) that:

Ireland, identified with imbalances in 2021, is found to experience no imbalances. Important progress has been made in reducing government and private indebtedness as well as net external liabilities, both before and since the pandemic. The reductions of the debt ratios remain significant, albeit smaller, when national output is adjusted for the effects of the operations of multinational enterprises registered in Ireland. Both private and government indebtedness are expected to continue falling, with the external position strengthening further. Irish banks continued reducing their non-performing loans ratio. High house price growth continues to be a challenge for housing affordability, but risks to macroeconomic stability appear contained so far. While its direct impact might be limited due to its comparatively small size, the RRP has the potential to help strengthen the fundamentals of the economy further.

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1. INTRODUCTION

In 2021, over the previous annual cycle of surveillance under the Macroeconomic Imbalances Procedure (IDR), the Commission identified “macroeconomic imbalances” in Ireland. ⁽¹⁾ These imbalances were related to high private and public debt and net external liabilities. The 2022 Alert Mechanism Report concluded that a new in-depth review (IDR) should be undertaken for Ireland with a view to assess the persistence or unwinding of imbalances. ⁽²⁾

Ireland’s real GDP continued to expand at brisk pace in 2021, bolstered by multinational firms’ performance, and the economy enjoys a positive outlook despite the current geopolitical situation. ⁽³⁾ Ireland’s real GDP grew by an exceptional 13.5% in 2021, driven by the strong performance of multinational corporations headquartered there. Domestic sectors, which tended to be more affected by lockdown measures in 2021, started recovering and also contributed to growth (modified domestic demand increased by 6.5% ⁽⁴⁾). Despite the Russian invasion to Ukraine, which is set to negatively impact growth in Europe through higher prices and shortages of energy and other inputs, the Irish economy is projected to keep growing in 2022 and 2023, by 5.4% and 4.4%, respectively. As result of the very strong growth over the last years, including during the pandemic, the nominal GDP level in 2023 is forecast to be more than 30% above its 2019 level. After a long period of excess saving during the pandemic, household spending will gradually normalise and support private consumption. Investment spending is also expected to pick up in response to the need to accelerate the energy transition and address the persistent undersupply of housing. The unemployment rate has declined rapidly with no evident scarring on the labour market and in early 2022 reached pre-crisis levels again. It is forecast to decrease further to 4.6% in 2022, but increase to 5.0% in 2023. The arrival of migrants from Ukraine, who hold a right to work, will require additional public spending but might help to alleviate labour shortages in certain sectors. HICP inflation, driven by high energy prices and persistent supply bottlenecks, is projected to reach 6.1% in 2022 before declining to 3.1% in 2023.

This in-depth review presents the main findings of the assessment of imbalances. The assessment is backed by a thematic section on the housing market. Spillovers and systemic cross-border implications of imbalances are also taken into account. In addition, assessments of structural issues made in previous IDRs and in the context of fiscal assessments are also considered if relevant. The MIP assessment matrix is published in the 2022 Country Report for Ireland. ⁽⁵⁾

⁽¹⁾ European Commission (2021), European Semester Spring Package 2021, COM(2021) 500 final.

⁽²⁾ European Commission (2021), Alert Mechanism Report 2022, COM (2021) 741 final.

⁽³⁾ Forecast data are from European Commission (2022), European Economic Forecast: Spring 2022, Institutional Paper 172.

⁽⁴⁾ Modified (final) domestic demand, a proxy for the domestic economy, is the sum of personal and government consumption and investment, excluding investment in imported intellectual property and aircrafts for leasing.

⁽⁵⁾ European Commission (2022), Country Report Ireland 2022, SWD(2022)615 final.

2. ASSESSMENT OF MACROECONOMIC IMBALANCES

Assessment of gravity, evolution and prospects of macroeconomic imbalances

Private debt relative to GDP in Ireland has substantially declined and is likely to remain on a non-increasing path, supported in part by strong GDP growth. In 2021, it decreased by some 10 percentage points to 179.1% of GDP, in its sixth consecutive year of reduction. Private debt now stands far below its peak of 304.0% of GDP, which it had reached in 2015. The robust economic growth expected in the coming years, combined with rising wages and a healthy financial situation of corporates, is expected to keep the private debt-to-GDP on a declining path. Furthermore, policies to ease housing supply constraints and improve affordability are likely to gradually ease the trajectory of household debt accumulation.

Both very strong GDP growth and continuous deleveraging from households and corporates before and during the pandemic contributed to the favourable private debt dynamics. Household debt has fallen to 30.8% of GDP (around 60% of GNI*) in 2021, well below the fundamentals-based and prudential benchmarks. Corporate debt has also decreased, to 148.2% of GDP in 2021. It remains relatively high when compared to the EU average, which is, however, partly owed to the debt of multinational corporations. Debt of domestically controlled firms has slightly decreased to 63.1% of GDP in 2020 (or 113% of GNI*⁽⁶⁾), placing it below the prudential benchmark but still above the fundamentals-based benchmark. The non-performing loan (NPL) ratio remains historically low for Irish retail banks (3.7% in September 2021), although the NPL ratio on corporate loans increased during the pandemic, from 4% at end-2019 to 7.3% in September 2021⁽⁷⁾.

Ireland's general government debt ratio remained below 60% of GDP in spite of pandemic-related spending pressures. Before the COVID-19 crisis the government debt ratio had followed a declining trend for 8 years thanks to strong economic growth and prudent expenditure patterns. That consolidation effort brought public debt to a 10-year low of 57.2% of GDP and the general government balance to a surplus of 0.5% of GDP in 2019. While in 2020 and 2021 the Irish Government increased spending by 18.0% and 3.2% to shore up the economy, the debt-to-GDP ratio remained below the 60% threshold and is forecast to fall back to 50.3% of GDP in 2022. Going forward, in the short-to-medium term, the debt ratio is projected to decline further on the back of strong economic growth. However, when measuring government debt as a proportion of GNI* the ratio would be higher, in the neighbourhood of 100% in 2021.

Ireland faces low fiscal sustainability challenges in the medium-term and medium ones in the long-term⁽⁸⁾. The Commission's fiscal sustainability assessment shows that Ireland faces medium fiscal sustainability risks over the long run. Financial markets' perceptions of sovereign risks remain favourable, as confirmed by low sovereign bond and CDS spreads and the 'AA' rating (or equivalent assessment) that the three major rating agencies assigned to Irish sovereign debt. In addition, Irish government bonds enjoy a favourable average debt maturity of over 11 years and stable financing sources with a large and diversified investor base. In 2021, a significant share of debt was held within the Eurosystem.

