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1. DEBT DYNAMICS: NAVIGATING RISKS IN TODAY'S ECONOMIC LANDSCAPE

The EU economy appears set for a delayed rebound in growth amid faster easing of inflation

After subdued growth in 2023, the EU economy has entered 2024 on a weaker footing than previously expected. Already towards the end of 2022, the economic expansion came to an abrupt end and activity has since been broadly stagnating, against the background of falling household purchasing power, collapsing external demand, forceful monetary tightening and the partial withdrawal of fiscal support in 2023. Economic activity is expected to gradually accelerate in 2024. Headline inflation has declined faster than expected in 2023, largely driven by falling energy prices. As inflation has declined, real wage growth and a resilient labour market should support a pick-up in consumption. Despite falling profit margins, investment should benefit from a gradual easing of credit conditions and the continued implementation of the Recovery and Resilience Facility. According to the Commission's 2024 winter forecast, the EU economy is expected to grow by 0.5% in 2023, 0.9% in 2024 and 1.7% in 2025. In the EU, the Harmonised Index of Consumer Prices (HICP) inflation is projected to fall from 6.3% in 2023 to 3.0% in 2024 and 2.5% in 2025. ([1])

Fiscal positions improved slightly in 2023

After reaching the historically high level of 6.7% of GDP in 2020 following the COVID-19 pandemic, the EU aggregate budget deficit fell to 3.3% in 2022. According to the Commission’s 2023 autumn forecast, it is projected to decline slightly to 3.2% of GDP in 2023. Crisis-related fiscal measures are estimated to have declined significantly, thanks to the full phasing out of pandemic-related temporary measures, a reduction in subsidies to private investment and a lower net budgetary impact of energy-related measures. The less favourable economic environment and higher interest expenditure are projected to have had a deficit-increasing effect in 2023. The EU aggregate debt-to-GDP ratio fell significantly to 85% at the end of 2022 from a historically high level close to 92% at the end of 2020. This decline was due to the strong post-pandemic economic recovery and high inflation, while high primary deficits continued to lift debt levels. The EU aggregate debt ratio is set to continue to decline to 83% of GDP in 2023 helped by inflation and a slight reduction of the primary deficit, while higher interest rates on new debt issuances should raise interest expenditure only gradually thanks to the long maturity of public debt. At the same time, subdued real GDP growth is expected to hardly contribute to the debt decline in 2023.

Deficit and debt ratios remain high in many Member States

According to the Commission’s 2023 autumn forecast, the EU aggregate deficit is projected to fall to 3.2% of GDP in 2023, 2.8% of GDP in 2024 and 2.7% of GDP in 2025. This decline is mostly driven by the significant reduction in energy-related measures, while higher interest expenditure are set to increase the deficit. In 2024, twelve EU Member States are expected to have a deficit above 3% of GDP. This number is expected to rise to thirteen in 2025 under a no policy change assumption. The EU aggregate debt ratio is projected to decline to around 83% of GDP in 2023 and to broadly stabilise in 2024 and 2025 above the 2019 level of around 79% of GDP. The interest

([1]) The Commission 2024 winter forecast published in February 2024 is an interim forecast which only provides an update of the GDP growth and inflation forecast. It is broadly similar to the Commission 2023 autumn forecast, which is the basis of this report.

rate-growth differential is projected to become less favourable as the growth of the GDP deflator decelerates and interest expenditure continues to rise. Primary deficits are projected to continue to weigh on debt developments. Six Member States are expected to still have debt ratios well above 90% of GDP in 2025, and another seven above 60% of GDP.

Financing conditions have eased somewhat but remain tighter than in the past

Most EU central banks tightened monetary policy further in 2023 in response to rising inflationary pressures, albeit slightly less than in 2022. Financial markets expect policy rates in the EU have peaked in 2023. Government bond yield spreads have risen in several Member States in 2022 but have fallen in 2023 remaining contained from a historical perspective. The impact of higher interest rates on government debt burdens is expected to be gradual in many Member States, as debt maturities have been lengthened over the past decade. Sovereign ratings remain favourable and stable on average across the EU, with differences between Member States. Overall, financing conditions in many EU countries have eased somewhat compared to autumn 2022 but remain tighter than in the period before.

The outlook is surrounded by high uncertainty amid geopolitical tensions

Protracted geopolitical tensions and the broadening of the Middle East conflict to the Red Sea tilt the balance of risks towards more adverse outcomes. Additional trade disruptions could bring renewed stress to supply chains, hampering production and adding price pressures. Domestically, a faster recovery of consumption, higher-than-expected wage growth and a lower-than-anticipated fall in profit margins could hold back the disinflation process. On the downside, a more persistent transmission of the still tight monetary conditions could further delay the rebound in economic activity, pushing inflation lower. Climate risks and the increasing frequency of extreme weather events continue to pose threats.

2. DEBT SUSTAINABILITY MONITOR 2023: METHODOLOGY AND USE IN THE EU FISCAL SURVEILLANCE FRAMEWORK

This report presents an update of the Commission's fiscal sustainability risk assessment

The assessment of fiscal sustainability risks presented in this report is based on latest available information as of March 2024, including updated ageing costs. The Debt Sustainability Monitor (DSM) 2023 is based on the Commission 2023 autumn forecast (which is the latest full-fledged forecast). It relies on the commonly agreed methodology of the Economic Policy Committee (EPC) for projecting medium-term GDP growth, ([2]) which takes into account the expected impact of implemented reforms. The DSM also reflects the agreed long-term economic and budgetary projections of the Ageing Report 2024, jointly prepared by the European Commission and the EPC. The latter are reflected both in the DSA and the fiscal sustainability indicators. ([3])

([2]) GDP growth over 10 years is projected in line with the EU commonly agreed methodology. It incorporates the expected favourable impact of implemented reforms (see Blondeau, F., Planas, C. and A. Rossi (2021): Output gap estimation using the European Union's commonly agreed methodology: Vade mecum and manual for the EUCAM software, European Commission Discussion Paper, 148, October).

([3]) See Ageing Report 2024, Volume 1 for the macroeconomic projections (published in November 2023) and the forthcoming Ageing Report 2024, Volume 2 for the budgetary projections. The latter were endorsed by the EPC in January 2024 and will be published in the Ageing Report in the second quarter of 2024.

The assessment is based on the well-established fiscal sustainability risk framework of the Commission

Fiscal sustainability risks are assessed with the Commission's well-established comprehensive fiscal sustainability risk framework. This framework integrates findings from the debt sustainability analysis (DSA) and fiscal sustainability indicators. It offers a coherent view of fiscal sustainability risks over short, medium, and long-term horizons across countries, based on a set of transparent criteria.

The report introduces one main methodological improvement

This edition of the Debt Sustainability Monitor brings one main methodological improvement relative to the 2022 issue, regarding the assumption on stock-flow-adjustments (SFA) beyond the short-term forecast horizon. SFA represents the difference between the change in government debt and the government balance. This variable is affected by various drivers and tends to be highly volatile, hence difficult to predict over the medium term. For this reason, it was generally assumed that SFA returned to zero beyond the short-term forecast horizon. However, in some cases, SFA appear to be significantly and systematically different from zero, due to structural factors (e.g., the build-up of public pension funds, or deferred interests linked to official loans). Based on horizontal criteria, and notably making use of the latest Ageing Report projections, the DSA now includes a non-zero SFA assumption where necessary to take account of these cases (see special issue Chapter 2 of Part II). A couple of additional technical adjustments were made to the approach: the no-fiscal-policy-change assumption, used in assessing medium- and long-term fiscal sustainability risks, was re-anchored on the first forecast year (T+1) for the needs of the reformed Stability and Growth Pact (previously anchored on the second forecast year (T+2), see special issue Chapter 1 of Part II)). Finally, the treatment of the underlying quarterly data for the stochastic projections was enhanced (see Annex A4).

The findings of the DSM are highly relevant for the EU fiscal surveillance process

The analysis of fiscal sustainability risks presented in this report contributes to the monitoring and coordination of Member States' fiscal policies. It plays a key role for the surveillance under the Stability and Growth Pact (SGP) and the European Semester, including the formulation of structural-fiscal country-specific recommendations and post-programme surveillance.

The debt sustainability analysis will play a greater role in the reformed EU economic governance framework

In February 2024, the European Parliament and the Council have reached a provisional political agreement on the most ambitious and comprehensive reform of the EU's economic governance framework since the aftermath of the economic and financial crisis. ([4]) The objectives of the reformed framework are to strengthen Member States' debt sustainability and to promote sustainable and inclusive growth in all Member States through growth-enhancing reforms and investments.

The new fiscal governance framework takes account of different fiscal challenges. In particular, it introduces risk-based surveillance, which differentiates between Member States according to their individual fiscal positions. For Member States with a government deficit above 3% of GDP or a public debt above 60% of GDP, the Commission will issue a country-specific "reference trajectory". This trajectory will provide guidance to Member States in preparing their plans and will ensure that debt is put on a plausible downward path or stays at prudent levels, and that the deficit is

([4]) See the provisional political agreement of 10 February 2024 available at https://www.consilium.europa.eu/en/press/press-releases/2024/02/10/economic-governance-review-council-and-parliament-strike-deal-on-reform-of-fiscal-rules/.

brought and maintained below 3% of GDP over the medium-term. The approach also includes safeguards to ensure a minimum debt decline (the debt sustainability safeguard) and to provide a safety margin below the Treaty deficit reference value of 3% of GDP (the deficit resilience safeguard). Member States with a government deficit below 3% of GDP and public debt below 60% of GDP will have to ensure in their plans that the deficit is maintained below 3% of GDP over the medium term and that debt remains below 60% of GDP. These Member States can request technical information from the Commission. As foreseen in the regulation, ([5]) for the first round of plans, the plausibility of public debt declining in the medium term should be based on the methodology described in this Debt Sustainability Monitor 2023. A working group for debt sustainability analysis will explore possible methodological improvements, including on underlying assumptions. The plans will be assessed by the Commission and endorsed by the Council, based on common EU criteria, while a single operational indicator – net primary expenditure – will serve as the basis for the monitoring and the assessment of compliance.

3. KEY RESULTS: RISKS ARE SIGNIFICANT IN THE MEDIUM AND LONG TERM

Short-term fiscal risks are considered to be overall low despite some vulnerabilities

Chapter 1 of Part I shows that short-term fiscal sustainability risks are overall low for 2024 (see Table 1 and 2 for an overview). According to the Commission's early-warning indicator S0, all countries have values below the critical threshold in 2023, indicating overall low risks of fiscal stress in 2024. This positive result can be largely attributed to the absence of large risks to macroeconomic stability in the short term. However, the sub-components of S0 show that fiscal vulnerabilities persist in five countries (Italy, Belgium, Spain, France and Hungary), notably driven by sizeable government gross financing needs. Different financial market indicators show that financing conditions in many EU countries eased somewhat in 2023, though remaining less favourable than prior to the last crises. Sovereign ratings are still favourable and stable on average across the EU, despite some differences across Member States.

Over the medium term, government debt is expected to decline only temporarily in case of no policy action

Chapter 2 of Part I shows that, for the EU as a whole, the debt ratio is projected to decline slightly until 2026, after which a gradual increase in the costs of ageing and interest expenditure would reverse the trend. In the baseline, the interest-growth rate differential becomes less favourable for debt reduction over the projection period, i.e. by 2034, mainly due to rising implicit interest rates. By 2027, the favourable impact of this differential will no longer be large enough to mitigate the increasing pressure of ageing costs on public finances. An alternative scenario shows that the debt increase could occur later if the structural primary balance returned to the small deficit observed on average over the past 15 years (compared with the larger deficit assumed in the baseline). Conversely, a more limited fiscal adjustment than in the baseline, a less favourable interest-growth rate differential or temporary financial stress would worsen debt dynamics. Moreover, the stochastic projections point to significant uncertainty around the baseline. With an 80% probability, debt will lie between 82% and 99% in the euro area

([5]) See Recital (14c) of the proposed regulation referred to in footnote (4).

as a whole by 2028, falling below the 2023 level with a 53% probability. In 2028, the debt ratio could stand above or below 90% with equal probability.

Medium-term risks are high in nine Member States and medium in another eleven countries

Nine Member States are found to be at high fiscal sustainability risk in the medium term (Belgium, Greece, Spain, France, Italy, Portugal, Romania, Slovakia and Finland). The high-risk classification is mainly driven by the debt dynamics under the no-fiscal policy-change baseline, with either currently high and rising debt ratios (Belgium, Spain, France and Italy), debt rising above 90% of GDP (Romania, Slovakia and Finland), or debt falling but remaining high, while the assumed fiscal position is ambitious by historical standards (Greece). In several cases, the stochastic analysis confirms the high risk of an upward trend over the next five years (Belgium, Spain, France, Italy and Finland) and shows significant uncertainty around the baseline projections (Greece, Portugal and Romania). Vulnerability to more adverse assumptions, in particular in the event of less favourable macro-financial conditions or a weaker fiscal position, also explains the classification (Portugal). Projected financing needs suggest that countries with the highest debt ratios are more exposed to potential liquidity challenges.

Medium-term fiscal sustainability risks are medium in eleven Member States (Bulgaria, Czechia, Germany, Croatia, Cyprus, Lithuania, Hungary, Malta, Austria, Poland and Slovenia). In a first group of six countries (Poland, Bulgaria, Malta, Czechia, Lithuania and Slovenia), debt is projected to increase steadily over the medium term. In Poland and Slovenia, debt is projected to exceed 60% of GDP, although there appears to be room for fiscal consolidation ([6]) as the expected fiscal position is weaker than the historical average. In Malta, debt remains slightly below 60% of GDP in the baseline, but is vulnerable to more adverse conditions, in addition to the high uncertainty indicated by the stochastic analysis. In Czechia and Lithuania, debt, although on a rising trend, would remain below 60% of GDP in all scenarios, but with only moderate fiscal consolidation space by historical standards. Bulgaria, on the other hand, has available fiscal consolidation space, but is considered at medium risk due to very high uncertainty about debt dynamics over the next five years, based on historical volatility. A second group of three countries (Germany, Austria and Croatia) are projected to initially see their debt fall and then rise again, either remaining below or exceeding their initial levels by 2034, depending on the scenario. In addition, Austria's debt would remain well above 60% of GDP, but with room for adjustment by historical standards. Finally, in the last two countries (Cyprus and Hungary), debt is projected to fall. For Cyprus, it would fall well below 60% of GDP, but with high uncertainty and based on an ambitious fiscal position by historical standards. In Hungary, debt would approach 60% of GDP in some scenarios, but with only moderate policy space for additional consolidation by historical standards.

In the remaining seven Member States (Denmark, Estonia, Ireland, Latvia, Luxembourg, the Netherlands and Sweden), medium-term fiscal sustainability risks are low. In these countries, the baseline, deterministic scenarios and stochastic projections all indicate low risk. The few sources of

([6]) This indicator measures where the assumed structural primary balance stands by historical standards. However, it doesn't preclude future policy action to improve public finances.

vulnerability do not change this classification. In particular, debt is on an upward trend in Estonia, Latvia, Luxembourg and (after an initial decline) the Netherlands, while remaining below 60% of GDP. Some uncertainty is also estimated for Estonia and Ireland, reflecting historical volatility. ([7])

Long-term risks are high in five and medium in fourteen EU countries

Chapter 3 of Part I concludes that five Member States face overall high long-term fiscal sustainability risks (Belgium, Luxembourg, Malta, Slovenia, and Slovakia). The classification reflects a significant increase in ageing costs in all countries, in particular due to higher pension expenditure. In Belgium, Malta, and Slovakia, the unfavourable initial budgetary position is also an important factor.

Fourteen Member States show overall medium long-term fiscal sustainability risks (Bulgaria, Czechia, Germany, Ireland, Spain, France, Italy, Lithuania, Hungary, the Netherlands, Austria, Poland, Romania and Finland). This assessment is generally driven by the S2 indicator, mainly due to the projected increase in ageing costs (Czechia, Germany, Ireland, Spain, Lithuania, Hungary, the Netherlands and Austria). In addition, the unfavourable initial budgetary position is a significant factor for Bulgaria, France, Poland, and Romania. For Finland, both factors are equally important. In Italy, the overall risk classification is mainly driven by the S1 indicator, which points to a significant fiscal effort needed to reduce the debt-to-GDP ratio to 60% by 2070.

In the remaining eight Member States (Denmark, Estonia, Greece, Croatia, Cyprus, Latvia, Portugal and Sweden), long-term fiscal sustainability risks are low. This reflects both contained cost of ageing over the long-term and favourable initial budgetary positions in most cases. In the cases of Croatia and Latvia decreasing ageing costs offset the impact of a relatively less favourable initial budgetary position, while in the case of Cyprus, it is the favourable initial budgetary position that offsets the impact of the significant projected increase in ageing costs. In some cases (Cyprus and Portugal), the low-risk classification rests on the assumption of a relatively large structural primary surplus by historical standards.

Several additional factors need to be taken into account in a balanced assessment of fiscal sustainability risks

Chapter 4 of Part I analyses additional risk factors as a complement to the quantitative results of the framework to ensure a balanced overall assessment of fiscal sustainability challenges. These factors are only partially factored in the quantitative results of the framework.

On the downside, the share of short-term debt, which had increased in many Member States as a result of the COVID-19 pandemic, remains non-negligible in some cases. Some non-euro area Member States are also exposed to foreign exchange rate risks. A snapshot analysis of bank balance sheets points to contained vulnerabilities in most Member States. Simulations based on the Commission's SYMBOL model show that (implicit) contingent liabilities' risks linked to the banking sector persist only in few Member States, and under a severe stressed scenario.

([7]) In the case of Ireland, alternative metrics to GDP, such as GNI* used at national level, would result in a higher projected debt ratio.

On the upside, there has been a general trend towards lengthening debt maturities over the past decade. The investor base is large and diversified in many Member States. The Eurosystem's asset purchase programmes in recent years have led to a significant increase in the share of government debt held by central banks

Table 1: **Fiscal sustainability risk classification by Member States (if different, the risk classification from the DSM 2022 is shown in brackets)**

	Overall SHORT-TERM risk category	Overall MEDIUM-TERM risk category	Overall LONG-TERM risk category
BE	LOW	HIGH	HIGH
BG	LOW	MEDIUM (LOW)	MEDIUM
CZ	LOW	MEDIUM	MEDIUM
DK	LOW	LOW	LOW
DE	LOW	MEDIUM	MEDIUM
EE	LOW	LOW	LOW
IE	LOW	LOW	MEDIUM
EL	LOW	HIGH	LOW
ES	LOW	HIGH	MEDIUM
FR	LOW	HIGH	MEDIUM
HR	LOW	MEDIUM (HIGH)	LOW (MEDIUM)
IT	LOW	HIGH	MEDIUM
CY	LOW	MEDIUM	LOW
LV	LOW	LOW	LOW
LT	LOW	MEDIUM (LOW)	MEDIUM (LOW)
LU	LOW	LOW	HIGH
HU	LOW	MEDIUM (HIGH)	MEDIUM (HIGH)
MT	LOW	MEDIUM	HIGH
NL	LOW	LOW (MEDIUM)	MEDIUM (HIGH)
AT	LOW	MEDIUM	MEDIUM
PL	LOW	MEDIUM	MEDIUM
PT	LOW	HIGH	LOW
RO	LOW	HIGH (MEDIUM)	MEDIUM
SI	LOW	MEDIUM	HIGH
SK	LOW	HIGH	HIGH
FI	LOW	HIGH (MEDIUM)	MEDIUM
SE	LOW	LOW	LOW

Source: Commission services.