Irish banks continued reducing their NPL ratio over the past years, a process only temporarily slowed down by the pandemic. The NPL ratio continued to fall in 2021 and reached 2.4% at year-end, down from its peak value of 23% in 2013. While NPLs have been trending down overall, foreign

⁽⁶⁾ Modified Gross National Income (GNI*) reflects the income standards of Irish residents more accurately than GDP. It differs from actual GNI in that it excludes, for example, the depreciation of foreign-owned, but Irish resident, capital assets (notably intellectual property and assets associated with aircraft for leasing) and the undistributed profits of firms that have re-domiciled to Ireland.

⁽⁷⁾ Data on NPLs was taken from the European Central Bank's Statistical Data Warehouse.

⁽⁸⁾ See European Commission Country Report on Ireland for the latest results and the '[Fiscal Sustainability Report 2021](#)', Institutional Paper 171, 25 April 2022 for methodological details.

subsidiaries operating in Ireland lower the aggregate NPL ratio, which is somewhat higher (3.7%) for domestic banks. Domestic banks reported higher NPL ratios for loans to non-financial corporations (7.3%) than for loans to households (4.9%). Arrears, mainly linked to mortgages, kept declining significantly and, even though still sizeable, at end-2021 represented only 43% of their total value at end-2018. This is mainly due to banks' successful action over the past years to decrease their NPLs through the restructuring, sale and securitisation of NPL portfolios. Notwithstanding the positive developments for NPLs, asset quality remains a concern as a somewhat larger share of loans is being classified as risky (Stage 2), increasing from 8.4% of loans at end-2019 to 15% at end-2021. Corporate insolvencies remain at historically low levels but are likely to increase as support measures implemented in response to the pandemic are withdrawn.

The modified current account balance was very positive during the pandemic years. The current account swung to a large surplus of 13.9% in 2021 from -2.7% in 2020, driven by booming exports of multinational corporations. Meanwhile the modified current account balance ⁽⁹⁾, which better reflects domestic economic activity, has increased to 6.4% of GDP (11.5% of GNI*) in 2020 and is expected to continue to remain stable and positive. This suggests that the Irish economy and its domestic companies have maintained external competitiveness. The sanctions imposed by the EU and its partners on Russia and Belarus seem to have limited side effects for the Irish economy, although increasing energy prices could affect the external position (see box 2.1).

The net international investment position has significantly improved. Ireland's net international investment position (NIIP) increased from -174% of GDP in 2020 to -138.9% at the end of 2021, and no longer exceeds the prudential benchmark. The country's NIIP is heavily influenced by the activities and balance sheets of multinational companies and the country's position as a major financial centre. Most of the constituent entities have limited links to Ireland's domestic economy, which in turn reduces domestic exposure and vulnerabilities. The underlying, domestically relevant, NIIP remains hard to gauge but is much smaller, between -25% and -39% of GDP (i.e. -45% and -70% of GNI*) in 2020, according to the Commission estimates, and might not exceed the MIP threshold of -35% of GDP. Risks associated with the general government's external liabilities can be considered limited, further mitigated by the fact that around one-fifth consist of loans disbursed by official creditors during the economic adjustment programme. These loans have long maturity and low interest rates, thus posing little risk in the short and medium term. Going forward, the significantly positive current account balance is likely to continue further reducing Ireland's NIIP.

House prices kept increasing in 2021. Growth in real house prices is estimated to have accelerated from close to zero in 2019 and 2020 to 4.3% in 2021. The main reason for rising prices continues to be supply falling short of demand. The number of annual dwelling completions sharply increased until 2019, but stagnated in 2020 and 2021 due to the pandemic-induced lockdown of the construction sector. At the moment, average national house prices do not appear to be overvalued according to standard valuation metrics, although housing affordability remains a concern. The number of years of gross disposable income required by an average household to buy a 100 square meter dwelling amounted to 16.3 in 2021, amongst the highest in the EU. Swift house price growth is expected to continue in 2022. However, decreasing household indebtedness levels and effective macro prudential policy settings suggest risks of negative spillovers to other sectors remain limited.

Assessment of MIP relevant policies

During the pandemic the government took resolute measures to backstop the economy, protect household incomes and prevent a rise in non-performing loans. Two employment support schemes were introduced for workers – the Pandemic Unemployment Payment scheme and the Employment Wage Subsidy Scheme (EWSS). These schemes prevented unemployment from turning into a structural feature, and played a key role in supporting wages, consumption and companies' solvency during the pandemic. In 2021, the EWSS provided over EUR 4.6 billion of wage-support to companies, likely playing a significant role in keeping insolvencies, and hence NPLs, at historically low rates (estimated at 14

⁽⁹⁾ The modified current balance (CA*), developed by the Irish Central Statistics Office (CSO), is adjusted for the main following globalisation-related distortions: intellectual property imports, imports of aircraft related to leasing, the depreciation of capital assets owned by Irish resident foreign-owned firms and the repatriated global income of companies that moved their headquarters to Ireland.

insolvencies per 10,000 businesses). Other pandemic support measures, such as loan moratoria and credit guarantees have further mitigated the negative effects of the pandemic on banks' asset quality. Finally, in 2021 the Central Bank of Ireland started a review of the mortgage measures frameworks, which had been introduced in 2015.

Going forward, Ireland plans to constrain the rate of public debt accumulation. In July 2021, the Irish government set out a rule that caps the increase in overall core spending to 5% each year from 2023 onwards, which is a positive step for strengthening the medium-term fiscal planning. The authorities estimate this rate to be in line with the economy's trend nominal growth rate. However, the commitment is not legally binding. Moreover, estimates of potential growth are surrounded by a considerable degree of uncertainty in the case of Ireland, given its dual economy and historically large fluctuations around trend growth. Finally, future increases in capital expenditure related to increasing the stock of housing and reducing greenhouse gas emissions could strain this commitment.

The government has actively intervened to address housing supply constraints. Measures introduced have had an overall positive impact but need continued monitoring and refinements, some of which have been announced under the new "Housing for All" plan. Measures included reforming of the land development and planning process, as well as large investments in social housing, which are expected to increase the housing supply. However, labour constraints and rising costs of materials, might strain the affordability and timing of new projects.

The government has also implemented a variety of support schemes to increase housing affordability for first-time buyers (FTBs). These include the Help-to-Buy scheme, the shared equity loan scheme and the local authority home loan scheme. A close and regular monitoring is recommended so they can be quickly adjusted if any market distortions arise. Effectively targeting these schemes — to lower-income FTBs only — remains crucial to reduce the risks of creating inflationary pressures in the housing market.

The Recovery and Resilience Plan has the potential to help further strengthening fundamentals of the Irish economy ⁽¹⁰⁾. While the direct impact of the plan on vulnerabilities might be limited due to its comparatively limited size (0.3% of 2019 GDP), the plan is expected to improve productivity, competitiveness, employment and resilience. This may indirectly help lessen riskiness related to the private debt and external debt. The plan also includes healthcare reforms and eHealth investments, which have the potential to help achieve higher productivity and cost-efficiency in the healthcare sector, thereby supporting fiscal sustainability.

Conclusion

Ireland has made substantial and steady progress in reducing its vulnerabilities related to public, private and external indebtedness. An extraordinarily marked GDP increase over the past decade has allowed strong reduction of debt-to-GDP ratios. Reductions were also significant, but milder, when measured in denominators that expurgate the impacts of some operations of multinational corporations with limited links with Ireland's domestic economy. Private debt, particularly household debt, continued its downward path throughout the pandemic. The corporate sector weathered the pandemic well, and continued to deleverage. Multinational corporations headquartered in Ireland performed exceptionally well and the domestic companies showed healthy signs of recovery, particularly when the COVID-related restrictions were lifted. Overall, private debt is 100 percentage points of GDP lower than a decade ago. Government debt, despite some additional borrowing that was necessary to support the economy, has remained below 60% of GDP. The negative NIIP has improved and the Irish banks continued reducing their non-performing loans ratio. However, the pandemic impeded housing supply expansion, fuelling house price growth. Housing affordability hence remains a challenge. Exposures to energy prices are a pressing concern, yet are unlikely to significantly affect macroeconomic vulnerabilities over the medium term (see box 2.1).

⁽¹⁰⁾ For more detail, see Commission Staff Working Document, "Analysis of the recovery and resilience plan of Ireland," SWD(2021) 205 final, 16.7.2021

Going forward, the positive economic outlook is expected to contribute to a further reduction of public, private and external indebtedness, but marked house prices growth may be an issue for some time. The public debt ratio is forecast to remain below 60% of GDP over the forecast horizon. On current trends, both household and corporate indebtedness are expected to continue falling, while continued high current account surpluses are forecast to further improve the negative NIIP. Housing supply is still falling short of demand and thereby house price growth is expected to continue being an issue, at least in the short-term before additional supply becomes available.

In 2021, policy efforts continued to focus on short-term measures to address the impact of the pandemic. This shored up employment and household incomes, alongside a range of policies and investments to support housing supply from the public and private sector. That helped private sector deleveraging, especially by households, while government debt fell too. The government has actively intervened to address housing supply constraints. In particular, the ‘housing for all’ plan aims to increase the number of newly constructed homes by 33 000 each year to 2030. This could considerably limit house price growth and improve affordability. An expected arrival of Ukrainian refugees increases the need to proceed fast with housing supply expansion. The RRP also includes healthcare reforms and eHealth investments, which have the potential to help achieve higher productivity and cost-efficiency in the healthcare sector, thereby supporting fiscal sustainability.

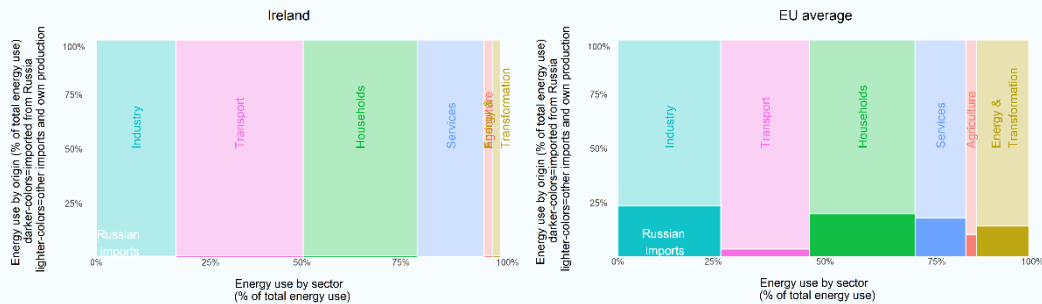
Based on the findings in this in-depth review, the Communication “European Semester – 2022 Spring Package”⁽¹⁾ sets out the Commission’s assessment as to the existence of imbalances or excessive imbalances in Ireland, in line with Regulation 1176/2011.

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

Box 2.1: Exposures to the commodity price surge, and to Russia

This box summarises risks and exposures regarding the commodity price surge, and the importance of direct links with the Russian economy. The surge of commodity prices since 2021 had been aggravated by the Russian military aggression against Ukraine. This box reviews the risks for the macroeconomic vulnerabilities in Ireland. Available data suggests that exposures to energy prices are a pressing concern, yet are unlikely to significantly affect macroeconomic vulnerabilities over the medium term. Although the sanctions imposed by the EU and its partners on Russia and Belarus will have side effects for the Irish economy, they seem very limited and are likely to affect Ireland rather via its impact on other Member States than directly.

Graph b.1.1: Sectoral distribution of energy use and of energy imported from Russia



Notes: The left panel displays the distribution of primary energy usage in Ireland according to Eurostat energy balances. The horizontal axis displays the relative importance of energy-consuming sectors. The vertical axis displays the importance of energy importance from Russia in satisfying that need. Note that this dependence on Russia differs according to sector's use of natural gas vs oil and coal. For comparison, the right hand panels displays the same concept for the EU aggregate. Russian imports include oil and petroleum products, natural gas and solid fossil fuels. Sources: Eurostat and European Commission services calculations

The Irish distribution of energy usage by sector is comparable to the EU average, but its exposure to the energy price surge seems quite limited. Graph b.1.1 shows that imports from Russia play a very limited role for energy provision, thus the crisis is felt mainly through its impact on prices rather than through potential supply line disruption. Energy is primarily used for electricity production and transport, whereas industry uses comparatively less energy than in the rest of the EU. Overall, the increased reliance on renewables and on UK imports means that the overall economy is likely to be less affected by a direct commodity price surge than other Member States. Moreover, the Irish economy consumes relatively little imported natural gas, due to the increased indigenous gas production in the Corrib field (see Table b.1.1), and so is less exposed to natural gas price increases than the rest of the EU.