Table 2: **Summary heat map of fiscal sustainability risks**

	BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE
Heat map for short-term risks in the EU countries																											
S0 overall index	0.27	0.21	0.24	0.27	0.16	0.30	0.13	0.31	0.41	0.38	0.21	0.35	0.32	0.31	0.27	0.19	0.46	0.17	0.12	0.09	0.39	0.32	0.31	0.20	0.38	0.20	0.12
Overall SHORT-TERM risk category	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Heat map for medium-term risks in the EU countries - Debt sustainability analysis (DSA)	BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE
Baseline (no-fiscal-policy-change scenario)	HIGH	LOW	MEDIUM	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	MEDIUM	HIGH	LOW	LOW	MEDIUM	LOW	MEDIUM	LOW	LOW	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	HIGH	HIGH	LOW
Debt level (2034)	122.8	45.4	47.2	7.7	64.0	22.8	30.8	116.4	118.4	130.1	61.1	164.4	38.1	55.2	52.8	36.6	62.2	59.3	53.4	80.7	77.1	83.0	92.3	74.4	115.2	94.6	13.2
Debt peak year	2034	2034	2034	2023	2023	2030	2023	2023	2034	2034	2034	2034	2023	2034	2034	2034	2024	2034	2034	2034	2034	2023	2034	2034	2034	2034	2023
Fiscal consolidation space (percentile rank of avg SPB 2024-2034)	100%	96%	26%	66%	79%	55%	57%	23%	75%	94%	51%	69%	20%	76%	43%	100%	47%	73%	94%	96%	77%	20%	78%	52%	96%	100%	65%
Stochastic projections	HIGH	MEDIUM	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	MEDIUM	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	LOW	HIGH	LOW
Probability of debt in 2028 > debt in 2023	64%	69%	47%	6%	33%	65%	30%	14%	51%	81%	39%	68%	9%	65%	65%	71%	40%	62%	48%	45%	95%	23%	85%	45%	99%	85%	5%
Difference between the 10th and 90th percentile in 2028 (p.p. of GDP)	28.5	50.6	25.4	16.8	16.2	28.7	36.4	58.0	31.1	19.5	28.9	33.3	44.6	37.3	30.2	22.4	40.3	38.2	16.4	29.3	19.5	46.7	42.3	29.4	27.4	23.5	10.0
'Historical SPB' scenario	HIGH	LOW	MEDIUM	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	MEDIUM	MEDIUM	HIGH	MEDIUM	LOW
Debt level (2034)	107.6	27.2	53.7	11.6	53.8	28.1	49.8	102.7	121.1	126.4	56.0	147.8	53.3	54.8	57.8	19.9	71.6	42.1	50.8	76.2	78.8	96.2	89.9	77.4	90.6	87.1	17.3
Debt peak year	2034	2029	2034	2023	2023	2034	2034	2023	2034	2034	2023	2034	2023	2034	2034	2026	2024	2025	2034	2023	2034	2023	2034	2034	2034	2034	2023
Fiscal consolidation space (percentile rank of avg SPB 2024-2034)	86%	84%	29%	72%	53%	64%	76%	21%	78%	91%	44%	52%	29%	74%	60%	81%	52%	56%	88%	91%	79%	43%	77%	63%	55%	96%	69%
'Adverse r-g' scenario	HIGH	LOW	MEDIUM	LOW	MEDIUM	LOW	LOW	HIGH	HIGH	HIGH	MEDIUM	HIGH	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	MEDIUM	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	HIGH	LOW
Debt level (2034)	131.7	48.3	51.1	9.2	69.4	24.5	33.3	126.0	128.0	140.4	66.1	178.8	42.0	59.4	56.4	39.3	67.8	63.6	57.4	87.1	82.8	90.3	98.6	79.4	122.3	101.2	14.7
Debt peak year	2034	2034	2034	2023	2034	2031	2023	2023	2034	2034	2034	2034	2023	2034	2034	2034	2024	2034	2034	2034	2034	2023	2034	2034	2034	2034	2023
Fiscal consolidation space (percentile rank of avg SPB 2024-2034)	100%	96%	26%	66%	79%	55%	57%	23%	75%	94%	51%	69%	20%	76%	43%	100%	47%	73%	94%	96%	77%	20%	78%	52%	96%	100%	65%
'Financial stress' scenario	HIGH	LOW	MEDIUM	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	MEDIUM	HIGH	LOW	LOW	MEDIUM	LOW	MEDIUM	LOW	LOW	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	HIGH	HIGH	LOW
Debt level (2034)	124.4	45.7	47.7	7.9	64.5	23.0	31.0	119.9	120.1	132.0	61.5	169.7	38.3	55.6	53.1	36.9	62.7	59.7	53.7	81.3	77.6	84.0	92.8	74.8	115.7	95.1	13.3
Debt peak year	2034	2034	2034	2023	2023	2030	2023	2023	2034	2034	2034	2034	2023	2034	2034	2034	2024	2034	2034	2034	2034	2023	2034	2034	2034	2034	2023
Fiscal consolidation space (percentile rank of avg SPB 2024-2034)	100%	96%	26%	66%	79%	55%	57%	23%	75%	94%	51%	69%	20%	76%	43%	100%	47%	73%	94%	96%	77%	20%	78%	52%	96%	100%	65%
'Lower SPB' scenario	HIGH	LOW	MEDIUM	LOW	MEDIUM	LOW	LOW	HIGH	HIGH	HIGH	MEDIUM	HIGH	LOW	LOW	MEDIUM	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	HIGH	HIGH	LOW
Debt level (2034)	124.8	46.0	55.0	13.7	67.3	23.9	32.2	120.8	124.0	133.1	67.6	171.8	42.1	56.7	55.2	36.7	69.5	62.8	56.9	82.9	84.5	83.8	98.1	81.3	118.0	96.2	16.2
Debt peak year	2034	2034	2034	2023	2034	2031	2023	2023	2034	2034	2034	2034	2023	2034	2034	2034	2024	2034	2034	2034	2034	2023	2034	2034	2034	2034	2023
Fiscal consolidation space (percentile rank of avg SPB 2024-2034)	100%	97%	29%	74%	87%	56%	59%	24%	84%	95%	54%	73%	22%	78%	46%	100%	50%	76%	100%	97%	90%	21%	84%	73%	100%	100%	67%
Overall MEDIUM-TERM risk category	HIGH	MEDIUM	MEDIUM	LOW	MEDIUM	LOW	LOW	HIGH	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	MEDIUM	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	HIGH	LOW
Heat map for long-term risks in the EU countries	BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE
S2 indicator - Baseline scenario	6.7	2.4	4.8	-1.7	2.0	-0.4	4.0	-1.7	5.9	3.1	0.7	0.9	0.7	1.3	4.4	8.6	4.3	9.4	4.5	3.3	3.8	-1.4	3.7	6.2	9.9	3.3	-0.6
S1 indicator - Baseline scenario	5.3	1.6	3.0	-2.7	1.2	-0.9	1.7	0.3	5.4	3.5	0.5	3.4	-0.4	1.3	3.3	3.5	2.5	4.4	2.8	2.5	3.2	0.6	4.7	4.7	8.7	2.0	-2.2
Overall LONG-TERM risk category	HIGH	MEDIUM	MEDIUM	LOW	MEDIUM	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	MEDIUM	LOW	LOW	MEDIUM	HIGH	MEDIUM	HIGH	MEDIUM	MEDIUM	MEDIUM	LOW	MEDIUM	HIGH	HIGH	MEDIUM	LOW

Source: Commission services.

INTRODUCTION

1. PUBLIC FINANCES IN THE EU: A SNAPSHOT

The EU economy appears set for a delayed rebound in growth amid faster easing of inflation. After subdued growth in 2023, the EU economy has entered 2024 on a weaker footing than previously expected. Already towards the end of 2022, the economic expansion came to an abrupt end and activity has since been broadly stagnating, against the background of falling household purchasing power, collapsing external demand, forceful monetary tightening and the partial withdrawal of fiscal support in 2023. Economic activity is expected to gradually accelerate in 2024. Headline inflation has declined faster than expected in 2023, largely driven by falling energy prices. As inflation has declined, real wage growth and a resilient labour market should support a pick-up in consumption. Despite falling profit margins, investment should benefit from a gradual easing of credit conditions and the continued implementation of the Recovery and Resilience Facility. According to the Commission's 2024 winter forecast, the EU economy is expected to grow by 0.5% in 2023, 0.9% in 2024 and 1.7% in 2025. In the EU, the Harmonised Index of Consumer Prices (HICP) inflation is projected to fall from 6.3% in 2023 to 3.0% in 2024 and 2.5% in 2025. ([8])

Fiscal positions improved slightly in 2023. After reaching the historically high level of 6.7% of GDP in 2020 following the COVID-19 pandemic, the EU aggregate budget deficit fell to 3.3% in 2022. According to the Commission's 2023 autumn forecast, it is projected to decline slightly to 3.2% of GDP in 2023. Crisis-related fiscal measures are estimated to have declined significantly, thanks to the full phasing out of pandemic-related temporary measures, a reduction in subsidies to private investment and a lower net budgetary impact of energy-related measures. The less favourable economic environment and higher interest expenditure are projected to have had a deficit-increasing effect in 2023. The EU aggregate debt-to-GDP ratio fell significantly to 85% at the end of 2022 from a historically high level close to 92% at the end of 2020. This decline was due to the strong post-pandemic economic recovery and high inflation, while high primary deficits continued to lift debt levels. The EU aggregate debt ratio is set to continue to decline to 83% of GDP in 2023 helped by inflation, while higher interest rates on new debt issuances are expected to pass-through interest expenditure only gradually thanks to the long maturity of public debt. At the same time, subdued real GDP growth is expected to hardly contribute to the debt-ratio decline in 2023.

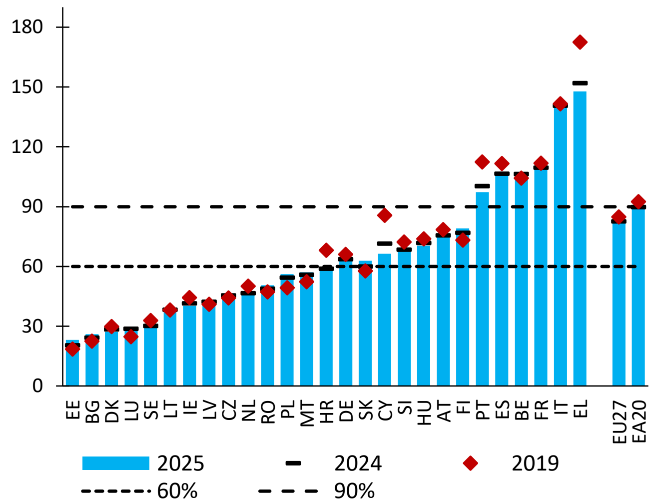
([8]) The Commission 2024 winter forecast published in February 2024 is an interim forecast which only provides an update of the GDP growth and inflation forecast. It is broadly similar to the Commission 2023 autumn forecast, which is the basis of this report.

Deficit and debt ratios remain high in many Member States. According the Commission's 2023 autumn forecast, the EU aggregate deficit is set to fall to 3.2% of GDP in 2023, 2.8% of GDP in 2024 and 2.7% of GDP in 2025. This decline is mostly driven by the significant reduction in energy-related measures, while higher interest expenditure is set to increase the deficit. In 2024, twelve EU Member States are expected to have a deficit above 3% of GDP. This number is expected to rise to thirteen in 2025 under a no policy change assumption. The EU aggregate debt ratio is projected to decline to around 83% of GDP in 2023 and to broadly stabilise in 2024 and 2025 above the 2019 level of around 79% of GDP. The interest rate-growth differential is projected to become less favourable as the growth of the GDP deflator decelerates and interest expenditure continues to rise. Primary deficits are projected to continue to weigh on debt developments. Six Member States are expected to still have debt ratios well above 90% of GDP in 2025, and another seven above 60% of GDP.

Financing conditions have eased somewhat but remain tighter than in the past. Most EU central banks tightened monetary policy further in 2023 in response to remaining inflationary pressures, albeit slightly less than in 2022. Financial markets expect policy rates in the EU have peaked in 2023. Government bond yield spreads have risen in several Member States in 2022, but have fallen in 2023 and are overall contained. The impact of higher interest rates on government debt burdens is expected to be gradual in many Member States, as debt maturities had been lengthened over the previous decade. Sovereign ratings remain favourable and stable on average across the EU, with some differences between Member States. Overall, financing conditions in many EU countries have eased somewhat compared to autumn 2022, but remain less supportive than in the period before., in line with the expectations of 'higher-for-longer' policy rates.

The outlook is surrounded by high uncertainty amid geopolitical tensions. Protracted geopolitical tensions and the broadening of the Middle East conflict to the Red Sea tilt the balance of risks towards more adverse outcomes. Additional trade disruptions could bring renewed stress to supply chains, hampering production and adding price pressures. Domestically, a faster recovery of consumption, higher-than-expected wage growth and a lower-than-anticipated fall in profit margins could hold back the disinflation process. On the downside, a more persistent transmission of the still tight monetary conditions could further delay the rebound in economic activity, pushing inflation lower. Climate risks and the increasing frequency of extreme weather events continue to pose threats.

Graph 1: **General government debt developments (% of GDP)**



Source: Commission services.

The Debt Sustainability Monitor (DSM) provides a topical assessment of fiscal sustainability risks in EU countries. The situation of public finances described in this section, and challenges looming ahead, entails that a close monitoring and assessment of fiscal sustainability risks remains important at the current juncture. Moreover, the reformed EU fiscal surveillance framework will give a stronger role to debt sustainability analysis. The rest of this introductory chapter is organised as follows: Section 2 provides a brief overview of the Commission's fiscal sustainability analysis framework; Section 3 describes the role of this analysis in the EU economic and fiscal surveillance framework.

2. THE COMMISSION FISCAL SUSTAINABILITY RISK FRAMEWORK

2.1. Main features

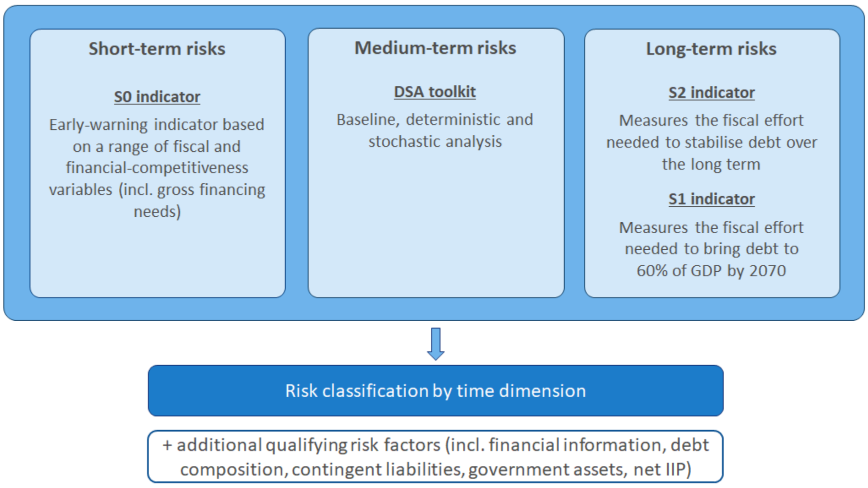
Fiscal sustainability risks in the short, medium and long term are assessed based on a multi-dimensional approach. Fiscal sustainability risks are assessed with the Commission's well-established fiscal sustainability risk framework. This framework integrates findings from the debt sustainability analysis (DSA) and fiscal sustainability indicators. It offers a coherent view of fiscal sustainability risks over short, medium, and long-term horizons across countries, based on a set of transparent criteria. Key results are summarised in an overall summary heat map of fiscal sustainability risks per time dimension. This framework is intended to help identify the size, nature and timing of fiscal sustainability risks. Such a comprehensive and multi-dimensional assessment framework is key to monitor risks and help designing appropriate policy responses.

The Commission's assessment of fiscal sustainability risk focuses on three different time horizons:

Short-term fiscal sustainability risks are assessed in particular with the Commission's early warning indicator S0 (see Part I, Chapter 1). S0 is a composite indicator that combines fiscal, financial and competitiveness variables to detect risks of fiscal stress in the coming year using a signalling approach. It is based on a set of 25 variables that have proven to be good predictors of emerging fiscal stress in the past. It can be further divided into two sub-components: fiscal risks and financial-competitiveness risks.

The analysis of *medium-term fiscal sustainability risks* relies on the Commission's comprehensive debt sustainability analysis (DSA) toolkit (see Part I, Chapter 2). The DSA combines deterministic debt projections up to 2034 with stochastic projections covering a wide range of possible shocks. The

Graph 2: **Key elements of the Commission's fiscal sustainability risk framework**



Source: Commission services.

projections include the impact of ageing-related expenditure. They consider alternative scenarios to the 'no-fiscal-policy-change' baseline, such as reverting to past fiscal behaviour, implementing only part of the forecast structural adjustment, benefiting from a less favourable interest-growth rate ('r-g') differential, and facing temporary turmoil on financial markets. This is complemented by an assessment of potential liquidity challenges based on government's gross financing needs.

Long-term fiscal sustainability risks are assessed based on two complementary fiscal gap indicators (see Part I, Chapter 3). The S2 indicator measures the fiscal effort needed to stabilise public debt over the long term. The S1 indicator measures the fiscal effort required to bring the government debt-to-GDP ratio to 60% in 2070, hence capturing vulnerabilities due to high debt levels.

The assessment includes sensitivity tests to account for uncertainty. The current high level of uncertainty means that sensitivity tests and alternative scenarios, which are routinely included in the DSM, are particularly relevant. For the DSA, various deterministic scenarios and stress tests are performed to complement the baseline. Stochastic projections are an important complement to this analysis, simulating a very large number of shocks together, based on the historical volatility of each economy and the correlation of shocks (Part I, Chapter 2). In addition, some alternative calculations to the baseline are made for the long-term fiscal sustainability indicators, including stress tests of the results against alternative developments in productivity growth or non-demographic drivers of health and long-term care expenditure (see Part I, Chapter 3).

Additional aggravating or mitigating risk factors are taken into account to ensure a balanced assessment of overall fiscal sustainability risks. The quantitative results and the resulting risk classification based on this horizontal framework need to be complemented by the consideration of additional qualifying factors. To this end, a number of additional aggravating and mitigating risk factors, such as the structure of debt, government liabilities beyond (EDP) public debt, in particular contingent liabilities, as well as government assets and net debt, are also considered to complement the model-based quantitative results and inform the overall assessment of fiscal sustainability challenges (see Part I, Chapter 4 and the country fiches in Annex A7). The importance of such factors, which are sometimes more qualitative (such as institutional factors) and/or country-specific, and the prudent application of judgement to arrive at a final assessment of fiscal sustainability risks, has been a key feature of the Commission's DSA framework since 2014 and is in line with the practice of other international institutions.

2.2. Information used and methodological improvements included in the report

The assessment presented in this report is based on latest available information as of March 2024, including updated ageing costs. The DSM is based on the Commission 2023 autumn forecast (which is the latest full-fledged forecast). It relies on the commonly agreed methodology of the Economic Policy Committee (EPC) for projecting medium-term GDP growth, ([9]) which takes into account the expected impact of implemented reforms. Importantly, the DSM also reflects the agreed long-term economic and budgetary projections of the Ageing Report 2024, jointly prepared by the European Commission and the EPC. The latter are reflected both in the DSA and the fiscal sustainability indicators. ([10])

([9]) GDP growth over 10 years is projected in line with the EU commonly agreed methodology. It incorporates the expected favourable impact of implemented reforms (see Blondeau, F., Planas, C. and A. Rossi (2021): Output gap estimation using the European Union's commonly agreed methodology: Vade mecum and manual for the EUCAM software, European Commission Discussion Paper, 148, October).

([10]) See Ageing Report 2024, Volume 1 for the macroeconomic projections (published in November 2023) and the forthcoming Ageing Report 2024, Volume 2 for the budgetary projections. The latter were endorsed by the EPC in January 2024 and will be published in the second quarter of 2024.

This edition of the Debt Sustainability Monitor introduces one main methodological improvement relative to the 2022 issue regarding the assumption on stock-flow-adjustments (SFA) beyond the short-term forecast horizon. SFA represents the difference between the change in government debt and the government balance. This variable is affected by various drivers and tends to be highly volatile, hence difficult to predict over the medium term. For this reason, it was generally assumed that SFA returned to zero beyond the short-term forecast horizon. However, in some cases, SFA appear to be significantly and systematically different from zero, due to structural factors (e.g. the build-up of public pension funds, or deferred interests linked to official loans). Based on horizontal criteria, and notably making use of the latest Ageing Report projections, the DSA now includes a non-zero SFA assumption where necessary to take account of these cases (see Part II, Chapter 2). A couple of additional technical adjustments were made to the approach: the *no-fiscal-policy-change assumption,* used in assessing medium- and long-term fiscal sustainability risks, was re-anchored on the first forecast year (T+1), for the needs of the reformed Stability and Growth Pact (see Part II, Chapter 1 - previously anchored on the second forecast year (T+2)). Finally, the *treatment of the underlying quarterly data* for the *stochastic projections* was enhanced (see Annex A4).

3. ROLE OF THE COMMISSION'S FISCAL SUSTAINABILITY ANALYSIS IN EU SURVEILLANCE

The Commission analysis of fiscal sustainability risks has contributed to the monitoring and coordination of Member States' fiscal policies for many years. It plays a key role for the surveillance under the Stability and Growth Pact (SGP) and the European Semester, including the formulation of structural-fiscal country-specific recommendations and post-programme surveillance.

The debt sustainability analysis will play a greater role in the reformed EU economic governance framework. In February 2024, the European Parliament and the Council have reached a provisional political agreement on the most ambitious and comprehensive reform of the EU's economic governance framework since the aftermath of the economic and financial crisis. ([11]) The objectives of the reformed framework are to strengthen Member States' debt sustainability and to promote sustainable and inclusive growth in all Member States through growth-enhancing reforms and priority investments. The reform aims to make the framework more risk-differentiated and effective, with greater national ownership and better enforcement. It will help Member States reduce high public debt levels in a realistic, gradual and sustained manner. The new framework also aims at promoting investments and reforms, not least to support the EU green and digital transition, notably building on the lessons learned from previous crises.

The new fiscal governance framework takes account of different fiscal challenges. The new framework introduces risk-based surveillance, which differentiates between Member States according to their individual fiscal positions. For Member States with a government deficit above 3% of GDP or a public debt above 60% of GDP, the Commission will issue a country-specific "reference trajectory". This trajectory will provide guidance to Member States in preparing their plans and will ensure that debt is put on a plausible downward path or stays at prudent levels, and that the deficit is brought and maintained below 3% of GDP over the medium-term. The approach also includes safeguards to ensure a minimum debt decline (the debt sustainability safeguard) and to provide a safety margin below the Treaty deficit reference value of 3% of GDP (the deficit resilience safeguard). Member States with a government deficit below 3% of GDP and public debt below 60% of GDP will have to ensure in their plans that the deficit is maintained below 3% of GDP over the medium term and that debt remains below 60% of GDP. These Member States can request technical information from the Commission. For the first round of plans, the plausibility of public debt declining in the medium term should be based on the methodology described in this Debt Sustainability Monitor 2023 (see Part II, Chapter 1). A working group for debt sustainability

([11]) See https://www.consilium.europa.eu/en/press/press-releases/2024/02/10/economic-governance-review-council-and-parliament-strike-deal-on-reform-of-fiscal-rules/

analysis will explore possible methodological improvements, including on underlying assumptions. The plans will be assessed by the Commission and endorsed by the Council, based on common EU criteria, while a single operational indicator – net primary expenditure – will serve as the basis for the monitoring and the assessment of compliance.

The rest of the report is structured as follows. The *first part of the report* presents the key findings of the Commission's fiscal sustainability risk framework. Chapter 1 presents the short-term fiscal sustainability analysis. Chapter 2 covers the medium-term fiscal sustainability analysis based on the DSA results. Chapter 3 focuses on the long-term fiscal sustainability analysis. Chapter 4 reviews additional aggravating and mitigating risk factors. The *second part of the report* presents special issues. Chapter 1 presents the DSA methodology in the new economic governance framework. Chapter 2 describes the revised stock-flow adjustment (SFA) assumptions. Finally, the annex provides detailed country analysis and methodological information.

PART I

FISCAL SUSTAINABILITY ANALYSIS

I.1. SHORT-TERM FISCAL SUSTAINABILITY ANALYSIS

Main takeaways

According to the Commission's early-warning indicator S0, short-term fiscal sustainability risks in all EU countries are overall low for 2024. All countries have S0 values below the critical threshold in 2023, indicating overall low risks of fiscal stress in 2024. This positive result can be largely attributed to the absence of large risks to macroeconomic stability in the short term. The overall country classifications of short-term risks have remained unchanged compared to last year and short-term risks are much lower than during the COVID-19 pandemic and the global financial crisis. However, analysing the sub-components of S0 shows that fiscal vulnerabilities persist in five countries, while vulnerabilities in the financial-competitiveness domain remain overall low in all EU countries.

Government gross financing needs, an important predictor for short-term fiscal sustainability risks, have receded compared with previous years, but are expected to remain high in few Member States in 2024. For the EU as a whole, gross financing needs reached 16% of GDP in 2023, broadly unchanged from the previous year. They are expected to remain stable over the forecast horizon, also thanks to the NextGenerationEU package and despite monetary tightening by many central banks in the EU. At country level, gross financing needs were significant in 2023 in few Member States. They are expected to remain elevated in three Member States in 2024 (Italy, France and Spain). Debt repayments followed by government deficits are the main drivers of gross financing needs. Over the forecast horizon, declining primary deficits are offset by higher interest payments due to the tightening of financial conditions.