Table b.1.1: Selected exposures

| Trade & financial exposures | | | | Energy mix | | | |
|--|-----------------|-------|------|--|------------------------------------|-------|-------|
| | unit | IE | EU | | unit | IE | EU |
| Domestic value added embodied in exports to Russia | % of GDP | 0.9% | 0.4% | Solids fossil fuels (incl. peat) | % of Gross inland consumption 2020 | 7.6% | 10.8% |
| Non-energy Russian import content in final demand | % of GDP | 0.3% | 0.4% | Oil and petroleum products | % of Gross inland consumption 2020 | 45.3% | 32.7% |
| Russian tourist nights spent | % of total 2019 | 0.4% | 2.7% | Natural gas | % of Gross inland consumption 2020 | 33.2% | 24.4% |
| FDI assets held in Russia | % of 2020 GDP | 0.5% | 2.5% | Renewables and waste | % of Gross inland consumption 2020 | 13.9% | 19.0% |
| Portfolio & other inv. assets held in Russia | % of 2020 GDP | 10.2% | 0.9% | Nuclear | % of Gross inland consumption 2020 | 0.0% | 13.1% |
| FDI liabilities towards Russia | % of 2020 GDP | 0.2% | 1.2% | Commodity exposures | | | |
| Portfolio & other inv. liabilities towards Russia | % of 2020 GDP | 5.7% | 1.1% | Net petroleum imports from all countries | % of GDP 2021 | 0.8% | 1.2% |
| Consolidated banking exposures towards Russia | % of 2021 GDP | 0.0% | 0.5% | Crude oil imports from Russia '20 | % of oil imports | 0.0% | 25.7% |
| | | | | Net gas imports from all countries | % of GDP 2021 | 0.4% | 0.6% |
| | | | | Gas imports from Russia '20 | % of gas imports | 0.0% | 43.6% |

Notes: data source Eurostat for commodity exposures, European Commission Figaro for value-added exposures, BIS for consolidated banking exposures, European Commission FinFlows for other financial exposures. Energy gross inland consumption excludes net imports of electricity and derived heat.

In contrast, Ireland has strong financial links to Russian entities, most notably via international financial vehicles. Table 1 shows that portfolio and other investment assets held in and towards Russia as % of GDP are considerably above the EU averages. About half of this exposure relates to stocks and bonds held by Irish mutual funds, which cater mostly to foreign investors. The other half seems concentrated in Special Purpose Entities including the 33 Russian sponsored ones. ⁽¹⁾ Despite these large links stemming from Ireland as an intermediary, the core domestic economy seems little exposed to Russian financial asset risks.

⁽¹⁾ Central Bank of Ireland, Statistical Release "Direct Financial Links to Russia by Economic Sector", 04 March 2022.

Table 2.1: Selected economic and financial indicators (Part 1), Ireland

| all variables y-o-y % change unless otherwise stated | 2003-07 | 2008-12 | 2013-17 | 2018 | 2019 | 2020 | 2021 | forecast | |
|--|---------|---------|---------|--------|--------|--------|--------|----------|-------|
| | | | | | | | | 2022 | 2023 |
| Real GDP | 5.2 | -1.4 | 8.9 | 9.0 | 4.9 | 5.9 | 13.5 | 5.4 | 4.4 |
| Potential growth (1) | 4.7 | -0.2 | 8.0 | 10.7 | 9.1 | 7.3 | 5.5 | 5.0 | 4.8 |
| Contribution to GDP growth: | | | | | | | | | |
| Domestic demand | 5.2 | -2.6 | 6.2 | -1.1 | 29.9 | -14.4 | -12.8 | 2.6 | 2.4 |
| Inventories | 0.1 | 0.0 | 0.4 | -1.1 | 1.0 | 0.2 | -0.4 | 0.0 | 0.0 |
| Net exports | -0.2 | 2.0 | 2.9 | 10.7 | -26.5 | 21.4 | 25.8 | 2.2 | 1.8 |
| Contribution to potential GDP growth (1): | | | | | | | | | |
| Total Labour (hours) | 1.3 | -1.8 | 1.7 | 2.1 | 2.0 | 1.5 | 1.5 | 1.4 | 1.1 |
| Capital accumulation | 2.1 | 0.8 | 4.2 | 0.5 | 3.6 | 1.4 | -0.4 | -0.3 | -0.1 |
| Total factor productivity | 1.2 | 0.8 | 2.1 | 8.1 | 3.5 | 4.3 | 4.4 | 3.9 | 3.7 |
| Output gap (2) | 1.1 | -2.8 | 1.8 | 0.3 | -3.5 | -4.8 | 2.5 | 2.8 | 2.5 |
| Unemployment rate | 4.8 | 13.0 | 10.1 | 5.8 | 5.0 | 5.9 | 6.2 | 4.6 | 5.0 |
| Harmonised index of consumer prices (HICP) | 2.8 | 0.6 | 0.2 | 0.7 | 0.9 | -0.5 | 2.4 | 6.1 | 3.1 |
| GDP deflator | 2.0 | -0.9 | 2.0 | 0.7 | 4.2 | -1.2 | -0.4 | 4.8 | 4.1 |
| External position | | | | | | | | | |
| Current account balance (% of GDP), balance of payments | -3.0 | -3.4 | 0.7 | 5.2 | -19.9 | -2.7 | 13.9 | 12.5 | 12.8 |
| Trade balance (% of GDP), balance of payments | 11.3 | 15.0 | 20.7 | 28.5 | 3.5 | 22.3 | 40.3 | . | . |
| Primary income balance (% of GDP) | -13.3 | -16.9 | -18.7 | -22.2 | -22.4 | -23.9 | -25.3 | . | . |
| Secondary income balance (% of GDP) | -1.0 | -1.6 | -1.4 | -1.1 | -1.0 | -1.0 | -1.0 | . | . |
| Current account explained by fundamentals (CA norm, % of GDP) (3) | -0.2 | 0.5 | 1.9 | 3.0 | 3.4 | 3.5 | 4.2 | 4.9 | 5.1 |
| Required current account to stabilise NIIP above -35% of GDP over 20Y (% of GDP) (4) | -0.9 | 0.0 | -0.8 | -0.7 | -2.0 | -2.6 | -3.0 | -2.0 | -1.5 |
| Capital account balance (% of GDP) | 0.2 | 0.1 | -3.0 | -16.0 | -9.9 | -4.2 | -0.2 | . | . |
| Net international investment position (% of GDP) | -29.8 | -120.3 | -167.3 | -183.6 | -193.5 | -174.0 | -138.9 | . | . |
| NENDI - NIIP excluding non-defaultable instruments (% of GDP) (5) | 12.6 | -224.9 | -284.0 | -250.3 | -282.8 | -292.9 | -336.0 | . | . |
| Net FDI flows (% of GDP) | 6.8 | -4.0 | -9.6 | 0.0 | -10.5 | 14.8 | 22.1 | 8.6 | -0.8 |
| Competitiveness | | | | | | | | | |
| Unit labour costs (ULC, whole economy) | 3.8 | -1.4 | -3.9 | -3.0 | 1.4 | -4.7 | -5.2 | 1.3 | 4.0 |
| Nominal compensation per employee | 5.4 | 0.4 | 1.4 | 2.5 | 3.4 | 2.4 | 3.6 | 3.8 | 7.8 |
| Labour productivity (real, hours worked) | 1.7 | 3.2 | 5.1 | 5.3 | 2.6 | 9.2 | 7.3 | 1.0 | 2.0 |
| Real effective exchange rate (ULC) | 3.3 | -3.3 | -5.1 | -2.8 | -3.1 | . | . | . | . |
| Real effective exchange rate (HICP) | 1.4 | -2.3 | -1.0 | 1.3 | -2.8 | 0.2 | -0.1 | . | . |
| Export performance vs. advanced countries (% change over 5 years) | 15.3 | -2.1 | 29.0 | 74.5 | 70.4 | 50.7 | . | . | . |
| Private sector debt | | | | | | | | | |
| Private sector debt, consolidated (% of GDP) | 169.9 | 260.5 | 276.0 | 231.2 | 209.4 | 188.9 | 179.1e | . | . |
| Household debt, consolidated (% of GDP) | 80.7 | 107.6 | 66.0 | 43.0 | 38.7 | 35.9 | 30.8e | . | . |
| Household debt, fundamental benchmark (% of GDP) (6) | 47.4 | 70.2 | 58.3 | 47.8 | 46.7 | 47.8 | 44.9 | 45.1 | 45.9 |
| Household debt, prudential threshold (% of GDP) (6) | 67.3 | 47.5 | 61.0 | 70.3 | 71.6 | 72.9 | 74.6 | 74.2 | 74.8 |
| Non-financial corporate debt, consolidated (% of GDP) | 89.2 | 152.9 | 210.0 | 188.2 | 170.8 | 153.1 | 148.2e | . | . |
| Corporate debt, fundamental benchmark (% of GDP) (6) | 51.2 | 72.2 | 62.0 | 49.1 | 47.0 | 46.2 | 42.0 | 41.2 | 41.1 |
| Corporate debt, prudential threshold (% of GDP) (6) | 93.8 | 73.4 | 96.5 | 109.5 | 109.9 | 110.3 | 112.8 | 112.1 | 112.8 |
| Private credit flow, consolidated (% of GDP) | 26.2 | 7.1 | -3.3 | -8.8 | -9.6 | -1.8 | 4.8e | . | . |
| Corporations, net lending (+) or net borrowing (-) (% of GDP) | 2.6 | 7.7 | -1.4 | -11.7 | -30.8 | -10.7 | 9.2 | 9.4 | 9.8 |
| Households, net lending (+) or net borrowing (-) (% of GDP) | -8.0 | 2.6 | 1.9 | 1.7 | 1.8 | 7.1 | 5.3 | 2.8 | 2.0 |
| Net savings rate of households (% of net disposable income) | 1.4 | 8.1 | 4.3 | 5.8 | 5.2 | 21.4 | . | . | . |

(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 reach and stabilise the NIIP at -35% of GDP over the next 20 years. 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 2022-05-02, where available; European Commission for forecast figures (Spring forecast 2022)

Table 2.2: Selected economic and financial indicators (Part 2), Ireland

| all variables y-o-y % change unless otherwise stated | 2003-07 | 2008-12 | 2013-17 | 2018 | 2019 | 2020 | 2021 | forecast | |
|--|---------|---------|---------|------|------|-------|-------|----------|------|
| | | | | | | | | 2022 | 2023 |
| Housing market | | | | | | | | | |
| House price index, nominal | 11.5 | -14.1 | 9.4 | 10.2 | 2.3 | 0.3 | 8.3 | . | . |
| House price index, deflated | 8.7 | -13.3 | 8.6 | 8.1 | 0.3 | -0.2 | 4.3 | . | . |
| Overvaluation gap (%) (7) | 33.7 | 4.4 | -16.7 | -6.6 | -9.8 | -13.8 | -10.7 | . | . |
| Price-to-income overvaluation gap (%) (8) | 25.3 | -4.1 | -12.3 | 5.1 | 3.2 | -3.1 | 4.1 | . | . |
| Residential investment (% of GDP) | 11.9 | 3.9 | 1.8 | 2.3 | 2.3 | 2.1 | 2.1 | . | . |
| Government debt | | | | | | | | | |
| General government balance (% of GDP) | 1.3 | -15.0 | -2.6 | 0.1 | 0.5 | -5.1 | -1.9 | -0.5 | 0.4 |
| General government gross debt (% of GDP) | 26.3 | 84.1 | 88.6 | 63.1 | 57.2 | 58.4 | 56.0 | 50.3 | 45.5 |
| Banking sector | | | | | | | | | |
| Return on equity (%) | . | -53.9 | 3.7 | 6.8 | 3.2 | -6.3 | . | . | . |
| Common Equity Tier 1 ratio | . | 10.9 | 16.3 | 18.5 | 18.9 | 19.2 | . | . | . |
| Gross non-performing debt (% of total debt instruments and total loans and advances) | . | 16.6 | 12.9 | 4.6 | 2.9 | 3.0 | . | . | . |
| Gross non-performing loans (% of gross loans) (9) | . | . | 14.9 | 5.5 | 3.4 | 3.4 | 2.4 | . | . |
| Cost of borrowing for corporations (%) | 5.0 | 3.9 | 3.1 | 2.6 | 2.8 | 2.8 | 2.4 | . | . |
| Cost of borrowing for households for house purchase (%) | 4.1 | 3.5 | 3.4 | 3.0 | 2.9 | 2.8 | 2.7 | . | . |

(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 Philipponnet, 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 2022-05-02, where available; European Commission for forecast figures (Spring forecast 2022)

3. THEMATIC CHAPTER: HOUSING MARKET

House price growth has been increasing in 2021. This follows two years of near-zero house price growth. Real house prices are estimated to have increased from -0.2% in 2020 to 4.3% in 2021. In nominal terms, house prices increased by 8.3% on average according to the Irish Central Statistics Office. House prices accelerated throughout the year. Latest data from January 2022 show residential property prices were up by 15.3% y-o-y, with price increases being slightly higher outside of Dublin (16.8%) compared to the capital (13.5%). House price growth is expected to remain high in 2022 as demand continues to outstrip supply.