According to financial market data, short-term sovereign risks eased somewhat in 2023 after a substantial increase in 2022. Government bond yields rose substantially in 2022 and 2023 on expectations and actions by central banks to tighten monetary policy. Sovereign yield spreads have slightly increased in 2022 in several Member States, but fell in 2023 and are overall contained**.** The impact of higher interest rate on government debt burdens is expected to be gradual in many Member States, as debt maturities have lengthened over time. The European Central Bank's indicator of sovereign market stress, known as the SovCISS indicator, confirms the easing of sovereign risks in 2023. Sovereign ratings remain favourable and stable on average across the EU, despite some differences across Member States.

The short-term risk assessment is surrounded by uncertainty. Protracted geopolitical tensions and the broadening of the Middle East conflict to the Red Sea tilt the balance of risks towards more adverse outcomes. Additional trade disruptions could bring renewed stress to supply chains, hampering production and adding price pressures. Domestically, a faster recovery of consumption, higher-than-expected wage growth and a lower-than-anticipated fall in profit margins could hold back the disinflation process. On the downside, a more persistent transmission of the still tight monetary conditions could further delay the rebound in economic activity, pushing inflation lower. Climate risks and the increasing frequency of extreme weather events continue to pose threats.

Table I.1.1: **Overview of overall short-term risk classification**

BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE

High risk · Medium risk · Low risk

Source: Commission services.

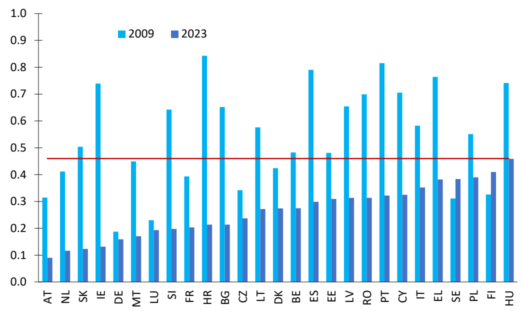
I.1.1. SHORT-TERM FISCAL SUSTAINABILITY INDICATOR: THE S0 INDICATOR

This section assesses short-term fiscal sustainability risks using the Commission's early warning indicator S0. S0 is a composite indicator that combines fiscal, financial and competitiveness variables to detect risks of fiscal stress in the coming year using a signalling approach. It is based on a set of 25 contemporaneous and lagged indicators that have proven to be good predictors of emerging fiscal stress in the past (see Box I.1.1 for more details). It can be further divided into two sub-components: fiscal risks and financial-competitiveness risks. S0 differs in nature from indicators that assess short-term fiscal sustainability risks from a financial market perspective (see Section I.1.3.) and from indicators that assess long-term fiscal sustainability risks, such as the Commission's fiscal gap indicators S1 and S2 (see Chapter I.3).

Based on the S0 indicator, short-term fiscal sustainability risks are low overall in all EU countries (see Graph I.1.1). The values of S0 for all countries remain below the critical threshold in 2023, indicating overall low risks of fiscal stress in 2024. ([12]) This positive result can be largely attributed to the absence of large risks to macroeconomic stability in the short term.

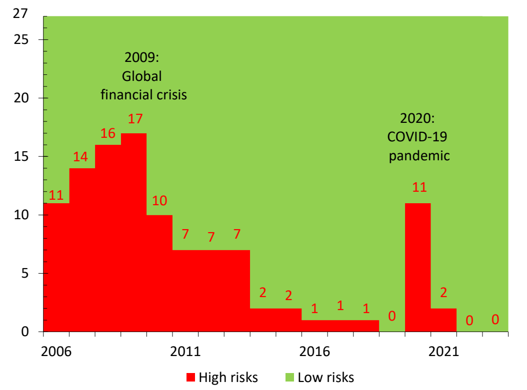
The country classifications of overall short-term risks have remained unchanged compared to last year and short-term risk have declined significantly compared to the challenging years of the COVID-19 pandemic and the global financial crisis (see Graph I.1.2). In 2009, the S0 indicator identified short-term fiscal risks in seventeen countries, mainly due to severe risks to macroeconomic stability. In 2020, eleven countries faced short-term fiscal risks due to a combination of fiscal and financial-competitiveness factors. ([13]) Yet, supportive monetary policy until 2022, together with decisive EU action, including the adoption of the NextGenerationEU package in 2020, ([14]) contributed to improving sovereign financing conditions and reducing the risks of short-term fiscal stress. In 2022, the S0 indicator pointed to low short-term risks in all EU countries.

Graph I.1.1: **The S0 indicator for EU countries (2009 and 2023)**



Source: Commission services.

Graph I.1.2: **Evolution of short-term fiscal risks in EU countries (2006-2023)**



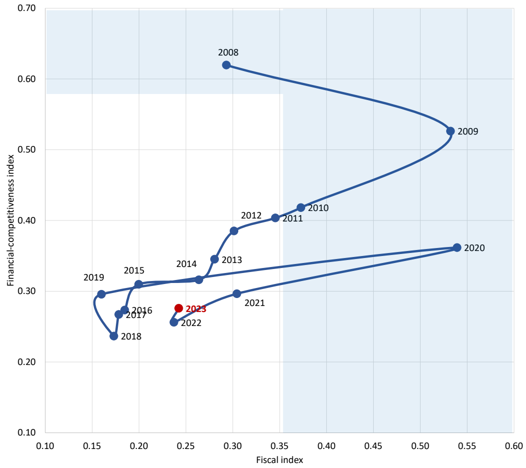
Source: Commission services.

([12]) For conceptual aspects of the S0 indicator, see Box 1.1 or Berti, K., Salto, M. and Lequien M. (2012), An early-detection index of fiscal stress for EU countries, *European Economy Economic Paper*, No. 475, and Pamies Sumner, S. and Berti, K. (2017), A complementary tool to monitor fiscal stress in European economies, *European Commission Discussion Paper*, No. 49.
([13]) See European Commission (2022), Fiscal Sustainability Report 2021, *European Economy Institutional Paper*, No. 171.
([14]) Earlier decisive actions include the creation of the SURE in 2020, as well as the activation of the ESM Pandemic Crisis Support facility.

Looking closer at the two sub-components of the S0 reveals some remaining vulnerabilities:

Fiscal vulnerabilities have slightly increased in the EU on average compared with the last year and persist in five countries (Italy, Belgium, France, Spain and Hungary, see Graph I.1.3, I.1.4, Table I.1.2). The vulnerabilities are mainly due to high government deficits in several countries, in particular as a result of increased interest spending due to tighter financing conditions in a context of higher inflation. Discretionary fiscal measures related to the war in Ukraine and higher energy prices also contributed to the deficits. Government gross financing needs remained high in five countries, but the lengthening of average debt maturities in recent years mitigated short-term risks, with financing needs remaining contained in other Member States. Only two countries exceeded the critical threshold for short-term debt, indicating that the larger issuance of short-term debt during the COVID-19 pandemic was temporary. The interest rate-growth differential supported debt reduction, but to a lesser extent than in previous years. Government debt also contributed to fiscal vulnerabilities as it remained elevated in eleven countries, exceeding 100% of GDP in six countries.

Graph I.1.3: **Development of the sub-components of the S0 indicator in the EU as a whole (2008-2023)**

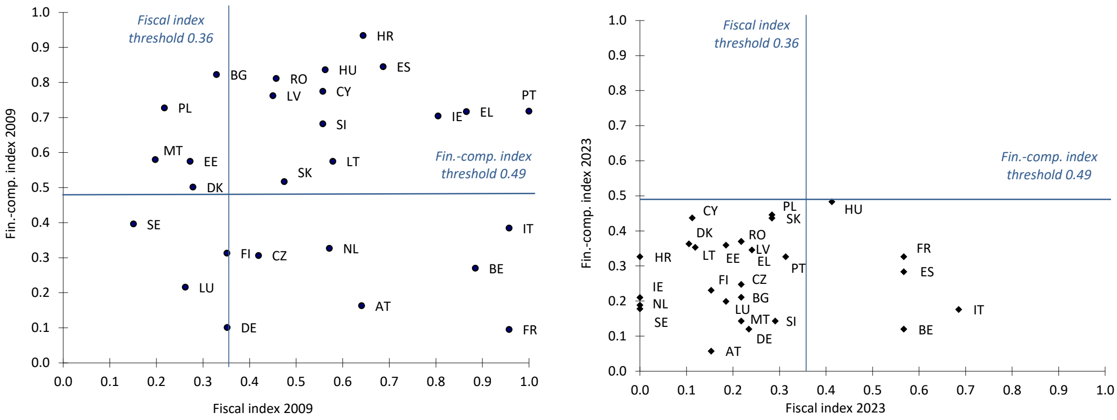


(1) The values show the simple average of the two sub-components of the S0 indicator for the EU as a whole. Blue quadrants show that the fiscal and/or financial competitiveness indices exceed the critical thresholds.
Source: Commission services.

Financial-competitiveness vulnerabilities remain overall low in all EU countries (see Graph I.1.3, I.1.4, Table I.1.3). While this sub-component indicates overall low vulnerabilities in all countries, some single variables exceed critical thresholds and therefore point to vulnerabilities. Current accounts improved in almost all countries in 2022. Yet the current account exceeds the critical threshold in six countries on account of large deficits. ([15]) Large net international investment positions generally narrowed but remain substantial in some cases. Nominal unit labour costs exceeded the critical threshold in almost all countries as nominal wages accelerated markedly against a backdrop of resurgence of inflation, and headline productivity often edged down.

([15]) The critical thresholds are determined based on a signalling approach (see Box I.1.1 for more details).

Graph I.1.4: **Fiscal and financial-competitiveness sub-indices (2009 and 2023)**



Note: For more information on the methodology of the sub-components, see Box I.1.1 or Berti, K., Salto, M. and Lequien, M. (2012), An early detection index of fiscal stress for EU countries, European Economy – Economic Paper, 475; Pamies Sumner, S. and K. Berti (2017), A complementary tool to monitor fiscal stress in European economies, European Commission Discussion Paper, 49.
Source: Commission services.

The S0 risk assessment is subject to uncertainty. Protracted geopolitical tensions and the broadening of the Middle East conflict to the Red Sea tilt the balance of risks towards more adverse outcomes. Additional trade disruptions could bring renewed stress to supply chains, hampering production and adding price pressures. Domestically, a faster recovery of consumption, higher-than-expected wage growth and a lower-than-anticipated fall in profit margins could hold back the disinflation process. On the downside, a more persistent transmission of the still tight monetary conditions could further delay the rebound in economic activity, pushing inflation lower. Climate risks and the increasing frequency of extreme weather events continue to pose threats.

Table I.1.2: **Fiscal variables used in the S0 indicator (2023)**

	Headline balance (%GDP)	Primary balance (%GDP)	Cycl. adj. balance (%GDP)	Stabil. primary balance (%GDP)	Gross debt (%GDP)	Change gross debt (%GDP)	Short-term debt (%GDP)	Net debt (%GDP)	Gross financing needs (%GDP)	Interest-rate growth differential	Change in govt. expend. (%GDP)	Change in govt. consump. (%GDP)
BE	-4.9	-3.1	-4.9	-3.3	106.3	1.9	8.7	92.9	18.2	-3.4	1.8	0.5
BG	-3.0	-2.5	-3.3	-1.8	23.5	0.9	0.0	11.4	4.6	-8.7	-0.8	0.2
CZ	-3.8	-2.4	-2.9	-2.4	44.7	0.6	2.5	31.2	8.2	-5.8	1.0	0.2
DK	2.6	3.2	3.0	1.0	30.3	0.5	3.0	3.1	5.3	3.3	2.1	1.4
DE	-2.2	-1.4	-1.7	-2.9	64.8	-1.3	7.2	46.5	16.3	-4.6	-1.3	-0.5
EE	-2.9	-2.4	-0.7	-0.6	19.2	0.7	1.3	8.0	3.0	-3.4	3.0	2.0
IE	0.9	1.6	-0.2	-1.1	43.0	-1.4	5.3	35.5	2.7	-2.6	0.8	0.2
EL	-2.3	1.1	-2.5	-8.9	160.9	-11.7	11.5	:	14.5	-5.6	-2.4	-0.1
ES	-4.1	-1.6	-4.5	-5.6	107.5	-4.1	5.7	93.9	19.6	-5.4	-0.5	-0.3
FR	-4.8	-3.1	-4.8	-5.3	109.6	-2.2	9.3	99.6	21.3	-5.1	-1.8	-0.6
HR	-0.1	1.0	-1.1	-6.2	60.8	-7.4	3.0	49.8	9.0	-10.3	0.6	0.3
IT	-5.3	-1.4	-6.0	-3.7	139.8	-1.8	18.6	132.6	25.2	-2.8	-3.0	-0.6
CY	2.3	3.7	1.3	-5.1	78.4	-7.1	1.1	43.1	4.9	-6.4	1.3	0.9
LV	-3.2	-2.5	-2.7	-2.1	41.7	0.7	0.6	32.3	7.1	-5.5	0.4	0.3
LT	-1.6	-1.1	-0.6	-2.5	37.3	-0.8	0.0	32.4	4.5	-7.2	1.7	0.7
LU	-1.9	-1.7	-0.8	-0.8	26.8	2.0	0.5	-3.6	6.2	-3.3	2.6	0.9
HU	-5.8	-1.4	-4.7	-4.7	69.9	-4.0	7.4	61.8	12.0	-7.3	-0.8	-0.3
MT	-5.1	-4.0	-4.5	-3.3	53.3	1.0	7.6	49.2	11.7	-6.8	0.0	-0.3
NL	-0.5	0.2	-0.5	-2.9	47.1	-3.0	5.5	40.6	8.0	-6.3	-0.3	0.1
AT	-2.6	-1.3	-2.3	-3.9	76.3	-2.1	5.6	56.2	15.9	-5.3	-1.7	-0.4
PL	-5.8	-3.8	-5.2	-2.9	50.9	1.6	0.8	39.1	10.4	-6.4	3.4	0.3
PT	0.8	2.8	0.0	-7.4	103.4	-9.0	19.6	102.9	7.6	-7.2	-1.6	-0.3
RO	-6.3	-4.6	-5.6	-4.0	47.9	0.7	2.9	40.1	12.2	-9.5	-0.2	-0.3
SI	-3.7	-2.5	-4.5	-5.4	69.3	-3.0	2.4	52.9	6.9	-8.2	0.7	-0.1
SK	-5.7	-4.7	-5.6	-5.0	56.7	-1.1	0.4	48.8	9.7	-9.7	5.6	0.0
FI	-2.4	-1.6	-1.5	-2.6	74.3	1.0	8.8	34.1	13.5	-3.8	1.2	0.5
SE	-0.2	0.4	0.3	-1.3	30.4	-2.5	9.3	7.1	4.3	-4.2	1.3	0.5
Threshold	-9.6	0.2	-2.5	2.3	68.4	8.1	13.2	59.5	15.9	4.8	1.9	0.6
Safety	>	>	>	<	<	<	<	<	<	<	<	<

Source: Commission services.

Table I.1.3: **Financial-competitiveness variables used in the S0 indicator (2023)**

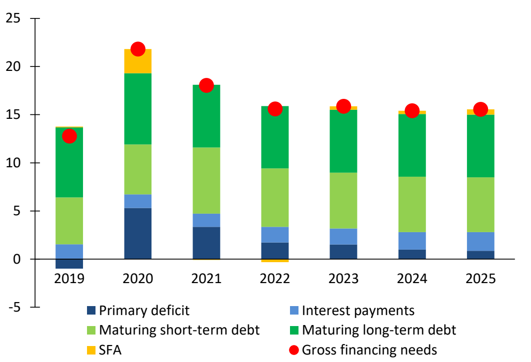
	Yield curve	Real GDP growth (t-1)	GDP per capita (PPP, USD, t-1)	NIIP (t-1)	HH net savings (%GDP, t-1)	Private debt (%GDP, t-1)	Private credit flow (%GDP, t-1)	Short debt NFC (%GDP, t-1)	Short debt HH (%GDP, t-1)	construc-tion (% value added, t-1)	Current account (%GDP, t-1)	Change in REER (t-1)	Change in nom. ULC (t-1)
BE	1.8	1.4	84.0	57.7	3.1	161.4	5.7	27.4	1.3	5.3	-0.7	-1.5	10.1
BG	:	2.0	44.0	-12.9	:	74.6	5.9	10.8	1.3	3.7	-0.8	11.4	23.6
CZ	-3.3	-0.4	62.1	-19.7	6.2	76.1	4.5	13.5	0.7	5.6	-2.3	-0.2	14.8
DK	1.2	1.2	95.9	58.2	3.2	188.0	13.1	40.9	4.2	5.3	10.0	4.8	7.2
DE	1.1	-0.3	79.9	70.2	6.4	118.4	6.7	18.2	1.4	5.7	6.3	-4.6	7.2
EE	2.6	-2.6	57.0	-20.2	-2.3	94.3	9.2	8.1	0.7	6.7	-1.7	1.7	19.0
IE	1.8	-0.9	157.3	-116.8	:	147.1	2.0	17.0	0.5	2.2	5.4	-15.8	-10.6
EL	4.0	2.4	48.0	-144.2	:	100.8	1.1	8.9	2.8	1.9	-7.7	9.9	3.5
ES	2.3	2.4	60.1	-60.2	1.7	123.5	0.3	7.3	2.6	5.4	0.7	-0.7	10.8
FR	1.7	1.0	70.4	-23.8	6.7	163.9	8.7	29.8	1.3	5.5	-1.2	0.9	11.1
HR	3.0	2.6	52.5	-25.4	0.6	79.3	6.0	4.4	2.1	5.5	-0.2	-8.3	11.0
IT	3.5	0.7	67.6	4.7	1.1	105.5	2.9	12.6	2.5	5.4	1.9	-5.5	4.9
CY	3.5	2.2	65.4	-96.2	0.2	213.4	-3.9	11.4	2.7	5.4	-8.7	-15.3	-1.2
LV	2.6	-0.2	50.1	-26.5	:	52.5	3.0	4.9	0.9	5.0	-2.7	3.1	16.7
LT	0.0	-0.4	60.6	-7.0	0.7	51.4	6.8	5.3	0.4	6.9	1.1	-4.9	27.7
LU	2.0	-0.6	174.7	47.0	:	325.5	-19.5	87.5	1.5	5.7	4.2	-5.0	13.2
HU	-4.3	-0.7	52.9	-50.8	4.6	78.8	9.2	12.6	1.6	6.3	-4.4	-6.5	23.1
MT	2.6	4.0	72.5	78.8	:	121.8	6.4	9.9	2.5	4.4	-0.8	-11.1	8.6
NL	1.4	0.6	89.8	75.2	6.2	210.1	6.9	33.5	1.3	4.7	5.6	2.1	9.8
AT	1.8	-0.5	85.5	17.6	5.2	121.9	5.0	11.0	1.8	7.3	1.3	-4.6	10.7
PL	-0.7	0.4	53.8	-33.4	-1.6	63.5	1.9	7.1	1.7	6.5	-0.7	0.8	16.9
PT	2.3	2.2	55.0	-83.6	-2.9	141.1	2.9	12.9	1.8	4.4	-1.0	-1.4	10.7
RO	1.1	2.2	54.3	-40.6	:	43.3	3.3	8.5	0.6	7.0	-7.2	0.8	10.4
SI	2.0	1.3	62.0	-1.5	:	66.0	5.2	8.3	1.7	6.8	3.6	-1.9	14.3
SK	2.3	1.3	47.5	-61.0	-1.5	92.7	9.3	11.6	1.2	6.7	-3.4	-2.3	13.3
FI	1.8	0.1	75.4	-1.7	-0.4	144.7	2.3	15.3	4.0	7.0	-0.9	2.0	8.6
SE	0.6	-0.5	82.0	34.8	6.7	207.3	10.6	41.7	14.2	6.6	5.6	-10.2	5.8
Threshold	0.6	-0.7	72.7	-19.8	2.6	164.7	11.7	15.4	2.9	7.5	-2.5	9.7	7.0
Safety	>	>	>	>	>	<	<	<	<	<	>	<	<

Source: Commission services.

I.1.2. SHORT-TERM GOVERNMENT GROSS FINANCING NEEDS

This section analyses short-term government gross financing needs, which are an important predictor of fiscal sustainability risks. Gross financing needs are usually defined as the flow of payments or financing obligations the government faces to service its debt and cover its budget deficit. They consist of three components, namely the government deficit, debt redemptions and stock-flow adjustments. Gross financing needs mainly inform about the liquidity of government finances in the short to medium term, while the debt stock captures solvency risks over the longer term. The signalling approach of the Commission shows that gross financing needs are an important predictor of episodes of fiscal stress (see Section I.1.1.). This section focuses on assessing gross financing needs over the short-term forecast horizon until 2025, while Chapter 2 - Section 2.3 analyses gross financing needs from a medium-term perspective until 2034.

Graph I.1.5: **Gross financing needs by components (% of GDP, EU, 2019-2025)**



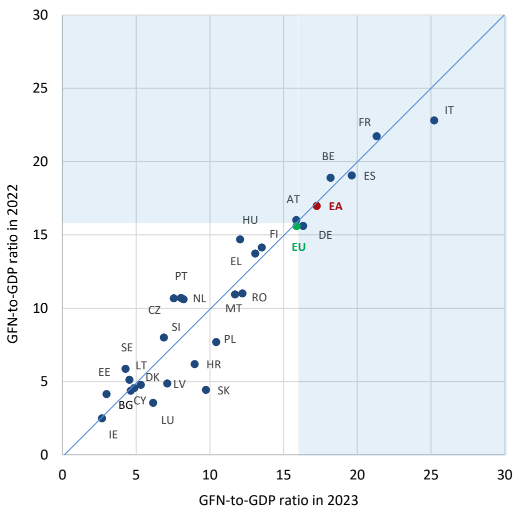
Source: Commission services.

After a sharp increase due to the COVID-19 pandemic, gross financing needs in the EU on average declined up to 2023 and are expected to remain stable until 2025 at less than 16% of GDP (see Graph I.1.5). In 2020, gross financing needs in the EU on average increased by around 10 percentage points of GDP due to several factors related to the COVID-19 crisis: (i) the very large fiscal stimulus and liquidity support measures by governments, (ii) the deep economic recession and (iii) the need to roll over large amounts of existing debt. In 2021 and 2022, gross financing needs declined mainly due to smaller primary deficits despite higher government spending in response to the food and energy crises. In 2023, they stabilised at around 16% of GDP for the EU as a whole (and around 17% of GDP for the euro area). Looking ahead, gross financing needs are expected to remain stable in 2024 and 2025. Debt service requirements are expected to remain stable, while lower projected primary deficits will be offset by higher interest expenditure.

In most EU countries, gross financing needs as a percentage of GDP experienced limited changes in 2023 compared with 2022 (see Graph I.1.6). In 14 countries, gross financing needs slightly increased in 2023 compared to the previous year. Four countries (Slovakia, Croatia, Poland and Luxembourg) experienced increases of more than 2.5 pps. of GDP. Gross financing needs declined in 13 countries, with decreases exceeding 2.5 pps. of GDP in three countries (Portugal, Hungary and the Netherlands).

Gross financing needs are expected to remain significant in three countries in 2024 (Italy, France and Spain, see Table I.1.4). In these countries, gross financing needs are expected to stay above the critical threshold of around 16% of GDP identified by the Commission's signalling approach as the threshold for potential fiscal stress. In two of these countries, gross financing needs are projected to exceed 20% of GDP (Italy and France). Gross financing needs in 2025 are projected to be above 16% of GDP in four countries (Italy, France, Spain and Belgium).

Graph I.1.6: **Gross financing needs (% of GDP, 2022 and 2023)**



(1) GFN 2022 and 2023 figures are calculated as per Table 1 in BoxI.1.2. The risk threshold of around 16% of GDP has been derived based on the signalling approach described in BoxI.1.1. (2) Blue quadrants depict countries where gross financing needs exceeded this threshold in 2022 and /or 2023.
Source: Ameco, ECB, Eurostat, ECFIN desks.

Debt repayments, followed by budget deficits, are the main drivers of gross financing needs in 2023 for most countries, while stock-flow adjustments are important only for a few countries (see Table I.1.5). On average, debt repayments account for almost 80% of gross financing needs in the EU. The share of maturing short-term debt is slightly lower (36%) than that of long-term debt (41%). Apart from debt repayments, around 20% of gross financing needs are required in the EU on average to finance government deficits. Deficits are financed in equal parts by the primary deficit and interest expenditure. Finally, stock-flow adjustments (SFA) played a small role of 2% on average in the EU, but were important for some countries. ([16])

While normalising its balance sheet, the ECB has ensured the smooth transmission of the monetary policy tightening across euro area Member States, preventing also adverse developments in government financing conditions. In 2022, the ECB bought a significant portion of government debt, covering about 8% of what governments needed to borrow. However, in 2023, the ECB did not buy any more assets, and it started reducing the amount of government securities it owned for monetary purposes. Specifically, the ECB stopped reinvesting fully the money from maturing securities under its Asset Purchase Program (APP) as of July 2023. As a result, the ECB's holdings of government securities under the APP decreased by about EUR 170 billion in 2023. In December 2023, the ECB announced that it would start reducing the reinvestments under the Pandemic Emergency Purchase Programme (PEPP) by EUR 7.5 billion in the second half of 2024 and stop them completely by the end of 2024.

([16]) In countries such as Luxembourg and Finland, stock flow assumptions have been regularly positive due to surpluses run by public pension funds (net acquisitions of financial assets) that cannot be used for central government financing (see Chapter II.2).

Table I.1.4: **Gross financing needs by country (% of GDP, 2019-2025)**

	2019	2020	2021	2022	2023	2024	2025
BE	15.6	*23.5*	*18.5*	*18.9*	*18.2*	15.9	*16.7*
DE	11.1	*20.1*	*18.5*	15.6	*16.3*	15.1	15.4
EE	1.2	10.4	2.7	4.1	3.0	3.6	3.8
IE	5.7	12.0	5.7	2.5	2.7	2.9	3.7
EL	*22.4*	*18.4*	*19.4*	13.7	13.1	7.3	9.2
ES	*17.1*	*26.9*	*23.9*	*19.1*	*19.6*	*19.6*	*19.5*
FR	*16.8*	*28.3*	*24.7*	*21.7*	*21.3*	*20.9*	*21.0*
HR	11.8	*21.9*	14.7	6.2	9.0	8.4	9.7
IT	*19.8*	*29.9*	*25.0*	*22.8*	*25.2*	*25.1*	*25.4*
CY	7.6	*25.1*	6.1	4.6	4.9	2.7	5.0
LV	4.6	9.1	10.1	4.9	7.1	7.0	6.8
LT	6.1	15.3	6.0	5.1	4.5	5.4	5.8
LU	3.1	7.5	2.7	3.5	6.2	6.4	5.9
MT	5.5	*16.1*	15.3	10.9	11.7	12.8	12.5
NL	7.6	14.1	11.3	10.7	8.0	8.9	9.2
AT	8.7	*18.2*	*16.0*	*16.0*	15.9	15.4	15.4
PT	10.9	*20.8*	12.1	10.7	7.6	7.5	7.8
SI	6.9	*17.6*	10.4	8.0	6.9	6.5	6.3
SK	3.8	14.2	7.9	4.4	9.7	11.7	11.1
FI	8.0	*19.2*	11.7	14.1	13.5	14.1	14.5
EA	13.8	***23.0***	***19.6***	***17.0***	***17.3***	***16.7***	***16.9***
BG	0.5	5.5	3.2	4.4	4.6	3.7	4.6
CZ	5.3	10.8	10.9	10.6	8.2	7.0	6.7
DK	6.4	14.6	7.7	4.8	5.3	4.3	4.1
HU	*18.1*	*27.0*	*17.1*	14.7	12.0	13.1	11.1
PL	4.7	15.7	7.6	7.7	10.4	11.5	10.2
RO	7.6	15.6	10.5	11.0	12.2	11.3	12.9
SE	5.8	12.6	8.5	5.9	4.3	4.7	4.7
EU	12.8	***21.8***	***18.0***	**15.6**	**15.9**	**15.4**	**15.6**

Notes: (1) GFN estimates / forecasts are calculated as the sum of the budgetary deficit, redemption of main debt instruments (securities and loan principal repayments), as well as stock-flow adjustments. (2) For post-programme surveillance countries (such as EL, IE, CY and PT), figures take into account official loans' repayment schedule. (3) *Figures in red italics exceed the critical* threshold of 15.95% of GDP and are therefore considered elevated according to the empirical signalling *approach* (see Box 1.1).
Source: Ameco, ECB, Eurostat, ECFIN desks.

Table I.1.5: **Gross financing needs by country and component (% of GDP, 2023)**

	Total	Components				
		Primary deficit	Interst payments	Maturing short-term debt	Maturing long-term debt	SFA
BE	18.2	-3.1	1.9	7.0	4.0	2.2
DE	16.3	-1.4	0.8	7.1	6.8	0.3
EE	3.0	-2.4	0.5	1.1	0.0	-1.1
IE	2.7	1.6	0.7	0.2	2.2	1.3
EL	13.1	1.1	3.5	6.2	6.2	-1.7
ES	19.6	-1.6	2.4	6.6	9.1	-0.1
FR	21.3	-3.1	1.7	9.0	7.5	0.1
HR	9.0	1.0	1.1	2.0	5.9	0.9
IT	25.2	-1.4	3.8	7.0	12.5	0.4
CY	4.9	3.7	1.4	0.4	5.1	1.7
LV	7.1	-2.5	0.7	0.0	3.6	0.3
LT	4.5	-1.1	0.5	0.0	2.3	0.6
LU	6.2	-1.7	0.3	0.1	2.9	1.2
MT	11.7	-4.0	1.1	4.3	2.0	0.3
NL	8.0	0.2	0.7	3.6	3.8	0.1
AT	15.9	-1.3	1.2	4.9	7.9	0.5
PT	7.6	2.8	2.0	2.6	4.5	1.2
SI	6.9	-2.5	1.3	1.2	2.1	-0.1
SK	9.7	-4.7	1.0	0.9	3.8	-0.8
FI	13.5	-1.6	0.8	6.5	2.5	2.1
EA	**17.3**	**-1.5**	**1.7**	**6.5**	**7.3**	**0.3**
BG	4.6	-2.5	0.5	0.0	1.5	0.2
CZ	8.2	-2.4	1.3	0.9	2.9	0.6
DK	5.3	3.2	0.6	2.2	3.0	2.7
HU	12.0	-1.4	4.4	3.4	3.1	-0.2
PL	10.4	-3.8	2.1	0.3	3.4	0.9
RO	12.2	-4.6	1.6	1.3	4.6	0.0
SE	4.3	0.4	0.6	5.1	0.0	-1.1
EU	**15.9**	**-1.5**	**1.7**	**5.8**	**6.5**	**0.4**

Source: Commission services.

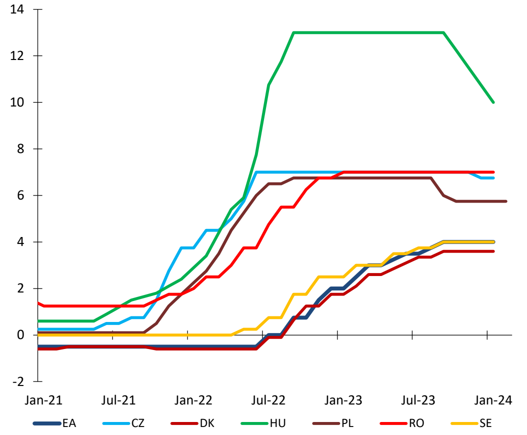
I.1.3. SOVEREIGN FINANCING CONDITIONS

This section analyses sovereign financing conditions using a set of indicators that reflect financial markets' perceptions of sovereign risk. High-frequency financial data provide valuable and early information for monitoring short-term debt dynamics and the emerging of adverse developments in fiscal sustainability, including self-reinforcing debt dynamics. ([17]) However, caution should be exercised when interpreting real-time developments, as market dynamics can be influenced by various factors. Therefore, a comprehensive analysis, taking into account several sources of information, is essential for a thorough understanding of government financing conditions.

([17]) For discussion of the market expectations on sovereign debt default and risks of self-fulfilling crisis channel, see Calvo G. (1988), Servicing the public debt: The role of expectations, *American Economic Review*, 78(4), 647-661. For an application of the EU sovereign crisis event see Miller, M., and Zhang, L. (2014), Saving the euro: Self-fulfilling crisis and the "Draghi Put", in: Stiglitz, J.E. and Heymann, D. (eds.), *Life after debt*. International Economic Association Series. Palgrave Macmillan, London.

Most EU central banks tightened monetary policy further in 2023 (see Graph I.1.7). The ECB and the central banks of Denmark and Sweden continued to raise their policy rates at a high pace in 2023, albeit slightly less than in 2022. Policy rates are expected to have peaked at 4% in the euro area and Sweden and 3.6% in Denmark. In some other EU countries (Czechia, Hungary and Poland), policy rates already peaked in 2022, as monetary policy tightened earlier and at a stronger pace than in the euro area in response to stronger inflationary pressures. In these Member States, policy rates started to decline in 2023, but they remained at high levels. In the euro area, the market reaction to the quantitative tightening has been relatively muted, reflecting the passive nature of the unwinding of the Eurosystem's securities portfolio and its gradual and predictable pace. Moreover, there is evidence that the Transmission Protection Instrument (TPI) announced in July 2022 and the flexibility of the PEPP reinvestments have helped to ensure a smooth transmission of monetary policy tightening across the euro area. ([18])

Graph I.1.7: **Overview of key policy rates of major central banks in the EU**



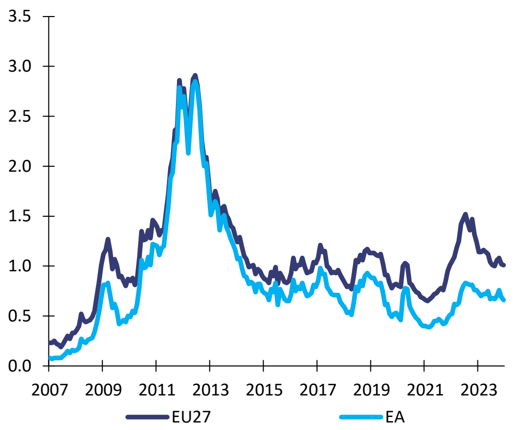
Source: Commission services.

Government bond yields have risen substantially in 2022 and 2023 on expectations and actions by central banks to tighten monetary policy. After a significant increase in 2022, sovereign yields continued to rise in 2023, with the average yield on 10-year German Bunds increasing from 1.2% in 2022 to 2.5% in 2023. The increase in sovereign yields was fairly homogeneous across euro area countries. Overall, higher financing costs put pressure on public finances. However, the impact of interest rates on government debt servicing costs is gradual, as debt maturities have been extended in many countries in recent years. Moreover, financing sources remain relatively stable, with a diversified and large investor base.

Sovereign yield spreads have increased in 2022 and then significantly declined in 2023 (see Graph I.1.8). In 2022, sovereign yields have risen significantly in some non-euro area countries (Hungary, Romania, Poland and the Czech Republic, see Graph I.1.9), mainly reflecting differences in monetary policy stances related to inflation differentials. In 2023, government bond yield spreads declined significantly. For some Member States (Greece, Italy and Portugal), sovereign spreads vis-à-vis the German Bund have generally remained broadly stable (see Graph I.1.10).

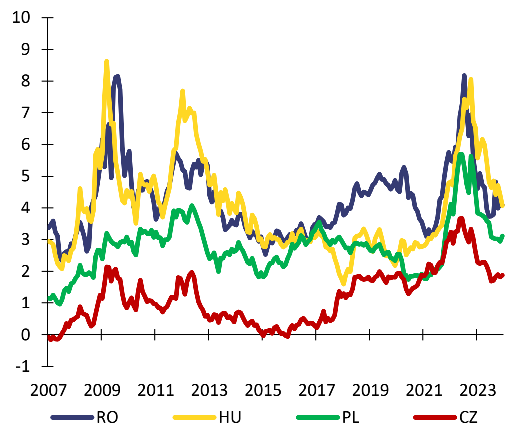
([18]) Schnabel, I. (2013): Monetary and financial stability – can they be separated?, speech by Isabel Schnabel, Member of the Executive Board of the ECB, at the Conference on Financial Stability and Monetary Policy in the honour of Charles Goodhart, London, 19 May.

Graph I.1.8: **10-year government bond yield spreads vs. the German bund (EU and EA aggregate)**



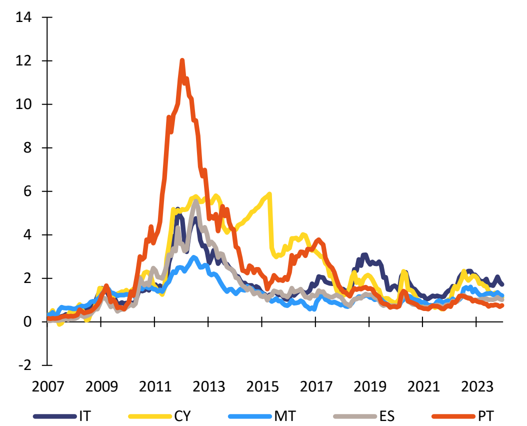
(1) Cut of date: 31 December 2023.
Source: Commission services based on ECB LTIR database.

Graph I.1.9: **10-year government bond yield spreads vs. the German bund (selected non-EA countries)**



(1) Cut of date: 31 December 2023.
Source: Commission services based on ECB LITR database.

Graph I.1.10: **10-year government bond yield spreads vs. the German bund (selected EA countries)**

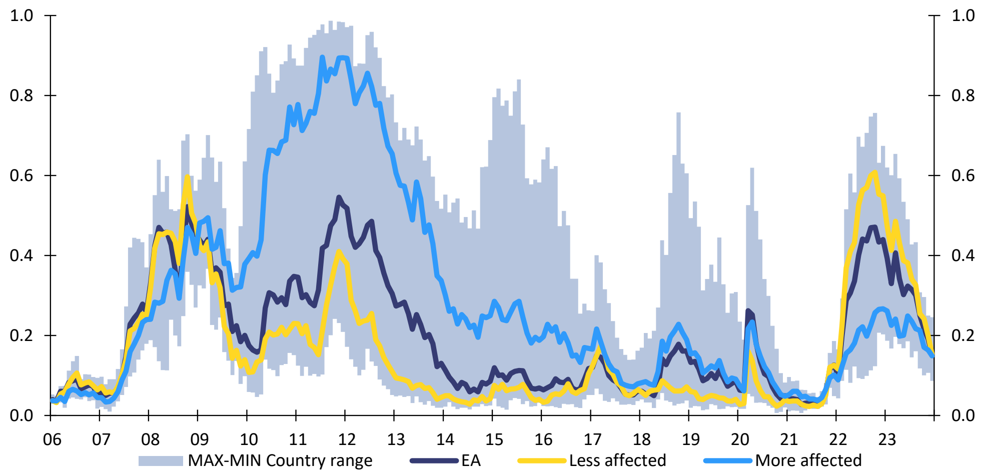


(1) Cut of date: 31 December 2023.
Source: Commission services based on ECB LTIR database.

The composite indicator of systemic sovereign stress (SovCISS) indicates that stress in euro area sovereign debt markets has increased sharply in 2022, but declined significantly in 2023 (see Graph I.1.11). ([19]) This indicator signalled very high systemic stress in euro area sovereign bond markets at the end of 2022. The increase in the gap between the minimum and the maximum (i.e. the country range) is mostly driven by a surge in the indicator as of March 2022, which had affected countries to a different extent. Since the beginning of 2023, the risks declined significantly.

([19]) The SovCISS (Composite indicator of systemic sovereign stress) measures the level of stress in euro area sovereign bond markets, following the CISS (Composite indicator of systemic stress) methodology developed in Hollo et al. (2012). Stress symptoms are measured along three dimensions: (i) risk spreads, (ii) yield volatilities, and (iii) bid-ask spreads. For details, see Garcia-de-Andoain, C. and Kremer, M. (2018), Beyond spreads: measuring sovereign market stress in the euro area, *ECB Working Paper Series*, No. 2185.

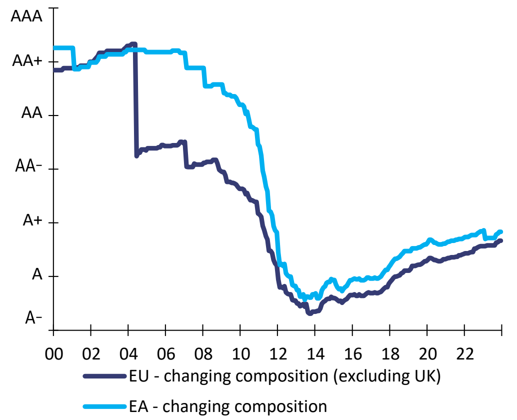
Graph I.1.11: **Composite indicator of systemic stress (SovCISS) in euro area sovereign bond markets**



Note: he SovCISS focuses on stress in sovereign bond markets. It is available for the euro area and for 11 euro area countries (AT, BE, FI, FR, DE, EL, IE, IT, NL, PT, ES). Countries more affected by the crisis include EL, IE, IT, PT, ES. Less affected countries include AT, BE, FI, FR, DE, NL.
Source: Commission services based on ECB data.

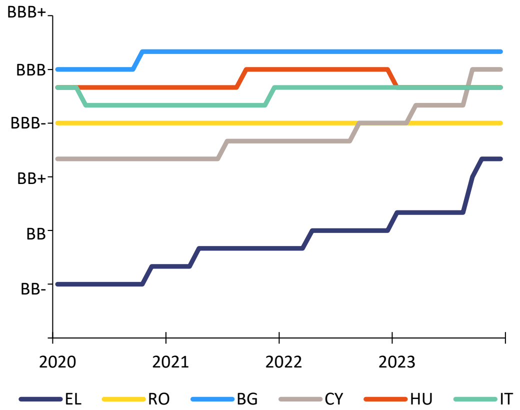
The sovereign ratings for the EU and EA remain favourable on average with some differences across countries. The relatively high ratings for the EU and EA as a whole reflect stable or improved ratings in most countries (see Graph I.1.12, Table I.1.6). At the same time, ratings remain relatively less favourable in some countries, including in some high-debt countries (see Graph I.1.13, Table I.1.6).

Graph I.1.12: **Sovereign debt ratings (EU and EA aggregates)**



(1) Ratings are computed as simple average (using an alphanumeric conversion table) of long-term foreign currency ratings, assigned by the major rating agencies.
Source: Commission services based on Moody's, S&P and Fitch.

Graph I.1.13: **Ratings of the six Member States with the lowest rating end 2023**



(1) Ratings are computed as simple average (using an alphanumeric conversion table) of long-term foreign currency ratings, assigned by the major rating agencies.
Source: Commission services based on Moody's, S&P and Fitch.

Table I.1.6: **Long-term foreign currency sovereign ratings (at 31 December 2023)**

	Moody's			S&P			
	Rating	Since	Outlook	Rating	Since	Outlook	Rating
BE	Aa3	28/04/2023	Stable	AA	28/02/2014	Stable	AA-
BG	Baa1	03/02/2023	Stable	BBB	24/11/2023	Positive	BBB
CZ	Aa3	24/11/2023	Stable	AA-	24/08/2011	Stable	AA-
DE	Aaa	10/02/2023	Stable	AAA	13/01/2012	Stable	AAA
DK	Aaa	11/02/2022	Stable	AAA	27/02/2001	Stable	AAA
EE	A1	29/04/2022	Stable	AA-	06/12/2022	Negative	AA-
IE	Aa3	21/04/2023	Stable	AA	19/05/2023	Stable	AA-
EL	Ba1	15/09/2023	Stable	BBB-	20/10/2023	Stable	BB+
ES	Baa1	15/07/2022	Stable	A	18/03/2022	Stable	A-
FR	Aa2	02/12/2022	Stable	AA	02/12/2022	Negative	AA-
HR	Baa2	10/11/2023	Positive	BBB+	15/09/2023	Positive	BBB+
IT	Baa3	17/11/2023	Stable	BBB	26/07/2022	Stable	BBB
CY	Baa2	29/09/2023	Stable	BBB	01/09/2023	Positive	BBB
LV	A3	29/04/2022	Stable	A+	06/12/2022	Negative	A-
LT	A2	29/04/2022	Stable	A+	02/12/2022	Negative	A
LU	Aaa	17/03/2023	Stable	AAA	14/01/2013	Stable	AAA
HU	Baa2	01/09/2023	Stable	BBB-	27/01/2023	Stable	BBB
MT	A2	18/11/2022	Stable	A-	13/03/2020	Stable	A+
NL	Aaa	27/01/2023	Stable	AAA	20/11/2015	Stable	AAA
AT	Aa1	24/02/2023	Stable	AA+	26/08/2022	Stable	AA+
PL	A2	29/04/2022	Stable	A-	12/10/2018	Stable	A-
PT	A3	17/11/2023	Stable	BBB+	08/09/2023	Positive	BBB+
RO	Baa3	03/11/2023	Stable	BBB-	16/04/2021	Stable	BBB
SI	A2	05/08/2022	Negative	A+	19/05/2023	Stable	A
SK	A2	24/11/2023	Negative	A+	19/05/2023	Stable	A
FI	Aa1	29/07/2022	Stable	AA+	16/09/2016	Stable	AA+
SE	Aaa	25/03/2022	Stable	AAA	16/02/2004	Stable	AAA

Source: Commission services based on Moody's, S&P and Fitch.