House prices in Ireland do not seem to be overvalued but affordability is still problematic. Commission internal benchmark metrics do not suggest that Ireland's average national housing prices are overvalued. However, these calculations are based on a long-term average of house prices, which include a large housing bubble emerging in the mid 2000s. Independent estimates from the Irish Economic and Social Research Institute suggest actual and fundamental house prices were closely aligned in Q4 2019⁽¹⁹⁾. At the same time, the house price to income ratio in Ireland is high. The number of years of gross disposable income required by an average household to buy a 100 square meters dwelling has lengthened to 16.3 in 2021, among the highest in the EU. This may impact Ireland's ability to attract mobile skilled labour and result in wage pressures.

In the rental sector, rent increases were similar to house price trends. At the start of the pandemic in 2020, rents initially fell, as the lack of international tourism led landlords to switch from short-term letting to regular renting. This temporarily increased rental supply, particularly in the Dublin area. Furthermore, emergency legislation temporarily banned rent increases and evictions from 27 March to 1 August 2020 and again from 31 December 2020 to 12 April 2021. Following the re-opening of the economy in Q2 2021, rental price growth accelerated and returned to pre-pandemic levels.

Stock available for rent has reached historic lows. This was particularly marked outside of Dublin⁽²⁰⁾, in part due to increased opportunities for tenants to work remotely. Outside of Dublin the average rental price increase was higher than in the capital. Overall, the total number of tenancies registered has been decreasing, with mainly small landlords leaving the rental market. This may be partly due to rent controls in Rent Pressure Zones but also high sale prices. Growing interest in build-to-let by institutional investors has helped soften the decrease in rental stock, but still represents a small portion of the rental sector and is concentrated in Dublin, though it might soon expand to other cities.

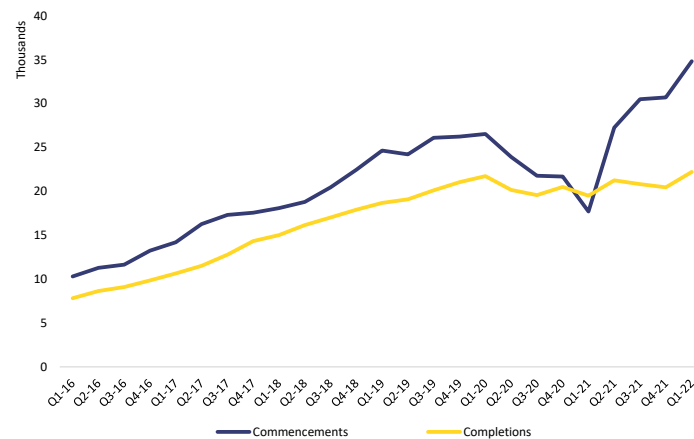
The housing stock is expanding, though the pace has stagnated in the last two years. Annual housing completions increased by almost 40% annually from 2017 to 2019 to around 21 000. Due to the pandemic-induced lockdown of the construction sector, completions stagnated in 2020 and 2021 at around 20 500 units (see Graph 3.1). After the re-opening of the economy in Q2 2021 construction activity restarted. The number of housing commencements substantially increased, exceeding 30 000 units in 2021. This suggests that more completions are to be expected in 2022.

The gap between supply and demand is set to remain large in the short term. Based on demographic and migration trends the government estimates net additional housing needs to be around 33 000 annually to 2030. Of these, around 14 000 are needed annually in the Greater Dublin Area. These large housing needs are a consequence of the previous housing bubble, which bankrupted most local construction firms. Consequently, between 2009 and 2017, Ireland's total estimated housing stock grew by only 35 000 units while the total population of Ireland grew by 263 000.

⁽¹⁹⁾ Cronin and McQuinn (2021) Credit and Capital Markets, Volume 54, Issue 2, pp. 199–221

⁽²⁰⁾ Irish Rental Report Q4 (2021) Daft.ie

Graph 3.1: Housing units completions and commencements



Four quarter moving sum

Source: Central Statistics Office, Dept of Housing, Local Government & Heritage

The expansion of the housing stock in commuter areas will need to be accompanied by critical infrastructure development. In 2019 and 2020 Ireland received country-specific recommendations with regard to public transportation, water and digital infrastructure. The successful implementation of the National Broadband Plan and National Development Plan will be essential to ensure that new developments are populated.

Housing demand remains strong as households funnelled their savings — built up over the course of the pandemic — into the real estate market. Pend-up demand led to new loans for house purchases to increase by 12.0% in 2021 after decreasing 8.6% in 2020. In addition, positive inward migration raised housing demand. The influx of refugees from Ukraine is expected to increase housing demand pressures. Population growth was concentrated in urban areas where the shortage of housing was most acute.

A sharp increase in mortgage approvals suggest a backlog in demand has built up in 2021. Data from the Banking & Payments Federation Ireland shows the number of mortgage approvals increased at a faster pace than mortgage drawdowns. This widening gap between approvals and drawdowns — mainly driven by limited supply — may create a backlog in demand. Such a backlog could contribute to continued house price inflation in 2022.

The government has actively intervened to address housing supply constraints. Measures introduced by the government have had an overall positive impact but need monitoring and refinements, some of which have been announced under the new “Housing for All” plan. The plan is underpinned by investments of more than EUR 20bn over the next five years. Some measures include, amongst many others:

- Regulating the short-term letting sector in areas of high housing demand. The relevant regulation came into effect in July 2019, yet some evidence ⁽²¹⁾ suggests compliance was weak. To tackle this, the government plans to introduce new regulatory controls in 2022.
- A simplified vacant site tax was introduced to support land development. A similar levy was introduced in 2017 but some administrative deficiencies have limited its implementation. A new simplified tax of 3% of the market value of the land to activate vacant sites was therefore announced.
- A full review of the planning process began in 2021 and will continue in 2022. This includes, following industry insights highlighting planning delays, the introduction of a new streamlined process for Large-Scale Residential Developments, the extended use of Urban Development Zones

⁽²¹⁾ The number of new tenancies registered with the Residential Tenancies Board temporarily increased significantly in Q1 2020 following the introduction of travel and tourism restrictions and began falling in Q2 2021 as restrictions were gradually lifted. More information available [here: gov.ie - Minister O’Brien asks RTB to initiate targeted campaign to identify and pursue non-compliance with rent-setting \(www.gov.ie\)](https://www.gov.ie/en/news/2021/03/minister-obrien-asks-rtb-to-initiate-targeted-campaign-to-identify-and-pursue-non-compliance-with-rent-setting/).

and a reform of the judicial review process for planning and environmental cases. This has the potential to reduce housing construction times and costs.