Box I.1.1: **S0 indicator: conceptual elements**

The S0 is an early warning indicator of short-term fiscal sustainability risks in the coming year. ([1]) Fiscal stress refers to various situations, including a credit event, a request for large official financing, an implicit default by the domestic government (in the case of high inflation) or a loss of market confidence (which was prevalent during the global financial crisis, especially for European countries). ([2]) S0 differs in nature from indicators that assess short-term fiscal sustainability risks from a financial market perspective (see Section 1.3) and from indicators that assess long-term fiscal sustainability risks, such as the Commission's fiscal gap indicators S1 and S2 (see Chapter 3).

The S0 is a composite indicator based on 25 fiscal and financial-competitiveness variables. It is based on 12 fiscal and 13 financial-competitiveness variables that have proven to be good predictors of fiscal stress in the past (see Table 1). ([3]) It can be decomposed in two sub-groups, namely fiscal risks and financial-competitiveness risks. On the fiscal side, the most powerful predictors are gross financing needs, the cyclically-adjusted government balance, net government debt, short-term government debt and the primary government balance. On the financial side, the most effective predictors are the yield curve, private sector credit flows, the current account balance, the net saving rate and the net international investment position.

The S0 indicator is calculated on the basis of an empirical method known as the signalling approach. This method involves setting critical risk thresholds endogenously, by analysing the behaviour of a large number of variables prior to past episodes of fiscal stress. More precisely, the critical thresholds are determined by minimising the missed crises and false alarms or by maximising the 'signalling power'. The signalling power indicates the effectiveness in correctly identifying true relationships and correctly rejecting false ones. S0 is then calculated as the weighted proportion of variables that have reached their critical thresholds, with weights given by their signalling power, and the critical threshold for S0 itself is derived endogenously. This method is applied to the fiscal and the financial-competitiveness sub-components of the S0. A higher S0 value indicates a greater proportion of variables meeting or exceeding their specific thresholds. Overall, the S0 indicator demonstrates strong predictive performance compared to other studies in the field. ([4])

The S0 identifies short-term fiscal risks in three different ways. First, it measures the overall short-term fiscal sustainability risks at the aggregate country or EU/EA level. Second, it provides insights into vulnerabilities in two specific areas, namely fiscal and financial competitiveness, although not necessarily at the aggregate level. Finally, it allows the identification of specific sources of vulnerability through the assessment of 25 individual indicators. This detailed identification of short-term fiscal risks facilitates the identification of areas requiring policy action at Member State and/or EU level.

([1]) See Berti, K., Salto, M., and Lequien M. (2012), An early-detection index of fiscal stress for EU countries, *European Economy Economic Paper*, No. 475.

([2]) See Pamies Sumner, S., and Berti, K. (2017), A complementary tool to monitor fiscal stress in European economies, *European Commission Discussion Paper*, No. 49.

([3]) See Cerovic, S., Gerling, K., Hodge, A., and Medas, P. (2018), Predicting fiscal crises, *IMF Working paper*, No. 18 / 181; Pamies Sumner, S., and Berti, K. (2017), A complementary tool to monitor fiscal stress in European economies, *European Commission Discussion Paper*, No. 49; Bruns, M., and Poghosyan, T. (2016), Leading indicators of fiscal distress: Evidence from the extreme bound analysis, *IMF Working Paper*, No. 16/28; Berti, K., Salto, M. and Lequien, M. (2012), An early-detection index of fiscal stress for EU countries, *European Economy Economic Paper*, No. 475.

([4]) See Cerovic, S., Gerling, K., Hodge, A., and Medas, P. (2018), Predicting fiscal crises, *IMF Working paper*, No. 18 / 181.

(Continued on the next page)

Box (continued)

Table 1: **Thresholds and signalling power of S0 indicator, fiscal and financial-competitiveness sub-indices and individual variables**

Variables	safety	threshold	signalling power	type I error	type II error	crisis number	no-crisis number
Gross financing needs, % GDP	<	15.95	0.26	0.24	0.50	26	621
Cyclically-adjusted govt. balance, % GDP	>	-2.50	0.23	0.52	0.25	40	981
Net debt, % GDP	<	59.51	0.20	0.18	0.62	26	586
Short-term govt. debt, % GDP	<	13.20	0.20	0.14	0.67	21	430
Primary govt. balance, % GDP	>	0.23	0.13	0.47	0.40	43	1058
Gross debt, % GDP	<	68.44	0.12	0.23	0.65	40	1047
Change in gross debt, % GDP	<	8.06	0.12	0.06	0.82	39	1018
Change in govt. expenditure, % GDP	<	1.90	0.11	0.13	0.76	41	1051
Stabilising primary balance, % GDP	<	2.34	0.08	0.13	0.79	38	983
Interest rate-growth differential	<	4.80	0.08	0.11	0.82	38	977
Headline gov. balance, % GDP	>	-9.61	0.07	0.04	0.89	44	1080
Change in govt. consumption expend., % GDP	<	0.61	0.07	0.17	0.76	38	972
Fiscal index	<	0.36	0.28	0.30	0.42	45	1083
Yield curve	>	0.59	0.37	0.34	0.29	35	813
Private sector credit flow, % GDP (t-1)	<	11.70	0.37	0.28	0.35	20	409
Current account, 3-year backward MA, % GDP (t-1)	>	-2.50	0.34	0.35	0.31	42	983
Net savings of households, % GDP (t-1)	>	2.61	0.33	0.42	0.25	28	699
Net international investment position, % GDP (t-1)	>	-19.80	0.29	0.47	0.24	25	500
GDP per capita in PPP, % of US level	>	72.70	0.22	0.44	0.33	51	1129
Construction, % value added (t-1)	<	7.46	0.22	0.27	0.51	43	1006
Short-term HH debt, % GDP (t-1)	<	2.90	0.21	0.52	0.26	19	403
Short-term NFC debt, % GDP (t-1)	<	15.40	0.20	0.54	0.26	19	403
Private sector debt, % GDP (t-1)	<	164.70	0.18	0.22	0.60	20	418
Change (3 years) in nominal ULC (t-1)	<	7.00	0.18	0.64	0.18	38	967
Change (3 years) of REER based on export deflator, 37 countries	<	9.67	0.11	0.18	0.71	24	460
Real GDP growth	>	-0.67	0.10	0.09	0.81	48	1124
Financial-competitiveness index	<	0.49	0.55	0.32	0.13	52	1158
Overall S0 index	<	0.46	0.55	0.22	0.23	52	1158

(1) Variables indicated as "t-1" are taken in lagged values. (2) The variables are ordered by their signalling power. This signalling power indicates the effectiveness in correctly identifying true relationships and correctly rejecting false ones. For instance, a signalling power of 0.3 suggests that the approach correctly identifies true relationships and correctly rejects false ones in about 30% of cases. The signalling power is defined as (1 - type I error - type II error). See Annex A4 for more details.
Source: Commission services.

The interpretation of the risk assessment based on the S0 should be done with some caution:

- First, although the framework described above is quite comprehensive, it omits some dimensions relevant to the analysis of short-term sustainability risks. For example, qualitative factors or variables with limited data availability are not captured in the S0.
- Second, the S0 indicator may have limitations in the face of rapidly changing developments. The S0 indicator is based on annual indicators from the previous and current year, which have proved to be good predictors of fiscal stress in the coming year. However, it does not capture changes which occur unexpectedly and/or rapidly. ([5])
- Finally, a high short-term risk signal indicated by the S0 does not imply that fiscal stress is inevitable. Instead, it signals that there are significant vulnerabilities that need to be addressed by appropriate policy responses.

Therefore, the interpretation of the S0 should be supplemented with a broader country-specific analysis to gain a comprehensive understanding of the situation.

([5]) For example, the announcement of the NGEU/RRF is considered to have helped mitigate short-term risks, although this has not yet been fully reflected in the outturn or current year data.

Box I.1.2: **Gross financing needs: definition and measurement**

Gross financing needs (GFN) are usually defined as the flow of payments or financing obligations the government faces to service its debt and cover its budget deficit over the next period. They consist of the sum of the following three components, namely:

- ***General government deficit*** measures the headline balance or the sum of primary balance and interest payments.

- ***Debt redemptions*** refer to the process by which the government repays the principal amount of a loan or bond at maturity to the lender or bondholders.

- ***Stock flow adjustments (SFA)*** capture changes in a government's balance sheet that affect gross government debt not the budget balance. SFA include three categories: (i) Other debt creating / reducing flows (ODF), which are essentially 'below the line' items that do not affect the government balance. These items represent a net acquisition of financial assets, ([1]) (ii) the cash-accrual difference, which captures the disparity between the cash-based fiscal deficit and the accrual based ESA deficit ([2]) and (iii) other adjustments and discrepancies, which account for various additional factors and discrepancies that may arise. ([3])

Gross financing needs are primarily a flow concept focusing on the liquidity aspect of government finances, while government debt is a stock indicator assessing solvency risks. GFN provide information on the flow of funds required to finance government operations. They various factors, including borrowing terms, maturity structure, and amortization schedules for both principal and interest payments. GFN offers valuable information on the immediate funding requirements of the government.

Gross financing needs are a useful indicator to gain insights into financing dynamics and ensure effective management of fiscal challenges and risks. GFN estimates are particularly valuable when designing a macroeconomic adjustment programme or during a sovereign crisis, as they measure the financing needs and identify the resources required to meet them. They are also essential for regular fiscal surveillance to monitor potential market rollover risks in the short to medium term.

International institutions and creditors pay close attention to GFN when assessing fiscal risks. These institutions may use several definitions of GFN depending on their specific objectives. Different financial instruments may be included in the universe of GFN. Experts generally agree that a broad definition of GFN is appropriate to reflect the components of the Maastricht debt stock. This expanded definition typically includes currency and deposits, debt securities and loans, although the specific scope may vary depending on the purpose of the analysis.

The European Commission regularly assesses gross financing needs in its annual flagship publication, the Debt Sustainability Monitor. These assessments focus on both the short- and medium-term fiscal risks. In terms of short-term risks, Section 1.2 of this report uses GFN to assess the liquidity pressures faced by EU countries. Specifically, short-term GFN calculations include the repayment of all loans (official and commercial) maturing, as well as other net debt-creating flows (stock-flow adjustments), in order to capture

([1]) Examples: *(i)* cash / deposits (e.g. accumulation/draw-down), *(ii)* equity (nationalisation/privatisation, below-the-line financial sector recapitalisations), *(iii)* other financial assets (e.g. participation in a common financial instrument at EU level).

([2]) The cash adjustment (or difference) to the ESA budget balance usually includes (i) the difference between interest paid (+) and interest accrued (-), e.g. deferred interest payments on certain (official) loans, (ii) changes in accounts payable (e.g. tax refunds not yet paid, trade credits granted by government suppliers, grants received from the EU but not yet paid to the final beneficiary, prepayments for mobile phone licences) or (iii) accounts receivable (e.g. tax receivables, military receivables, revenue from EU (structural) funds not yet received/disbursed, health care expenditure claw-back) or changes in arrears or clearance of called guarantees (applicable e.g. when called guarantees are not yet received/disbursed).

([3]) These include valuation effects, statistical discrepancies and other changes in volumes due to reclassification of units, all of which affect debt (and gross financing needs) ex-post.

(Continued on the next page)

Box (continued)

all financing needs that require market financing (see Table 1). As regards the assessment of medium-term risks, Section 2.3 of this publication presents GFN projections up to T+10, which provide insight into the medium-term outlook.

Table 1: **GFN definition - components and debt instruments included**

	Balance sheet items (liabilities) under government debt	Components and debt instruments included in the GFN definition
Budget (headline) deficit		x
Maturing debt	Currency and deposits	
	Debt securities	x
	Commercial loans	x
	Official loans	x
Stock-flow adjustments		x

Source: Commission services.

Looking ahead, several approaches could contribute to improving GFN estimates, thereby improving the short-term risk assessment. The implementation of improved practices, such as the monitoring of fiscal deficits in cash terms, would provide a more accurate picture of actual cash flow dynamics. In addition, a more precise identification and tracking of other debt-creating/reducing flows within the stock-flow adjustment would contribute to more reliable GFN estimates. Cooperation with national debt management offices to closely monitor debt repayment and issuance plans would also be beneficial in capturing real-time data and improving the accuracy of GFN projections.

I.2. MEDIUM-TERM FISCAL SUSTAINABILITY ANALYSIS

Main takeaways

The analysis of medium-term fiscal sustainability risks relies on the Commission's comprehensive debt sustainability analysis (DSA) toolkit. The DSA combines deterministic debt projections up to 2034 with stochastic projections covering a wide range of possible shocks. The projections include the impact of ageing-related expenditure. They consider alternative scenarios to the 'no-fiscal-policy-change' baseline, such as reverting to past fiscal behaviour, implementing only part of the forecast structural adjustment, benefiting from a less favourable interest-growth rate ('r-g') differential, and facing temporary turmoil on financial markets. This is complemented by an assessment of liquidity challenges based on government's gross financing needs.

In the EU as a whole, at unchanged fiscal policy, the debt-to-GDP ratio is projected to decline slightly until 2026, after which gradual increases in the cost of ageing and in interest expenditure would reverse the trend. In the baseline, the 'r-g' differential is assumed to remain only slightly negative by 2034, after increasing throughout the projection period mostly because of rising implicit interest rates. By 2027, the favourable impact of this differential – the 'snowball effect' – will therefore no longer be large enough to dampen the increasing pressure from ageing costs on public finances. An alternative scenario shows that the increase in debt for the EU as a whole could occur later and be less pronounced if the structural primary balance converged back to the small deficit observed on average in the past 15 years (compared to the larger deficit assumed in the baseline). Conversely, a more limited fiscal adjustment, a less favourable 'r-g' differential or temporary financial stress would worsen the debt dynamics.

The stochastic projections point to significant uncertainty around the baseline. With an 80% probability, debt will lie between 82% and 99% in the euro area as a whole by 2028, coming below the 2023 level with a 53% probability. In 2028, the debt ratio could stand above or below 90% with equal probability. High uncertainty in some countries reflects historically volatile macro-financial and fiscal conditions.

Overall, 9 Member States are found to be at high medium-term fiscal sustainability risk, 11 at medium risk and 7 at low risk. The high-risk classification is mainly driven by the debt dynamics under the no-fiscal-policy-change baseline, due either to currently high and still increasing debt ratios (Belgium, Spain, France and Italy), debt increasing beyond 90% of GDP (Romania, Slovakia and Finland), or debt declining but remaining at a high level and with only limited room for additional consolidation (Greece). In several cases, the stochastic analysis confirms the high risk of higher debt in 5 years' time (Belgium, Spain, France, Italy and Finland) and shows significant uncertainty surrounding the baseline projections (Greece, Portugal and Romania). Vulnerability to more adverse assumptions, in particular in case of less favourable macro-financial conditions or a weaker fiscal position, also explain the classification (Portugal). Projected financing needs suggest that countries with the highest debt ratios could also be potentially exposed to liquidity challenges.

Table I.2.1: **Overview of the medium-term risk classification**

Legend: HIGH / MEDIUM / LOW

	BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE
Medium-term risk	HIGH	MEDIUM	MEDIUM	LOW	MEDIUM	LOW	LOW	HIGH	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	MEDIUM	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	HIGH	LOW

Source: European Commission.

This chapter a assesses fiscal sustainability risks over the medium term, based on the Commission's comprehensive analytical framework. The debt sustainability analysis (DSA) captures medium-term challenges in a comprehensive way. First, the DSA includes the impact of ageing-related costs. Second, it considers both favourable and adverse scenarios in addition to the baseline. Third, it accounts for uncertainty by simulating a wide range of 10 000 possible shocks. Last but not least, it takes into account the plausibility of projected debt paths and the feasibility of fiscal consolidation measures, if needed. The DSA methodology is also applied, with some necessary adaptations, under the revised fiscal rules of in the new EU economic governance framework. Chapter II.1 presents how this is done, to ensure transparency and allow replicability.

This chapter is organised as follows. Going through the various elements of the DSA toolkit, the chapter starts with a baseline for debt trajectories over the next 10 years, along with a set of additional deterministic debt projections underpinned by alternative assumptions (Section I.2.1). To assess how a broad range of possible shocks could affect debt in the coming years, the DSA relies on stochastic debt projections, which allow to gauge the uncertainty around the baseline (Section I.2.2). Finally, the DSA is complemented by projections of governments' gross financing needs over the next decade, which provide information on potential liquidity risks (Section I.2.3). The chapter concludes with an overall assessment of medium-term fiscal risks and a comparison with the 2022 DSM (Section I.2.4). It also includes a box that details the assumptions underpinning the baseline and the alternative deterministic scenarios.

I.2.1. DETERMINISTIC GOVERNMENT DEBT PROJECTIONS

The first component of the DSA consists in a set of deterministic projections based on various scenarios. Each deterministic projection provides a single path for debt until 2034 under certain assumptions for budgetary, macroeconomic and financial variables. In addition to the baseline, four other scenarios are taken into account for the medium-term risk classification. These are the 'historical structural primary balance (SPB)', 'lower SPB', 'adverse interest-growth rate differential (r-g)' and 'financial stress' scenarios. They highlight the impact on debt of alternative assumptions for fiscal policy, real GDP growth and interest rates (Table I.2.2) and can affect the risk classification if they signal higher risk than the baseline (see Section I.2.4). For non-euro area Member States, an additional stress test hitting the exchange rate provides further information on risks, although without affecting the risk classification; its assumptions are described in Box I.2.1 and its results are provided in the statistical country fiches in Annex A8.

Table I.2.2: **Debt projections in the deterministic scenarios**

	Baseline 2023	Baseline 2034	Difference to the baseline in 2034 (pps. of GDP): 'Historical SPB' scenario	'Lower SPB' scenario	'Adverse r-g' scenario	'Financial stress' scenario
BE	106.3	122.8	-15.2	2.0	8.9	1.6
BG	23.5	45.4	-18.2	0.6	2.9	0.3
CZ	44.7	47.2	6.4	7.7	3.9	0.4
DK	30.3	7.7	3.9	6.0	1.4	0.2
DE	64.8	64.0	-10.1	3.4	5.4	0.5
EE	19.2	22.8	5.3	1.1	1.7	0.2
IE	43.0	30.8	18.9	1.4	2.5	0.2
EL	160.9	116.4	-13.6	4.4	9.6	3.5
ES	107.5	118.4	2.7	5.6	9.5	1.7
FR	109.6	130.1	-3.7	3.0	10.3	2.0
HR	60.8	61.1	-5.1	6.5	4.9	0.4
IT	139.8	164.4	-16.6	7.4	14.4	5.3
CY	78.4	38.1	15.2	4.0	3.9	0.3
LV	41.7	55.2	-0.4	1.5	4.1	0.4
LT	37.3	52.8	5.0	2.3	3.6	0.3
LU	26.8	36.6	-16.7	0.1	2.7	0.3
HU	69.9	62.2	9.4	7.3	5.6	0.5
MT	53.3	59.3	-17.2	3.5	4.3	0.4
NL	47.1	53.4	-2.7	3.5	4.0	0.3
AT	76.3	80.7	-4.5	2.2	6.5	0.6
PL	50.9	77.1	1.8	7.5	5.7	0.6
PT	103.4	83.0	13.1	0.7	7.2	1.0
RO	47.9	92.3	-2.4	5.8	6.3	0.5
SI	69.3	74.4	2.9	6.9	5.0	0.4
SK	56.7	115.2	-24.6	2.8	7.1	0.5
FI	74.3	94.6	-7.5	1.6	6.6	0.6
SE	30.4	13.2	4.1	3.0	1.5	0.1
EU	83.1	90.4	-4.7	4.2	7.4	1.4
EA	90.4	98.2	-6.1	3.8	8.0	1.6

Source: Commission services.

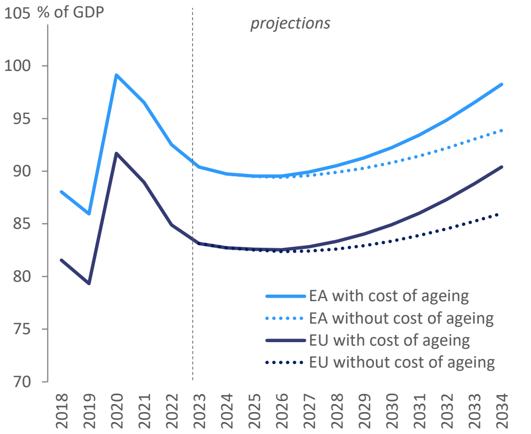
The deterministic projections feed into the medium-term risk classification using the debt level in 2034, the debt trajectory and the available 'fiscal consolidation space'. While a high level of debt can be a source of vulnerability, it is only a crude indicator of sustainability. That is why the risk classification relies on two more criteria in addition to the debt level. One is the path followed by debt over the coming decade. The other one is the 'fiscal consolidation space'. This space is measured by how often more stringent fiscal positions than assumed in a given scenario were observed in the past in the country under consideration – technically, this consists in looking at the percentile rank of the projected SPB within the distribution of SPBs observed in the past in the country. This gives an indication of whether the country has plausible fiscal room for manoeuvre to take adjustment measures if necessary. Therefore a high level of debt or an increasing debt path in the baseline do not necessarily imply high sustainability risks, as long as the government has available 'consolidation space' to rein in debt ([20]). The decision tree applied along these three criteria is described more closely in Annex A1.

This section focuses on the economic reading and main results of each scenario. It explains why the selected scenarios are relevant in the current context, and it discusses the results both for the aggregate level and across countries. Box I.2.1 includes further technical information on the underlying assumptions, and detailed projection tables can be found in the statistical annex.