- Extensive construction of social housing; this was initiated by the 2016-2021 “Rebuilding Ireland” government programme but relied on short-term solutions involving leasing or acquisitions from the private market, which can exacerbate already increasing housing and rental prices. Efforts to increase newly built social housing were relaunched with additional resources made available.

In addition, the government has implemented different schemes to increase housing affordability. A periodic evaluation of these schemes is recommended so they can be quickly adjusted if any market distortions arise ⁽²²⁾. Effectively targeting these schemes — to lower-income first-time buyers (FTBs) only — remains crucial to reduce the risks of creating inflationary pressures in the housing market. The different schemes include:

- The extension of the Help-to-Buy (HTB) scheme providing FTBs, under certain conditions, with a tax refund of up to 10% of a house’s purchase price. The government plans to review this scheme in 2022.
- The introduction of a shared equity loan scheme to provide a 30% equity stake to FTBs of newly built homes (where HTB is also used, a maximum of 20% applies) to bridge the gap between their deposit and mortgage (combined) and the price of the new home.
- The extension and expansion of the rebuilding Ireland home loan scheme providing lower cost mortgages to FTBs who are unable to obtain sufficient funds in the mortgage market. In January 2022, the government increased the minimum threshold for eligible applicants by EUR 15 000, while interest rates were cut by 0.25%

Labour constraints pose risks to the effective implementation of the ‘Housing for All’ plan. To reach these highly ambitious construction targets, the government estimates the need to expand the number of workers building residential housing by over 50% by the middle of the decade. However, while in the construction sector the total workforce stood at 158 300 at the end of 2021 — well below its peak of 239 800 in Q2 2007 (see Graph 3.2) — unemployment in construction remains very low. Competing demand for construction skills for renewable energy projects and the retrofitting of buildings is also expected to increase following targets of the National Retrofitting Scheme.

The government is seeking to support the development of the construction workforce. During the previous peak in 2007 a sizable minority of 40 700 non-Irish workers was employed in the construction sector, most of whom left Ireland following the housing crisis ⁽²³⁾. Non-Irish workers were close to 25 000 at the end of 2021. Stimulating skilled immigration will be challenging due to high competing demand for construction workers in other EU countries. Furthermore, the number of registrations in construction-related apprenticeships fell to historic lows in 2009 and has only recovered in recent years ⁽²⁴⁾, leaving a sizable gap in new skilled workforce. The “Housing for All” plan tries to address these challenges, but foresees a lag of several years for these measure to show effects.

The rising cost of materials may affect the cost-effectiveness of planned spending increases on housing, as well as the delivery time of the relevant plans. The cost of building and construction materials, which had increased by only 1.2% per year on average since 2016, rose by 8.6% in 2021. The highest inflation of costs came from rough timber and reinforcing metal, which increased by 43% and 35% respectively. The reasons for these increases included higher shipping costs, factory closures due to COVID-19, price increases for iron ore and energy and the pre-selling of stock materials ⁽²⁵⁾. In addition, Russia’s invasion of Ukraine is expected to further increase construction costs in the short term. While some short-term bottlenecks are expected to be transitory, competition from large building retrofitting investments may continue to keep prices amongst the highest in the EU, resulting in deteriorated affordability and completion delays.

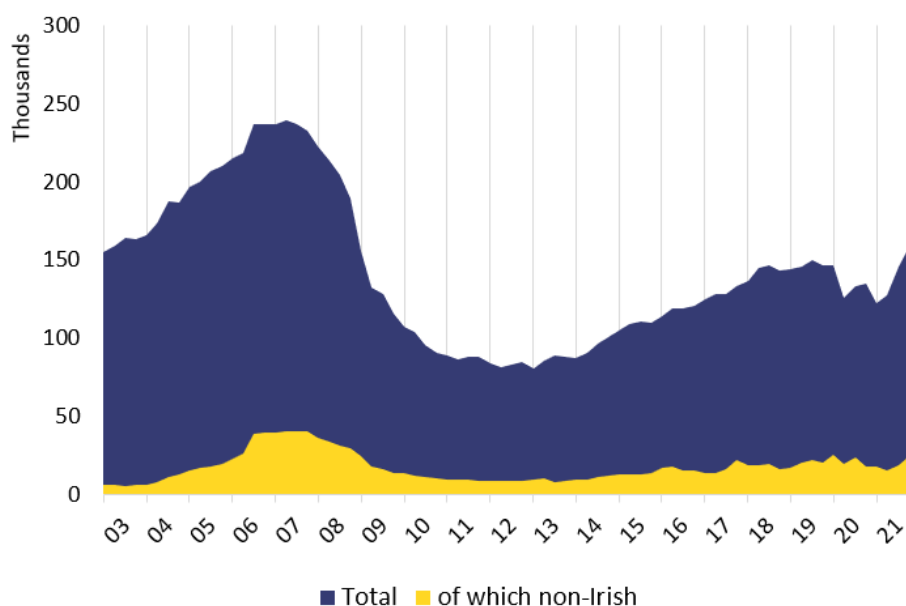
⁽²²⁾ National Competitiveness & Productivity Council (2021) Ireland’s Competitiveness Challenge 2021

⁽²³⁾ Central Bank of Ireland (2018) “Where are Ireland’s Construction Workers?” Quarterly Bulletin no. 2

⁽²⁴⁾ Expert Group on Future Skills Needs (2019) Skills for the Construction Sector: Assessment of 2008-2018 Strategies

⁽²⁵⁾ Turner & Townsend (2021) Republic of Ireland market intelligence survey, Autumn 2021

Graph 3.2: Employment in construction



Source: Central Statistics Office

Household Debt

In the absence of a positive supply response, rising house prices may lead to higher household debt in the future. Household debt was for 84% composed by mortgages in 2021. However, the overall household debt-to-GDP ratio has been on a downward path and is expected to have continued to decline from 35.9% of GDP in 2020 to 30.8% of GDP in 2021. This was mainly due to very strong GDP growth, at 13.5% in 2021, which was led by exports of multinational corporations and a recovery in domestic demand. Also, net credit flows (transactions) were overall close to zero. Compared to GNI*, household debt is expected to have fallen to around 60% of GNI* in 2021.