I.2.1.1. Baseline: no fiscal policy change

The baseline for the medium-term debt projections assumes that structural primary budgetary positions remain at their 2024 level until 2034, except for the impact of ageing-related costs. The 2024 level is the one expected in the Commission 2023 autumn forecast (for the EU as a whole, an SPB of -0.8% of GDP), which includes the impact of policy measures adopted by end October 2023 ([21]). As from 2025, the projections do not incorporate any new measures, and the SPB is only affected by changes in the cost of ageing as projected in the forthcoming 2024 Ageing Report ([22]) (for the EU as a whole, the overall SPB including the impact of ageing costs is projected to gradually decline to -1.6% by 2034, see Annex A7.2). Therefore, the baseline highlights what would happen in the absence of new measures, as a benchmark-.

Graph I.2.1: **Gross government debt baseline projections, EU and euro area**



Source: Commission services.

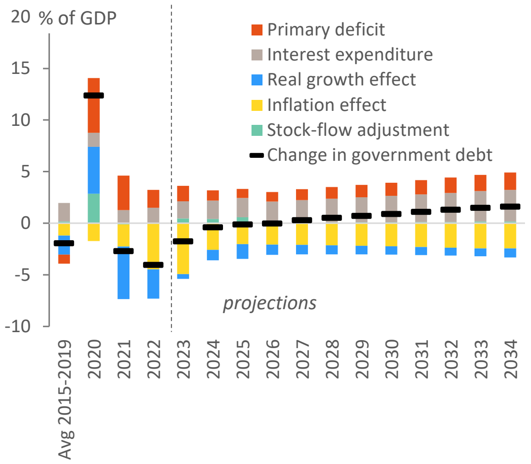
([20]) This is in line with the definition of debt sustainability risks used by the IMF, the ECB and the Commission. Debt is deemed unsustainable only in cases when there is *no politically and economically feasible fiscal path that can at least stabilise debt over the medium term* (under the baseline and realistic shock scenarios), keeping rollover risk at an acceptably low level while preserving potential growth.

([21]) Moreover, GDP growth over 10 years is projected in line with the EU commonly agreed methodology. It incorporates the expected favourable impact of implemented reforms.

([22]) See Volume 1 (https://economy-finance.ec.europa.eu/publications/2024-ageing-report-underlying-assumptions-and-projection-methodologies_en) for the underlying assumptions and methodologies. Volume 2 with the projections will be published in spring 2024.

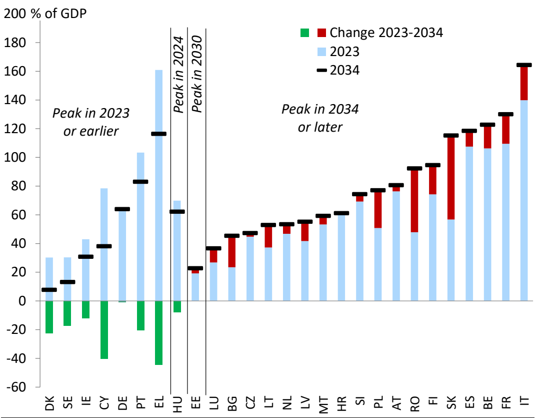
The baseline points to a slight decline of the EU debt ratio until 2026, after which gradual increases in the cost of ageing and in interest expenditure would reverse the trend. The projected debt for the euro area as a whole follows a parallel path (Graph I.2.1). The impact of the cost of ageing in the EU is visible in the worsening primary deficit (Graph I.2.2). Moreover, interest expenditure is set to increase over the medium term, doubling by 2034 its level of 2022, while the debt-reducing impact of nominal GDP growth would slightly weaken. This is expected to combine into a gradually less favourable snowball effect ([23]) over the projection horizon, especially compared with the record low levels of 2021-2022. By the end of the projection horizon, the snowball effect would therefore only slightly dampen the increase in debt ([24]).

Graph I.2.2: **Drivers of the change in debt under the baseline, EU**



Source: Commission services.

Graph I.2.3: **Gross government debt projections for EU Member States under the baseline (2023-2034)**



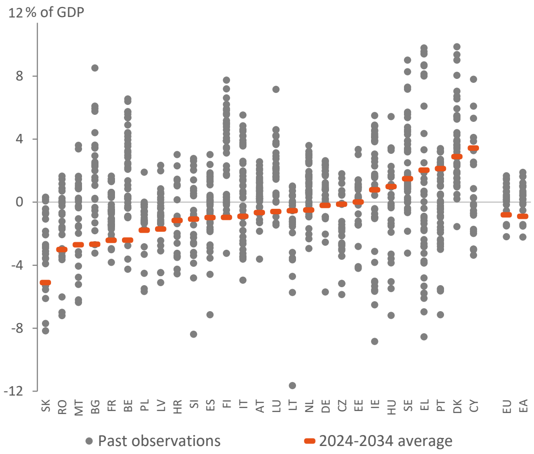
Source: Commission services.

The projected debt paths of individual Member States show contrasted situations. In 8 countries, the debt ratio projected for 2034 is at or below the level of 2023 (Graph I.2.3). In most of these countries, debt started declining after the peak of 2020-2021, or is expected to do so by 2024 at the latest, before either broadly stabilising or declining further over the medium term. In Germany, however, debt would increase again in the last years of the projection period due to rising ageing costs and interest expenditure. In the remaining 19 Member States, at unchanged policies, debt is projected to increase overall between 2023 and 2034, in some cases starting from a high level (e.g. Italy, France, Belgium and Spain).

([23]) The snowball effect, which is closely related to the interest-growth rate differential, represents the combined impact of interest expenditure, inflation and real GDP growth on debt dynamics.
([24]) For further details on the breakdown of the change in debt, see the statistical annex.

The debt paths envisaged in the baseline rely on low SPB levels by historical standards, suggesting sizeable fiscal consolidation space in most countries. This can be seen by plotting the projected SPB level (before cost of ageing) against country-specific SPB values observed in the last decades (Graph I.2.4). As most countries have often recorded higher SPBs than the level assumed in the baseline, they can realistically aim to move again towards such higher levels in the coming decade, improving the debt dynamic compared to the baseline; this is discussed in the historical SPB scenario below. However, fiscal consolidation space appears more limited in a few post-programme countries that are running structural primary surpluses while their historical track record was weaker (e.g. Greece, Cyprus and Portugal).

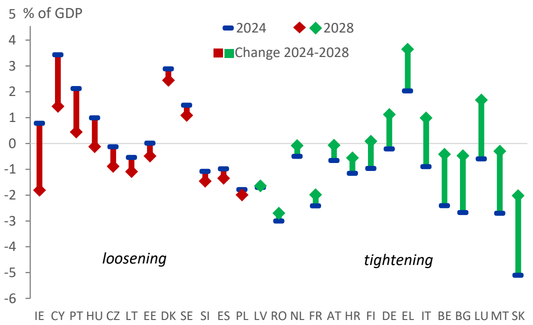
Graph I.2.4: **Structural primary balance projected under the baseline and past observations**



Notes: (1) The 2024-2034 average is the value in the baseline before cost of ageing. (2) In this graph, past annual observations start at the earliest in 1980, depending on the country, end in 2022, and include crisis years.
Source: Commission services.

I.2.1.2. Policy scenario: historical structural primary balance

Graph I.2.5: **'Historical SPB' scenario: structural primary balance in 2024 and 2028**

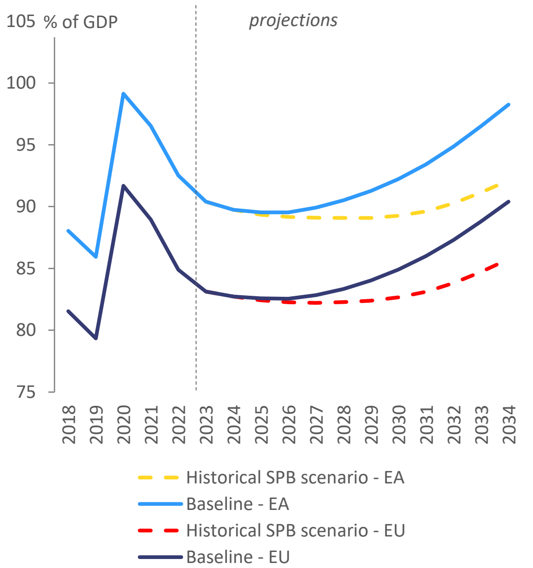


Note: The 'historical SPB' scenario assumes that the SPB gradually converges, from 2025 to 2028, to the SPB observed on average in 2008-2022.
Source: Commission services.

The first alternative scenario assumes a change in fiscal policy over the medium term – namely that the SPB will gradually converge to its average past value. This scenario illustrates the prospect of countries reverting to past fiscal behaviour instead of keeping the SPB at its 2024 level. More specifically, by 2028, each country's SPB would reach the average value observed in the country over the past 15 years, i.e. in 2008-2022 (Graph I.2.5). While half of the Member States's SPBs are already expected to stand in 2024 within 1 pp. of their historical average, this scenario would imply more significant tightening for 9 countries and loosening for 4 countries. In this scenario, by 2028, there would still be a structural primary deficit in a majority of Member States.

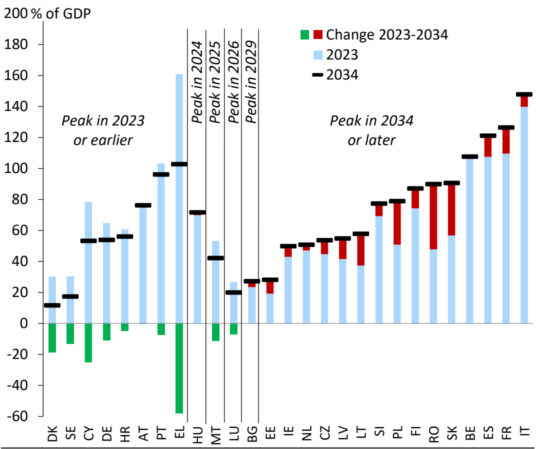
Reverting to past structural positions would improve the EU aggregate debt dynamics compared with the baseline, broadly stabilising the debt ratio until the late 2020s. For the EU as a whole, the structural primary deficit would fall from 0.8% of GDP in 2024 to 0.2% by 2028. This would allow debt to decline until 2027, for one more year than under the baseline, still remaining above its pre-pandemic level; however, the gradually less favourable snowball effect and the increasing cost of ageing would lead to a new increase in debt as from 2030 (Graph I.2.6). The same would happen in the euro area if the structural primary deficit of 0.9% of GDP in 2024 gradually improved by 2028 to the historical standard, a small deficit of 0.1% of GDP.

Graph I.2.6: **Debt projections: 'historical SPB' scenario vs. baseline, EU and euro area**



Note: The 'historical SPB' scenario assumes that the SPB gradually converges, from 2025 to 2028, to the SPB observed on average in 2008-2022. The SPB then remains constant, except for the impact of the cost of ageing.
Source: Commission services.

Graph I.2.7: **Gross government debt projections under the 'historical SPB' scenario**

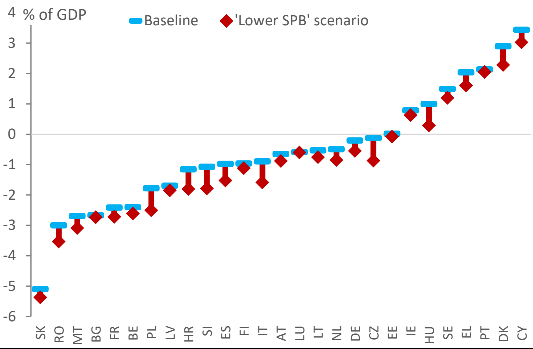


Source: Commission services.

Across countries, the 'historical SPB' scenario affects debt projections in both directions. Compared with the baseline, this scenario affects the 2034 debt level in a direction and by an amount consistent with the shock on the SPB, with the largest increases in Ireland and Cyprus and the biggest reductions in Slovakia and Malta. Among the high-debt countries, debt would increase considerably less than in the baseline in Italy and Belgium, and decline faster in Greece (for comparisons, see Table I.2.2 above and the detailed heat map at the end of this chapter, in Table I.2.6). In most countries, the peak year is unchanged compared with the baseline (Graph I.2.7). For seven Member States, however, the change in the peak year, the level of debt in 2034 or the fiscal consolidation space associated with the SPB imply a different risk signal from the baseline. The only worsening of the risk signal is for Portugal, which moves from medium risk in the baseline to high risk due to debt exceeding 90% of GDP in the 'historical SPB' scenario. The risk category comes out lower than in the baseline for Croatia, Lithuania and Austria (all at low risk, against medium risk in the baseline), and Romania and Finland (both at medium risk, against high risk in the baseline), however with no implications for the overall DSA risk classification.

I.2.1.3. Policy scenario: lower structural primary balance

Graph I.2.8: **Structural primary balance in 2024-2034 in the baseline and the 'lower SPB' scenario**

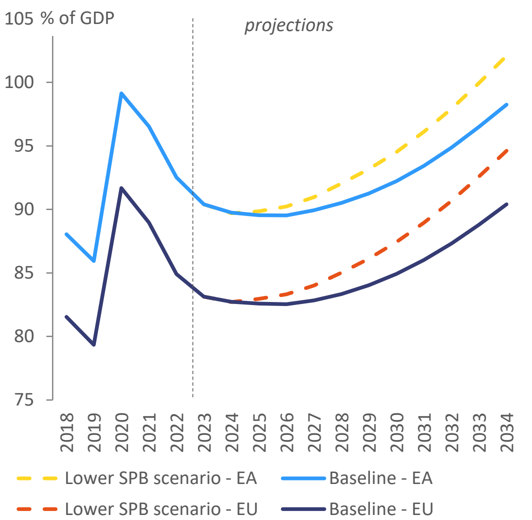


Note: The 'lower SPB' scenario assumes a 50% smaller consolidation (or 50% larger deterioration) in the SPB in 2024 than in the Commission 2022 autumn forecast. The SPB then remains constant as from 2024, except for the impact of the cost of ageing.
Source: Commission services.

The 'lower SPB' scenario assumes, for 2024, less fiscal consolidation (or more fiscal expansion) than in the baseline, implying a negative level shift. As in the baseline, this scenario keeps the SPB unchanged as from 2024, but at a lower level than in the baseline (Graph I.2.8). For most countries, the Commission 2023 autumn forecast expects the SPB to tighten in 2024 and this scenario assumes that only half of the adjustment will be delivered. For the six countries in which the SPB is expected to deteriorate (Denmark, Croatia, Lithuania, the Netherlands, Slovakia and Finland), the scenario assumes a 50% larger fall than in the baseline.

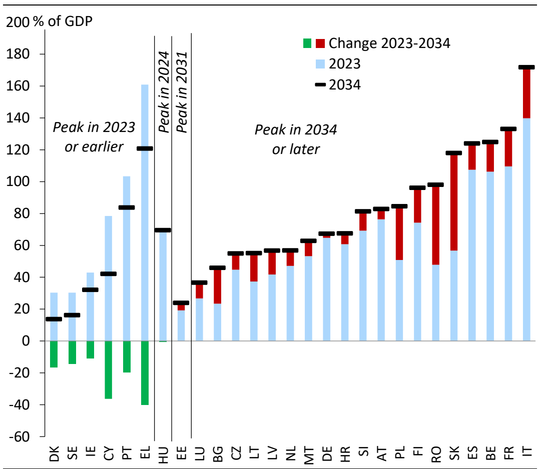
A smaller consolidation in 2024 than expected in the Commission 2023 autumn forecast, followed by unchanged fiscal policies, would imply a more rapid increase in EU debt over the medium term. Both in the EU and in the euro area as a whole, the structural primary deficit would only be reduced by 0.2 pp. of GDP in 2024 and debt would be about 4 pps. of GDP higher than in the baseline by 2034, rising to close to 95% of GDP in the EU as a whole (Graph I.2.9).

Graph I.2.9: **Debt projections: 'lower SPB' scenario vs. baseline, EU and euro area**



Note: The 'lower SPB' scenario assumes a 50% smaller consolidation (or 50% larger deterioration) in the SPB in 2024 than in the Commission 2023 autumn forecast. The SPB then remains constant as from 2024, except for the impact of the cost of ageing.
Source: Commission services.

Graph I.2.10: **Gross government debt projections under the 'lower SPB' scenario**

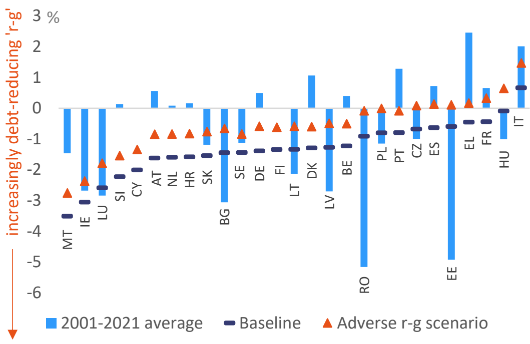


Source: Commission services.

The 'lower SPB' scenario increases debt compared to the baseline in all Member States, by construction, and worsens the risk signal in two cases. The most affected countries are Czechia, Hungary, Italy and Poland, where debt exceeds the baseline level by more than 7 pp. of GDP by 2034, although with no impact on the risk signal (Graph I.2.10). The risk signal is worse than based on the baseline for Germany and Malta, both from low to medium.

I.2.1.4. Stress test: adverse ‘r-g’ differential

Graph I.2.11: **Interest-growth rate differential in the baseline and the 'adverse r-g' scenario, 2024-2034 averages**



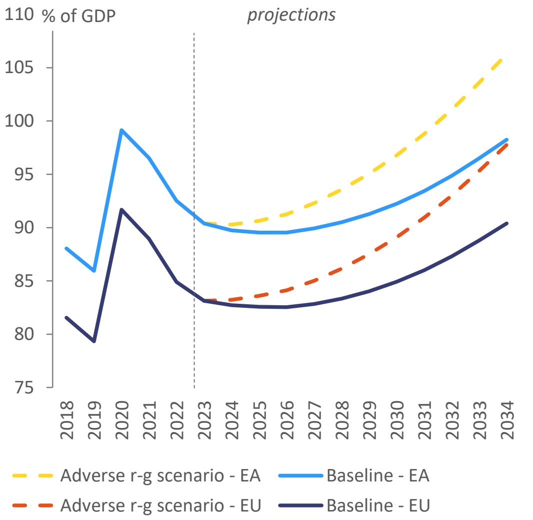
Note: The ‘adverse r-g’ scenario assumes that the differential between the market interest rate and nominal GDP growth is permanently 1 pp. higher than in the baseline from 2024 to 2034. This graph shows the impact on the differential between the implicit interest rate and nominal GDP growth, taking into account the debt maturity structure.
Source: Commission services.

This scenario captures risks related to a reversal or a reduction of the currently favourable interest-growth rate differential. The ‘r-g’ differential assumed in the baseline, although increasing over the projection period, is below historical averages in two thirds of the countries (Graph I.2.11). Stress-testing this differential is important to assess the consequences for debt sustainability risks of a possible larger correction of ‘r-g’. To do so, the difference between *market* interest rates and nominal GDP growth is permanently increased by 1 pp. compared to the baseline ([25]). Depending on the debt structure and gross financing needs, this shock gradually translates into a higher ‘r-g’ differential where r is the *implicit* interest rate. This diminishes the debt-reducing impact of the snowball effect or reinforces its debt-increasing impact, in those countries where ‘r-g’ is already projected to turn positive during the next decade (Czechia, Greece, Spain, Italy, Hungary, Poland and Romania).

Both on aggregate and in individual countries, this scenario has adverse implications for debt developments. On aggregate, debt would grow steadily and faster than in the baseline, approaching 98% of GDP by 2034 in the EU as a whole (Graph I.2.12). At the country level, the effect would be particularly large in Italy, France, Greece, Spain and Belgium (Graph I.2.13). This scenario signals higher risks than the baseline for Germany, Malta (both at medium instead of low risk) and Portugal (high instead of medium).

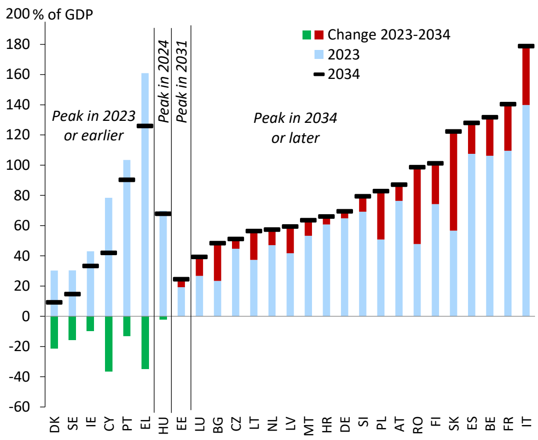
([25]) The same shock is applied to both short-term and long-term market rates.

Graph I.2.12: **Debt projections: 'adverse r-g' scenario vs. baseline, EU and euro area**



Note: The 'adverse r-g' scenario assumes that the interest-growth rate differential is permanently 1 pp. higher than in the baseline from 2024 to 2034.
Source: Commission services.

Graph I.2.13: **Gross government debt projections under the 'adverse r-g' scenario**



Source: Commission services.

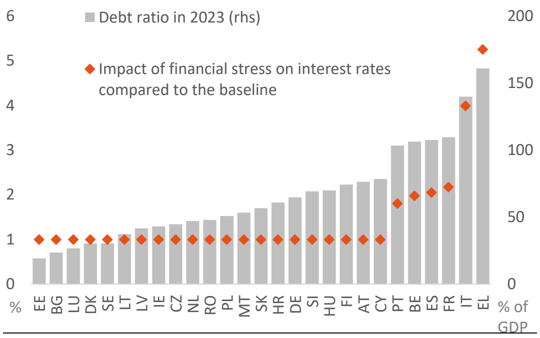
I.2.1.5. Stress test: financial stress

This scenario aims to capture risks linked to stylised temporary turmoil on financial markets. Under this scenario, a one-year shock affects market interest rates in 2024 ([26]). Furthermore, the scenario assumes that financial turmoil hits high-debt countries harder: while a flat 1 pp. interest rate hike applies to all countries, it is augmented by a 'risk premium' for highly indebted countries ([27]) (Graph I.2.14).

Despite its temporary nature, the shock on interest rates has a persistent, albeit limited, adverse impact on debt dynamics. As can be seen for the EU and euro area as a whole, the debt path would be only slightly above the baseline, by 1 ½ pps. of GDP by 2034 (Graph I.2.15). The initial impact on debt would be limited, as the higher interest rates would only affect newly issued debt. The gap would, however, be persistent and increase over time, as the shock would affect the service of debt newly issued in 2024 and make higher interest payments generate in turn new debt each year, compared with the baseline. This scenario would also have a non-negligible impact on gross financing needs, in particular in the year after the shock, when the higher rates on newly issued debt would start affecting interest payments (see Annex A3).

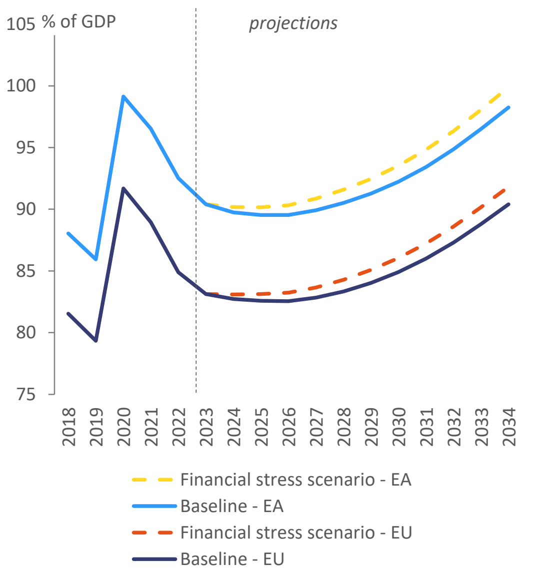
([26]) The same shock is applied to both short-term and long-term market rates.
([27]) The risk premium is equal to 0.06 times the excess of debt over 90% of GDP based on Pamies, S., Carnot, N., and Patarau, A (2021), 'Do fundamentals explain differences between euro area sovereign interest rates?', *European Economy Discussion Paper*, No. 141. – see Box I.2.1 for more details.

Graph I.2.14: **Impact of the 'financial stress' scenario on interest rates in 2024**



Notes: The ‘financial stress’ scenario assumes that the interest rate is temporarily raised by 1 pp., plus a risk premium in countries where debt exceeded 90% of GDP in 2023 (90% being the upper debt threshold used to identify high risk in the DSA classification). The risk premium is equal to 0.06 times the excess of debt over 90% of GDP.
Source: Commission services.

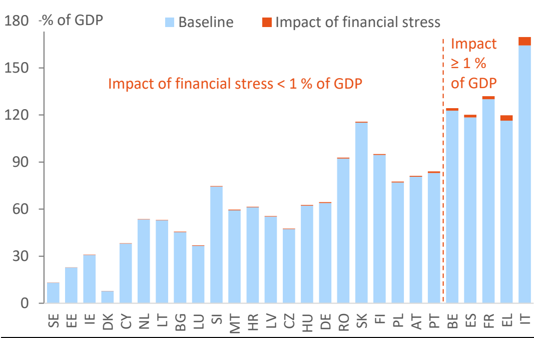
Graph I.2.15: **Debt projections: 'financial stress' scenario vs. baseline, EU and euro area**



Note: The ‘financial stress’ scenario assumes that, in 2024, market interest rates are temporarily raised by 1 pp., plus a risk premium in countries where debt exceeded 90% of GDP in 2023 (90% being the upper debt threshold used to identify high risk in the DSA classification).
Source: Commission services.

High-debt Member States are more affected by the ‘financial stress’ scenario. This scenario increases debt by more than 1 pp. of GDP by 2034 in only 5 countries, namely those with the highest projected debt ratios for 2034 in the baseline – Belgium, Greece, Spain, France and Italy (Graph I.2.16). This is because higher interest rates affect interest payments more strongly if they apply to a high debt, and this effect is exacerbated by the assumption that high-debt countries get larger shocks on interest rates. To a lesser extent, the sensitivity of individual countries to the interest shock also depends on the maturity of their debt, because a shorter maturity implies that the shock on the market rate is more rapidly transmitted to the implicit interest rate. Finally, the impact is also affected by developments in gross financing needs.

Graph I.2.16: **Gross government debt projections for 2034, 'financial stress' scenario vs. baseline**



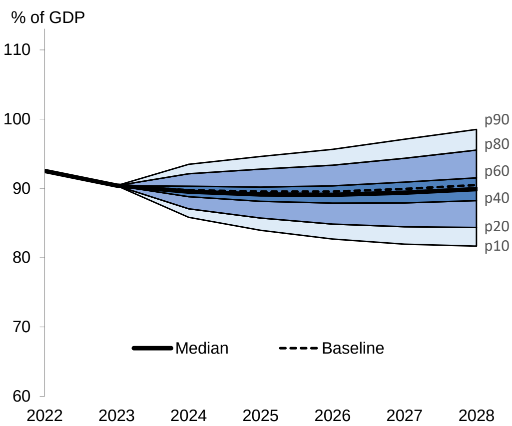
Note: Countries are ranked by increasing impact of financial stress.
Source: Commission services.

I.2.2. STOCHASTIC GOVERNMENT DEBT PROJECTIONS

Stochastic debt projections account for wide-ranging uncertainty around the baseline. Unlike deterministic projections, the outcome of stochastic projections is not a single debt path under a specific scenario, but a distribution of debt paths resulting from a wide set of shocks. These projections aim to show the impact on debt dynamics of numerous possible shocks affecting governments’ budgetary positions, economic growth, interest rates and exchange rates compared to the baseline ([28]). The shocks, applied in up to 10 000 different simulations, are calibrated to capture country-specific conditions, namely the volatility observed over the past and the correlation between the different variables.

([28]) The methodology for stochastic debt projections, including small technical adaptations introduced in this report, is presented in Annex A4.

Graph I.2.17: **Stochastic debt projections, euro area, 2024-2028**



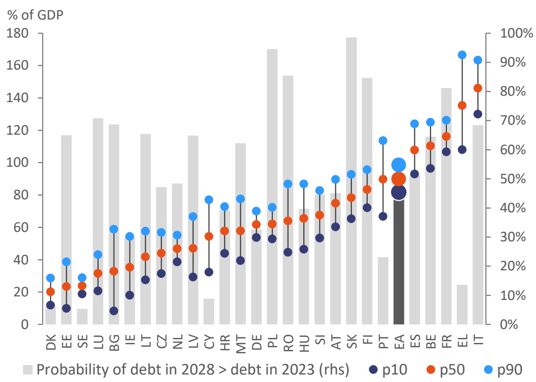
Source: Commission services.

The results of stochastic projections are shown in a fan chart around the baseline. The cone covers 80% of all simulated debt paths over a 5-year horizon, with the lower and upper limits representing respectively the 10th and 90th percentiles of the distribution. This means that, if future shocks follow the same pattern as in the past, there is an 80% probability that debt will actually lie within that cone in the next 5 years. The chart excludes the debt paths derived from the 20% most extreme shocks, or 'tail events'. The different shades within the cone represent different portions of the overall distribution of debt paths.

The stochastic projections point to significant uncertainty over the debt trajectory in the euro area. For 2028, they suggest that, with an 80% probability, the euro area debt ratio will lie between 82% and 99% of GDP, a range of 17 pps. (Graph I.2.17). The median debt ratio for 2028 is estimated at 90% of GDP, i.e. there is an equal probability that debt will be higher or lower than that level. Moreover, while the baseline points to a decline in the debt ratio over the next 5 years, the stochastic projections suggest with a 47% probability that debt might actually be higher in 2028 than it was in 2023.

The degree of uncertainty varies greatly across countries. The results for individual countries are summarised in Graph I.2.18. On the one hand, they indicate very low uncertainty for Sweden, where the debt ratio is likely to lie within a narrow range of 19% to 29% of GDP in 2028; moreover, debt in Sweden is clearly projected to decrease, as indicated by the low high probability of debt in 2028 exceeding the 2023 level. At the other end of the spectrum, uncertainty appears to be particularly elevated for Greece, Hungary and Bulgaria: in Bulgaria, for instance, debt could lie anywhere between 8% and 59% of GDP by 2028, with only a 35% chance that debt will decrease from its current level. Such uncertainty around the baseline reflects a high historical volatility of macro-financial and fiscal conditions.

Graph I.2.18: **Stochastic debt projections for EU Member States**



Notes: How to read this graph: for each country, there is an 80% probability that debt in 2028 will lie between the dark blue dot (the 10th percentile of the debt distribution) and the pale blue dot (the 90th percentile). The more these two points are distant, the higher the uncertainty. The median debt level in 2028 is indicated by the red dot. The grey bars indicate the probability with which debt will be higher in 2028 than it was in 2023.
Source: Commission services.

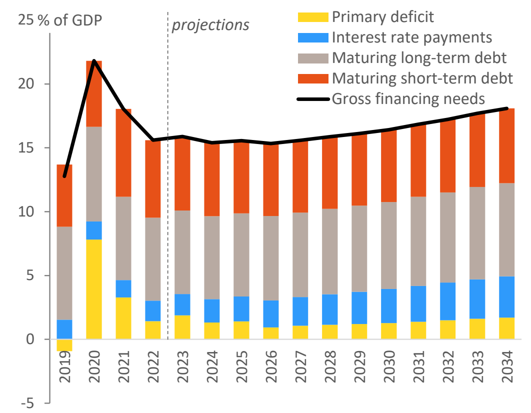
I.2.3. MEDIUM-TERM GOVERNMENT GROSS FINANCING NEEDS

Projected gross financing needs (GFN) over the medium term serve as a measure of governments' upcoming liquidity challenges. While debt is a stock, GFN are a flow metric that provides complementary information. The projected trajectory of GFN indicates to what extent governments may need to use financial markets over the coming years to finance deficits or other debt-creating flows (recorded as stock-flow adjustments), repay or roll over maturing debt, and service their debt ([29]). Elevated GFN projections therefore suggest a higher vulnerability with regard to liquidity risks.

GFN in the EU are projected to remain above pre-pandemic level and rise mildly in the coming decade. Over the period 2024-2034, GFN should average 16½ % of GDP, 4 pps. above their 2019 level (Graph I.2.19). The slowly upward trajectory projected for the next 10 years is driven by three trends. First, a gradual increase in interest payments, exceeding by 2034 their 2010s average of 2.3% of GDP by around 1 pp. Second, the need to amortise a slightly larger amount of long-term debt. And third, a rebound in primary deficits as from 2027, reflecting mainly higher ageing-related expenditure. On the other hand, maturing short-term debt should broadly stabilise at around 6% of GDP, reflecting the recent lengthening of debt maturities.

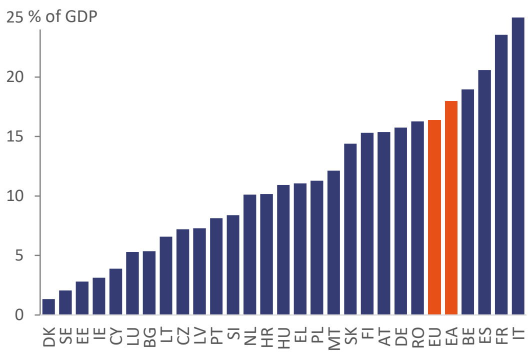
The GFN projections indicate larger liquidity challenges in high-debt Member States than the euro area average. In four euro area countries with high and increasing debt ratios (Belgium, Spain, France and Italy), GFN are projected to exceed the euro area average of about 18% of GDP on average between 2024 and 2033 under the baseline (Graph I.2.20), pointing to potential liquidity challenges. By contrast, for the six Member States with the lowest projected debt levels for 2034 under the baseline (Denmark, Estonia, Ireland, Luxembourg, Cyprus and Sweden), GFN would be limited to 5% of GDP at most.

Graph I.2.19: **General government gross financing needs and their drivers, baseline, EU**



Source: Commission services.

Graph I.2.20: **General government gross financing needs under the baseline, 2024-2034 average**



Source: Commission services.

I.2.4. OVERALL MEDIUM-TERM RISKS

I.2.4.1. Overall medium-term risk classification

To establish the medium-term risk classification, decision trees extract risk signals from the deterministic and stochastic DSA projections. For the deterministic projections, the projected debt level in 10 years' time provides the starting point; however, the risk category derived from the debt level can be notched up or down, depending on the debt path and the available 'fiscal consolidation space'. Furthermore, when the stochastic projections point to medium or high risk, this can notch up the preliminary low or medium risk signal provided by the baseline (along with additional scenarios and stress tests). However, neither stochastic projections nor additional scenarios and stress tests can notch *down* the risk signal resulting from the baseline (see Annex A1 for further details on the decision trees).

Based on this approach, 9 EU countries are deemed at high fiscal sustainability risk over the medium term. These are Belgium, Greece, Spain, France, Italy, Portugal, Romania, Slovakia and Finland (Table I.2.6). In the case of Belgium, Spain, France and Italy, every component of the DSA (i.e. the

([29]) For a more elaborate description of GFN and their use for the assessment of short-term sustainability risks, see Chapter I.1.

baseline, the other deterministic scenarios and the stochastic projections) points to high risk, because their debts are well above 90% of GDP and increasing under all scenarios – a trend also largely confirmed by the stochastic projections. For Greece, all scenarios indicate high risk because of the very high (although declining) debt level and the rather ambitious fiscal assumptions ([30]), while for Slovakia, the high risk stems from the projected rapid increase in debt from below 60% of GDP in 2023 to well above 90% by 2034 in all scenarios. Romania and Finland are in a somewhat more borderline situation, with debt exceeding 90% of GDP at unchanged policies and under some scenarios but not all. Finally, in Portugal, while debt is projected to drop below 90% of GDP in the baseline, it would remain above 90% of GDP in two adverse scenarios, with limited fiscal consolidation space ([31]) by historical standards, resulting in an overall high-risk classification.

In 11 other countries, medium-term risks are deemed medium. These are Bulgaria, Czechia, Germany, Croatia, Cyprus, Lithuania, Hungary, Malta, Austria, Poland and Slovenia. In a first group of six countries, namely Bulgaria, Czechia, Lithuania, Malta, Poland and Slovenia, debt is projected to increase steadily over the medium term. Among these, in Poland and Slovenia, debt is projected to exceed 60% of GDP, although with some fiscal consolidation space. In Malta, debt remains slightly below 60% of GDP in the baseline but is vulnerable to more adverse conditions, in addition to high uncertainty as flagged by the stochastic analysis. In Czechia and Lithuania, debt, although on an increasing trend, would remain below 60% of GDP in all scenarios but with only moderate fiscal consolidation space by historical standards. Bulgaria, by contrast, has available fiscal consolidation space but is identified at medium risk due to very high uncertainty on its debt dynamics in the next 5 years, based on historical volatility. A second group of three countries (Germany, Austria and Croatia) is projected to see its debt first decline and then increase again, either remaining below its initial level by 2034 or exceeding it, depending on the scenario. Moreover, Austria’s debt would remain well above 60% of GDP but with some fiscal consolidation space by historical standards. Finally, in the last two countries – Cyprus and Hungary – debt is projected to decline. In the case of Cyprus, it would fall well below 60% of GDP but subject to high uncertainty and based on an ambitious fiscal position by historical standards. In Hungary, debt would approach 60% of GDP in some scenarios, albeit with only moderate policy space for fiscal consolidation by historical standards.

Finally, the remaining 7 Member States are found to be at low risk over the medium term. These are Denmark, Estonia, Ireland, Latvia, Luxembourg, the Netherlands and Sweden. In these countries, the baseline, the deterministic scenarios and the stochastic projections all point to low risk. This classification is not modified by the few sources of vulnerability. In particular, debt is on an upward path in Estonia, Latvia, Luxembourg and (after an initial decline) the Netherlands – starting from an extremely low level in Estonia, but approaching 60% of GDP in some scenarios in the case of Latvia and the Netherlands. Stochastic analysis also points to some uncertainty in Estonia, Ireland and Latvia, reflecting historical volatility ([32]).

([30]) However, the fiscal assumptions for Greece appear plausible considering that the country recorded an average structural primary surplus of 3.6% of GDP over the last 15 years.
([31]) This indicator measures where the assumed structural primary balance stands by historical standards. However, it does not preclude future policy action to improve public finances.
([32]) In the case of Ireland, alternative metrics to GDP, such as GNI* used at national level, would result in a higher projected debt ratio.

I.2.4.2. Comparison with the 2022 DSM results

Debt projections

While debt levels in many countries are initially lower than in the 2022 DSM, over the medium term half of the Member States are projected to reach higher debt levels than projected in the previous edition of the DSM. In two thirds of the EU countries, the debt levels expected for 2024 in the Commission 2023 autumn forecast are lower than in the 2022 DSM and, in the other third, upward revisions are limited (Table I.2.3). The better fiscal positions mainly follow from revenue windfalls in 2022, more-favourable-than-expected developments in energy prices leading to a lower budgetary cost of energy support measures in 2023, and the incorporation of new deficit-reducing measures in some countries. Lower inflation also helped contain interest expenditure in countries with a significant share of inflation-indexed bonds. For the EU as a whole, the 2024 debt was revised downwards by 1.4 pps. of GDP compared to the 2022 DSM. Despite this improved starting position, the debt ratio in 2033 (the end point of the previous report) is now expected to stand 1.2 pps. of GDP above its level of the previous report. This aggregate revision masks two groups of countries. In 13 countries, the downward revision in the initial debt level is projected to be at least partially preserved (or, in the case of Czechia, the initial upward revision is projected to be reversed) and, in most of these countries, even amplified over the medium term. The other 14 countries are projected to see their debt increase by 2033 compared with the 2022 DSM, by more than 20 pps. of GDP in the case of Slovakia, Romania and Finland, and despite a lower starting level in six countries (Bulgaria, Spain, France, Italy, Latvia and Lithuania).

Table I.2.3: **Baseline debt projections in the 2022 and 2023 DSM**

	Debt (Commission T+2 forecast) 2024			Debt (baseline projections) 2033		
	2022 DSM	2023 DSM		2022 DSM	2023 DSM	
BE	108.6	106.4	-2.2	121.6	120.3	-1.3
BG	25.6	24.3	-1.3	40.3	43.4	3.1
CZ	44.5	45.5	0.9	52.2	46.3	-5.9
DK	32.1	28.4	-3.6	16.3	9.5	-6.8
DE	65.4	63.6	-1.8	70.3	63.2	-7.1
EE	21.9	20.5	-1.4	33.6	23.1	-10.5
IE	39.3	41.4	2.1	25.3	30.9	5.6
EL	156.9	151.9	-5.0	125.4	117.8	-7.5
ES	112.1	106.5	-5.6	112.4	115.7	3.3
FR	110.2	109.5	-0.7	121.1	127.7	6.5
HR	68.0	58.8	-9.2	84.9	60.5	-24.4
IT	142.6	140.6	-2.1	155.9	160.5	4.6
CY	77.7	71.5	-6.3	45.4	40.1	-5.4
LV	43.6	42.3	-1.3	36.9	53.9	16.9
LT	39.9	38.3	-1.6	39.6	50.6	10.9
LU	26.3	28.7	2.4	23.5	35.6	12.1
HU	75.1	71.7	-3.3	81.5	62.3	-19.3
MT	60.6	55.8	-4.8	63.4	58.8	-4.6
NL	53.2	46.6	-6.6	70.4	51.9	-18.6
AT	74.9	75.6	0.7	74.4	79.3	4.9
PL	54.2	54.4	0.2	69.0	74.4	5.4
PT	105.3	100.3	-4.9	94.3	83.3	-11.0
RO	47.6	48.9	1.2	62.8	87.0	24.2
SI	68.8	68.4	-0.3	79.3	72.6	-6.7
SK	57.4	59.9	2.5	82.6	108.5	25.9
FI	73.3	76.9	3.6	71.5	92.9	21.4
SE	28.5	30.1	1.6	10.9	15.0	4.1
EU	84.1	82.7	-1.4	87.6	88.8	1.2
EA	91.4	89.7	-1.7	95.9	96.5	0.6

Source: Commission services.

Apart from the no-fiscal-policy-change SPB level, the revisions to medium-term debt paths are explained by less favourable financing conditions, new projections for ageing costs, and changes in stock-flow adjustment (SFA) assumptions. First, with rare exceptions, the downward revisions to debt paths compared with the 2022 DSM are driven by stronger assumed no-fiscal-policy-change SPB positions over the medium term, and the opposite holds for upward debt revisions. Second, on aggregate and in nearly all countries, the 'r-g' differential was revised upwards, mostly due to substantially tighter financing conditions, while changes in inflation and in the potential growth outlook are significant for only few countries (Table I.2.4). The more adverse assumptions on financing conditions reflect market expectations after the tightening of monetary policy in a context of higher inflation, along with uncertainty especially related to Russia's war of aggression against Ukraine. The largest adverse revisions to the 'r-g' differential affect the three Baltic states. Third, this report takes into account the new cost of ageing projections from the forthcoming 2024 Ageing Report, with downward revisions over the period 2024-2033 for some countries (the largest ones being in Italy, the Netherlands, Luxembourg and Belgium) but sizeable upward revisions in Spain, Romania and Denmark (see also Box I.3.3 for long-term projections up to 2070). Finally, changes in the SFA assumptions significantly raise the debt projections for Finland and Luxembourg (see Chapter II.2).