A tightening of credit conditions for households has been observed in the second half of 2021, although the incomes and access to credit of mortgage borrowers seems to have been affected less. According to the ECB bank lending survey, credit conditions for households tightened in 2021 on account of a lower risk tolerance from banks. However, the crisis appears to have affected mostly the lower income echelons, which typically show lower debt levels, while the income of a large share of mortgage borrowers and potential borrowers with higher earnings, remained unaffected. The cost of borrowing for households was relatively stable in 2021, but remains above the average cost in the euro area. The share of fixed-rate loans for house purchase has been increasing since 2014 and amounted to more than four-fifths of new loans in 2021.

Overall, effective macro prudential policy settings suggest risks of another housing bubble remain limited. Overall, the financial sector looks much healthier compared to the run-up of the great financial crisis. Since then Irish banks have become significantly more resilient and the introduction of stricter rules and requirements contributed to addressing many pre-crisis vulnerabilities of the banking sector. The European Systemic Risk Board identified Ireland as having medium vulnerabilities related to residential real estate⁽²⁶⁾, and policy measures were deemed appropriate and sufficient to address underlying risks. Aside from more stringent capital and liquidity requirements, the introduction of mortgage-related measures in Ireland reduced the exposures that banks can have towards the real-estate sector, particularly by introducing binding Loan-to-Value and Loan-to-Income limits.

⁽²⁶⁾ European Systemic Risk Board (2022) Vulnerabilities in the residential real estate sectors of the EEA countries

Table 3.1: Selected housing indicators, Ireland

| | | | 2003-07 | 2008-12 | 2013-17 | 2018 | 2019 | 2020 | 2021 | 21Q1 | 21Q2 | 21Q3 | 21Q4 |
|--|-------|-----|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|
| House price developments | | | | | | | | | | | | | |
| Real house price, yoy growth | % | (a) | 8.7 | -13.3 | 8.7 | 8.1 | 0.3 | -0.2 | 4.3 | 2.5 | 1.1 | 6.6 | 7.0 |
| Nominal house price, yoy growth | % | (a) | 11.5 | -14.0 | 9.5 | 10.2 | 2.3 | 0.3 | 8.3 | 3.0 | 5.6 | 10.6 | 13.9 |
| Price to income in level (1) | years | (b) | 19.6 | 15.0 | 13.7 | 16.4 | 16.1 | 15.2 | 16.3 | | | | |
| Valuation gaps | | | | | | | | | | | | | |
| Price to income gap (2) | % | (c) | 25.3 | -4.1 | -12.3 | 5.1 | 3.2 | -3.1 | 4.1 | -2.3 | 1.0 | 7.7 | 9.2 |
| Price to rent gap (2) | % | (c) | 35.7 | 7.3 | -17.6 | -10.3 | -12.8 | -12.7 | -8.0 | -13.4 | -11.3 | -4.6 | -3.4 |
| Model valuation gap (3) | % | (c) | 40.1 | 10.2 | -20.1 | -14.6 | -19.8 | -25.6 | -28.1 | -32.2 | -31.6 | -24.9 | -24.0 |
| Average house price gap (4) | % | (c) | 33.7 | 4.4 | -16.7 | -6.6 | -9.8 | -13.8 | -10.7 | -16.0 | -14.0 | -7.2 | -6.0 |
| Housing credit | | | | | | | | | | | | | |
| Bank mortgages (% GDP) | % | (d) | 52.7 | 56.2 | 33.7 | 23.3 | 21.5 | 19.8 | 16.7 | | | | |
| Bank mortgages, yoy growth | % | (d) | 22.8 | -6.9 | -2.5 | 1.8 | 0.5 | -3.6 | -4.8 | | | | |
| Housing supply | | | | | | | | | | | | | |
| Residential construction - dwellings (% GDP) | % | (e) | 11.9 | 3.9 | 1.7 | 2.3 | 2.3 | 2.1 | 2.1 | | | | |
| Residential construction - dwellings, yoy growth | % | (e) | 27.5 | -28.3 | 14.1 | 19.5 | -1.4 | -7.2 | 1.0 | | | | |
| Non-residential construction (% GDP) | % | (e) | 6.8 | 4.7 | 4.4 | 4.7 | 5.0 | 4.6 | 4.3 | | | | |
| Value added in the construction sector, yoy growth | % | (e) | 24.2 | -15.0 | 8.5 | 9.1 | 5.1 | -10.2 | -4.7 | | | | |
| Building permits, yoy growth | % | (a) | 5.4 | -39.5 | 29.4 | 39.3 | 32.9 | 10.1 | 1.5 | | | | |
| Number of transactions, yoy change | % | (f) | 14.7 | -22.6 | 25.0 | | | | | | | | |
| Other housing market indicators | | | | | | | | | | | | | |
| Share of owner-occupiers, with mortgage or loan | % | (a) | 34.5 | 34.4 | 33.4 | 32.4 | 31.3 | 34.5 | | | | | |

(¹) Forecast. The forecast of house prices is computed on the basis a housing valuation model shared with Member States in the context of the EPC LIME working group. The forecasts represent real house price percentage changes expected based on economic fundamentals (population, disposable income forecast, housing stock, long-term interest rate, and the price deflator of private final consumption expenditure), as well as the error correction term summarising the adjustment of prices towards their long-run relation with fundamentals. The source for the forecast of other variables is Ameco.

(1) Price to income in level is the number of years of income necessary to buy an assumed 100m2 dwelling. See Bricongne, J-C, A Turrini, and P Pontuch, 2019, "Assessing House Prices: Insights from HouseLev, a Dataset of Price Level Estimates", Discussion Paper 101, European Commission, available in "https://ec.europa.eu/info/publications/assessing-house-prices-insights-houselev-dataset-price-level-estimates_en".

(2) Price to income and price to rent gaps are measured in deviation to the long term average (from 1995 to the latest available year).

(3) The model valuation gap is estimated in a cointegration framework with nominal house prices as the dependent variable and five fundamental explanatory variables: total population, real housing stock, real disposable income per capita, real long-term interest rate and price deflator of final consumption expenditure. See Philipponnet and Turrini, Assessing House Price Developments in the EU (2017) available in "https://ec.europa.eu/info/publications/economy-finance/assessing-house-price-developments-eu_en" and revision notes presented to LIME in October 2019 and June 2020.

(4) The average house price gap is the simple average of the price-to-income, price-to-rent and model valuation gaps.

Sources: Sources: (a) Eurostat, (b) Eurostat, OECD, ECB, BIS, Ameco, national sources, European Commission calculations, (c) European Commission calculations, (d) ECB, Ameco (e) Ameco (f) ECB .