Table I.2.4: **Main baseline assumptions in the 2022 and 2023 DSM (2024-2033 averages except for cost of ageing: change from 2024 to 2033)**

	Structural primary balance (% GDP)			Change in cost of ageing (% GDP)			'r-g' differential (%)		
	2022 DSM	2023 DSM	Revision	2022 DSM	2023 DSM	Revision	2022 DSM	2023 DSM	Revision
BE	-2.7	-2.4	0.3	1.4	0.9	-0.6	-1.9	-1.3	0.6
BG	-2.3	-2.7	-0.4	0.1	-0.5	-0.5	-2.4	-1.6	0.8
CZ	-0.9	-0.1	0.8	0.9	0.5	-0.4	-1.6	-0.8	0.8
DK	1.7	2.9	1.1	0.8	1.6	0.8	-1.8	-1.3	0.5
DE	-1.4	-0.2	1.2	1.5	1.2	-0.3	-2.5	-1.4	1.0
EE	-1.9	0.0	2.0	-0.2	-0.1	0.1	-2.5	-0.6	1.9
IE	1.0	0.8	-0.2	1.5	1.1	-0.4	-4.3	-3.2	1.1
EL	2.5	2.0	-0.5	-0.9	-0.3	0.6	-0.8	-0.5	0.3
ES	-1.1	-1.0	0.2	-0.3	1.4	1.7	-0.9	-0.7	0.2
FR	-2.0	-2.4	-0.4	0.4	0.0	-0.4	-1.1	-0.5	0.6
HR	-2.0	-1.2	0.9	0.2	-0.2	-0.4	-0.6	-1.7	-1.0
IT	-0.5	-0.9	-0.4	2.0	0.9	-1.1	0.0	0.6	0.6
CY	2.4	3.4	1.1	0.3	1.7	1.4	-2.2	-2.1	0.1
LV	-0.3	-1.7	-1.4	-0.1	0.0	0.0	-2.9	-1.3	1.6
LT	-0.3	-0.5	-0.2	1.2	1.8	0.7	-2.9	-1.4	1.5
LU	0.6	-0.6	-1.2	1.9	1.0	-0.9	-2.9	-2.7	0.2
HU	-1.1	1.0	2.1	-0.1	0.1	0.2	-0.6	-0.2	0.4
MT	-2.5	-2.7	-0.2	-0.3	-0.7	-0.5	-3.3	-3.6	-0.3
NL	-2.5	-0.5	2.0	2.3	1.2	-1.1	-2.8	-1.7	1.1
AT	-0.6	-0.7	-0.1	1.5	1.3	-0.3	-2.2	-1.7	0.4
PL	-1.4	-1.8	-0.4	0.1	0.5	0.4	-0.3	-0.9	-0.6
PT	1.4	2.1	0.7	1.9	1.9	0.0	-0.9	-0.9	0.0
RO	-2.2	-3.0	-0.9	0.4	1.5	1.0	-1.6	-1.1	0.5
SI	-2.2	-1.1	1.1	2.0	1.5	-0.5	-2.8	-2.3	0.5
SK	-3.3	-5.1	-1.8	1.9	2.0	0.1	-2.7	-1.7	1.1
FI	-0.8	-1.0	-0.2	0.5	0.4	-0.2	-2.0	-1.4	0.6
SE	1.5	1.5	0.0	-0.3	-0.1	0.1	-2.5	-1.4	1.1
EU	-1.1	-0.8	0.3	1.0	0.9	-0.2	-1.7	-1.0	0.7
EA	-1.3	-0.9	0.4	1.2	0.9	-0.3	-1.7	-1.0	0.8

	Inflation (%)			Potential growth (%)			Nominal implicit interest rate (%)			
	2022 DSM	2023 DSM	Revision	2022 DSM	2023 DSM	Revision	2022 DSM	2023 DSM	Revision	
BE	2.8	2.7	-0.1	1.0	1.3	0.2	1.9	2.6	0.7	BE
BG	3.0	3.0	0.0	1.7	1.9	0.3	2.2	3.2	1.0	BG
CZ	3.5	2.9	-0.6	1.5	1.3	-0.1	3.6	3.7	0.0	CZ
DK	2.6	2.5	-0.1	0.8	1.0	0.2	1.7	2.3	0.6	DK
DE	3.0	2.7	-0.2	0.7	0.7	0.0	1.3	2.1	0.8	DE
EE	2.7	2.6	-0.1	2.0	1.0	-1.0	2.3	3.5	1.2	EE
IE	3.3	2.4	-1.0	3.5	3.3	-0.2	2.0	2.1	0.2	IE
EL	2.4	2.5	0.1	0.9	1.1	0.2	2.5	3.0	0.5	EL
ES	2.4	2.5	0.1	0.7	1.4	0.7	2.3	3.1	0.8	ES
FR	3.1	2.5	-0.6	0.5	0.6	0.1	2.5	2.6	0.1	FR
HR	2.4	2.6	0.1	0.8	2.2	1.4	2.4	2.8	0.4	HR
IT	2.5	2.8	0.3	0.6	0.6	0.0	3.1	3.9	0.8	IT
CY	2.5	2.9	0.3	2.0	2.1	0.1	2.2	2.6	0.4	CY
LV	3.0	3.0	0.0	1.4	1.5	0.1	1.6	3.2	1.6	LV
LT	2.4	2.6	0.3	2.0	1.6	-0.4	1.7	3.0	1.4	LT
LU	2.7	3.0	0.4	1.6	1.8	0.2	1.4	2.3	0.9	LU
HU	4.0	4.4	0.3	2.2	2.1	-0.1	5.8	6.6	0.8	HU
MT	2.6	2.9	0.3	3.1	3.9	0.9	2.4	3.2	0.8	MT
NL	3.3	2.7	-0.7	1.0	1.3	0.3	1.4	2.2	0.8	NL
AT	3.0	3.2	0.2	1.0	1.0	0.0	1.8	2.6	0.8	AT
PL	4.1	3.8	-0.3	2.0	2.2	0.2	6.0	5.2	-0.9	PL
PT	2.5	2.6	0.1	1.0	1.2	0.2	2.5	2.7	0.2	PT
RO	6.2	4.1	-2.1	2.0	2.3	0.3	6.7	5.5	-1.2	RO
SI	3.0	2.8	-0.2	2.2	2.3	0.1	2.0	2.6	0.6	SI
SK	3.6	3.3	-0.3	1.4	1.4	0.0	2.3	3.0	0.8	SK
FI	2.3	2.5	0.2	1.0	1.0	0.0	1.5	2.3	0.8	FI
SE	2.2	2.5	0.2	1.5	1.4	-0.1	1.3	2.5	1.2	SE
EU	3.0	2.8	-0.2	1.0	1.1	0.1	2.4	2.9	0.5	EU
EA	2.9	2.7	-0.2	0.9	1.0	0.1	2.0	2.7	0.6	EA

Source: Commission services.

Overall risk classification

Table I.2.5: **Overall medium-term risk classifications in the 2022 and 2023 DSM**

		2023 DSM		
		low	medium	high
2022 DSM	low	DK, EE, IE, LV, LU, SE	**BG, LT**	
	medium	**NL**	CZ, DE, CY, MT, AT, PL, SI	**RO, FI**
	high		**HR, HU**	BE, EL, ES, FR, IT, PT, SK

Note: The countries in bold have changed classifications between the two reports.
Source: Commission services.

While the number of countries in each risk category is broadly unchanged compared with the 2022 DSM (with one more country at medium risk and one less at low risk), in total 7 countries change categories. In the new medium-term risk classification, the assessment is more favourable for Croatia and Hungary, which exit the high-risk category, and for the Netherlands, which joins the low-risk category (see Table I.2.5). On the other hand, Bulgaria and Lithuania move from low to medium risk while the assessment for Romania and Finland worsens to high risk.

The worsened risk classifications mainly reflect less favourable macro-financial outlooks or fiscal assumptions than in the 2022 DSM, while the improved classifications mainly result from more favourable fiscal assumptions. Lithuania, Romania and Finland move to a worse risk category because the revised fiscal and/or macro-financial assumptions weigh on their debt dynamics (see Table I.2.4). This is mostly due to higher projected cost of ageing in the first two countries, a weaker potential growth outlook and tightening financing conditions in Lithuania, and positive stock-flow adjustments in Finland (see Chapter II.2). Moreover, Bulgaria deteriorates to medium risk because of high uncertainty, as flagged by the stochastic analysis. On the other hand, the risk category of Croatia, Hungary and the Netherlands improves by one notch, as their debts are now projected to remain well below 90% of GDP (below 60% in the Netherlands) in all scenarios on the back of more favourable fiscal assumptions, plus higher potential growth in the case of Croatia.

Table I.2.6: **Heat map of medium-term fiscal sustainability risks in EU countries**

	Heat map for medium-term risks in the EU countries - Debt sustainability analysis (DSA)																										
	BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE
Baseline (no-fiscal-policy-change scenario)	HIGH	LOW	MEDIUM	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	MEDIUM	HIGH	LOW	LOW	MEDIUM	LOW	MEDIUM	LOW	LOW	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	HIGH	HIGH	LOW
Debt level (2034)	122.8	45.4	47.2	7.7	64.0	22.8	30.8	116.4	118.4	130.1	61.1	164.4	38.1	55.2	52.8	36.6	62.2	59.3	53.4	80.7	77.1	83.0	92.3	74.4	115.2	94.6	13.2
Debt peak year	2034	2034	2034	2023	2023	2030	2023	2023	2034	2034	2034	2034	2023	2034	2034	2034	2024	2034	2034	2034	2034	2023	2034	2034	2034	2034	2023
Fiscal consolidation space (percentile rank of avg SPB 2024-2034)	100%	96%	26%	66%	79%	55%	57%	23%	75%	94%	51%	69%	20%	76%	43%	100%	47%	73%	94%	96%	77%	20%	78%	52%	96%	100%	65%
Stochastic projections	HIGH	MEDIUM	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	MEDIUM	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	LOW	HIGH	LOW
Probability of debt in 2028 > debt in 2023	64%	69%	47%	6%	33%	65%	30%	14%	51%	81%	39%	68%	9%	65%	65%	71%	40%	62%	48%	45%	95%	23%	85%	45%	99%	85%	5%
Difference between the 10th and 90th percentile in 2028 (p.p. of GDP)	28.5	50.6	25.4	16.8	16.2	28.7	36.4	58.0	31.1	19.5	28.9	33.3	44.6	37.3	30.2	22.4	40.3	38.2	16.4	29.3	19.5	46.7	42.3	29.4	27.4	23.5	10.0
'Historical SPB' scenario	HIGH	LOW	MEDIUM	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	MEDIUM	MEDIUM	HIGH	MEDIUM	LOW
Debt level (2034)	107.6	27.2	53.7	11.6	53.8	28.1	49.8	102.7	121.1	126.4	56.0	147.8	53.3	54.8	57.8	19.9	71.6	42.1	50.8	76.2	78.8	96.2	89.9	77.4	90.6	87.1	17.3
Debt peak year	2034	2029	2034	2023	2023	2034	2034	2023	2034	2034	2023	2034	2023	2034	2034	2026	2024	2025	2034	2023	2034	2023	2034	2034	2034	2034	2023
Fiscal consolidation space (percentile rank of avg SPB 2024-2034)	86%	84%	29%	72%	53%	64%	76%	21%	78%	91%	44%	52%	29%	74%	60%	81%	52%	56%	88%	91%	79%	43%	77%	63%	55%	96%	69%
'Adverse r-g' scenario	HIGH	LOW	MEDIUM	LOW	MEDIUM	LOW	LOW	HIGH	HIGH	HIGH	MEDIUM	HIGH	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	MEDIUM	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	HIGH	LOW
Debt level (2034)	131.7	48.3	51.1	9.2	69.4	24.5	33.3	126.0	128.0	140.4	66.1	178.8	42.0	59.4	56.4	39.3	67.8	63.6	57.4	87.1	82.8	90.3	98.6	79.4	122.3	101.2	14.7
Debt peak year	2034	2034	2034	2023	2034	2031	2023	2023	2034	2034	2034	2034	2023	2034	2034	2034	2024	2034	2034	2034	2034	2023	2034	2034	2034	2034	2023
Fiscal consolidation space (percentile rank of avg SPB 2024-2034)	100%	96%	26%	66%	79%	55%	57%	23%	75%	94%	51%	69%	20%	76%	43%	100%	47%	73%	94%	96%	77%	20%	78%	52%	96%	100%	65%
'Financial stress' scenario	HIGH	LOW	MEDIUM	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	MEDIUM	HIGH	LOW	LOW	MEDIUM	LOW	MEDIUM	LOW	LOW	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	HIGH	HIGH	LOW
Debt level (2034)	124.4	45.7	47.7	7.9	64.5	23.0	31.0	119.9	120.1	132.0	61.5	169.7	38.3	55.6	53.1	36.9	62.7	59.7	53.7	81.3	77.6	84.0	92.8	74.8	115.7	95.1	13.3
Debt peak year	2034	2034	2034	2023	2023	2030	2023	2023	2034	2034	2034	2034	2023	2034	2034	2034	2024	2034	2034	2034	2034	2023	2034	2034	2034	2034	2023
Fiscal consolidation space (percentile rank of avg SPB 2024-2034)	100%	96%	26%	66%	79%	55%	57%	23%	75%	94%	51%	69%	20%	76%	43%	100%	47%	73%	94%	96%	77%	20%	78%	52%	96%	100%	65%
'Lower SPB' scenario	HIGH	LOW	MEDIUM	LOW	MEDIUM	LOW	LOW	HIGH	HIGH	HIGH	MEDIUM	HIGH	LOW	LOW	MEDIUM	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	HIGH	HIGH	LOW
Debt level (2034)	124.8	46.0	55.0	13.7	67.3	23.9	32.2	120.8	124.0	133.1	67.6	171.8	42.1	56.7	55.2	36.7	69.5	62.8	56.9	82.9	84.5	83.8	98.1	81.3	118.0	96.2	16.2
Debt peak year	2034	2034	2034	2023	2034	2031	2023	2023	2034	2034	2034	2034	2023	2034	2034	2034	2024	2034	2034	2034	2034	2023	2034	2034	2034	2034	2023
Fiscal consolidation space (percentile rank of avg SPB 2024-2034)	100%	97%	29%	74%	87%	56%	59%	24%	84%	95%	54%	73%	22%	78%	46%	100%	50%	76%	100%	97%	90%	21%	84%	73%	100%	100%	67%
Overall MEDIUM-TERM risk category	HIGH	MEDIUM	MEDIUM	LOW	MEDIUM	LOW	LOW	HIGH	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	MEDIUM	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	HIGH	LOW

Source: European Commission.

Box I.2.1: Deterministic debt projection scenarios: the main assumptions

The Commission's government debt projections provide trajectories for debt over the next 10 years, i.e. until 2034, based on the Commission 2023 autumn forecast. The projections rely on assumptions about key macroeconomic, financial and fiscal variables. Importantly, the Commission baseline debt projections rest to a large extent on assumptions and methodologies commonly agreed with the EU Member States represented in different Council formations ([1]). This ensures that the results are comparable across countries and consistent with other EU processes, in particular the European Semester and fiscal surveillance under the Stability and Growth Pact (SGP). The general approach in this report is the same as in the 2022 DSM, although with two technical adjustments: the no-fiscal-policy-change assumption for the medium-term projections starts one year earlier, and the stock-flow adjustment may, in specific cases, not be equal to zero (this latter change is described in detail in Chapter II.2).

The no-fiscal-policy-change assumption for the medium term is anchored on the T+1 forecast

With this report, the base year for the medium-term projections switches to T+1, against T+2 in previous reports. Up to the 2022 DSM, the analysis fully took into account the Commission T+2 forecast, and the subsequent no-fiscal-policy-change baseline was built on that basis. In particular, the structural primary balance (SPB) net of changes in ageing costs was assumed to remain at its T+2 level over the remainder of the projection horizon. In this report, by contrast, the no-fiscal-policy-change assumption starts one year earlier and the SPB therefore remains unchanged at its T+1 level (plus changes in ageing costs).

This change better aligns the approach with the methodology used to assess debt dynamics under the reformed Stability and Growth Pact. Under the new EU fiscal framework, Member States are required to design medium-term fiscal-structural plans with an adjustment (where needed) starting in the following year, i.e. 2025 for the first plans. To help Member States prepare these plans, the Commission provides them with quantitative guidance in the form of a fiscal adjustment also starting in 2025. Both to provide its technical guidance and to assess whether Member States' plans ensure that debt plausibly declines (or stays below 60% of GDP), the Commission uses a DSA-based methodology with 2024 as the base year, as described more closely in Chapter II.1. For consistency, the base year for the DSM baseline is set in line with it.

This anchoring to the T+1 forecast entails slightly different values for some variables for the year T+2 compared with the latest Commission forecast. This is explained by the different approach. Indeed, the Commission forecast includes a qualitative assessment by ECFIN country desks of the latest available information on legislated (or sufficiently advanced) policy measures up to T+2, while the medium-term projections aim to provide a realistic simulation of the debt dynamics over the next 10 years based on the situation *before the start of the plans*. Applying the no-fiscal-policy-change assumption in 2025 may imply different values compared with the SPB in the Commission's T+2 forecast, directly affecting the deficit and debt levels for that year, as well as actual GDP growth, which is recalculated as described below. Still, the information contained in the T+2 forecast is not lost: if a Member State has already planned some consolidation measures for T+2, this will make it easier to achieve the required adjustment in that year.

The baseline

The baseline constitutes the starting point for the debt sustainability analysis, as it is the central scenario around which alternative scenarios and sensitivity tests are built. The assumptions under the baseline are as follows ([2]):

- **Real GDP growth rates** are those of the Commission 2023 autumn forecast for T+1, i.e. 2024 in this report. For T+2 (2025), actual growth is based on the autumn forecast, adjusted for fiscal multiplier

([1]) In particular, two technical working groups of the Economic Policy Committee (EPC), namely the Output gap working group (OGWG) and the Ageing working group (AWG).

([2]) For a detailed description of the debt dynamic equation and the impact of macro variables on the debt ratio projections, see Annex A3.

(Continued on the next page)

Box (continued)

effects (3). Beyond that, ***actual GDP growth rates*** are derived from the ***potential*** growth estimates using the EPC/OGWG 'T+10 methodology' (4) and a standard assumption for the closure of the ***output gap*** (5).

- **Inflation (as measured by the GDP deflator)** converges linearly from current country-specific values to market-based euro inflation expectations by T+10 (6). Beyond T+10, inflation converges to the ECB's 2% target by T+30 at the latest (7) and remains constant afterwards. For more details, see Chapter 2, Box I.2.1 in the FSR 2021.

- The **primary balance** is projected as follows:

– Assuming no fiscal policy change, the ***structural primary balance*** (SPB) ***before costs of ageing*** is assumed to remain constant at its value forecast for T+1, i.e. currently 2024, over the remainder of the projection period. Two elements are added to it to obtain the overall SPB: ***ageing-related expenditure*** (including pension, health care, long-term care and education expenditure) as projected in the forthcoming joint Commission - Council *Ageing Report 2024* (see Box I.3.3 for an overview), and ***property income*** on government financial and non-financial assets (8).

– The ***cyclical component*** reflecting the effect of automatic stabilisers is calculated as the product of the output gap and country-specific budget balance semi-elasticities agreed with the Member States and used for budgetary surveillance under the SGP (9). The cyclical component is, by construction, equal to zero once the output gap closes.

– ***One-off and other temporary measures*** are set to zero beyond T+2.

- **Interest rates** are projected as follows:

– ***Long-term interest rates*** on new and rolled-over debt converge linearly from country-specific current values to country-specific market-based forward nominal rates by T+10. Beyond that, they converge to 2% in real terms by T+30 (4% in nominal terms for most EU countries) and remain constant afterwards (10). These assumptions are based on the *Ageing Report 2024 (Volume 1).*

– ***Short-term interest rates*** on new and rolled-over debt converge linearly from current values to market-based forward nominal rates by T+10 (11). Beyond that, they converge to 2% in nominal terms by T+30, assuming a yield curve coefficient of 0.5 (12). These assumptions are also based on the forthcoming *Ageing Report 2024 (Volume 1).*

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(3) Real GDP growth in 2025 in this report is therefore real GDP growth in the forecast, minus the fiscal multiplier times the change in SPB in the forecast, with the fiscal multiplier having a standard value of 0.75.
(4) Potential GDP growth over 10 years is projected in line with the EU commonly agreed methodology. It incorporates the expected favourable impact implemented reforms.
(5) In line with the EPC/OGWG methodology, the output gap is assumed to close within 5 years after the last outturn year, i.e., by 2028 this round, after which actual and potential GDP growth coincide.
(6) For non-euro area countries targeting an inflation rate other than 2% (namely Poland, Romania and Hungary), half of the inflation spread vis-à-vis the euro area observed in T+2 is applied to the T+10 target (i.e. the market-based euro inflation expectation).
(7) For non-euro area countries targeting inflation, the national central banks' targets are used, namely 2% for Czechia and Sweden, 2.5% for Poland and Romania, and 3% for Hungary.
(8) For details, see Annex A3.4.
(9) The budget semi-elasticities (for taxes and expenditure) are as reported in Mourre, G. and Poissonnier, A. (2019), 'The semi-elasticities underlying the cyclically-adjusted budget balance: an update and further analysis', European Economy Discussion Paper 98.
(10) Nominal long-term interest rates converge to 4.5% for Poland and Romania, and 5% for Hungary, given these countries' higher inflation targets.
(11) For more details, see Box 3.1 in European Commission (2020), Debt Sustainability Monitor 2019, European Economy, Institutional Paper, 120.
(12) This factor of 0.5 reflects the standard slope of the euro area yield curve.

(Continued on the next page)

Box (continued)

– ***Implicit interest rates*** are derived endogenously in the debt projection model based on the above assumptions on market interest rates, the maturity structure of government debt and projected financing needs ([13]).

- **The exchange rate** for non-euro area countries is the Commission forecast for T+1 (currently 2024), with no appreciation or depreciation afterwards.

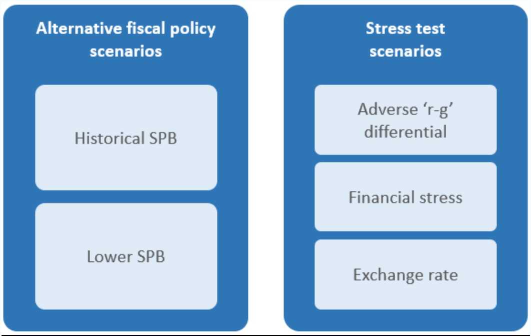
- The **stock-flow adjustment (SFA)** is set to zero beyond the T+2 forecast horizon, except for some specific cases. This new, more realistic approach is discussed in Chapter II.2.

In addition to the baseline, this report includes five deterministic scenarios. They reflect alternative assumptions for two types of factors that affect debt paths, namely discretionary fiscal policy decisions and changes in macroeconomic conditions (see Map 1).

Alternative fiscal policy scenarios

This report includes two fiscal policy scenarios, in which fiscal policy differs from the baseline no-fiscal-policy-change assumption. These scenarios incorporate a feedback effect of fiscal policy on GDP growth via a fiscal multiplier of 0.75, meaning that a fiscal consolidation of 1 pp. of GDP reduces GDP growth by 0.75 pp. in the same year compared to the baseline – and, conversely, a fiscal expansion raises it by 0.75 pp. ([14]).

Map 1: **Deterministic scenarios for debt projections: alternative fiscal policy and stress-test scenarios**



1. **The 'historical SPB' scenario** uses the Commission forecast until T+1, after which it assumes that the SPB converges gradually to its historical average in 4 years, i.e. by 2028. The historical average is based on available data for 2008-2022. This scenario helps assessing whether the baseline is realistic, given past fiscal performance.

2. **The 'lower SPB' scenario** assumes that, from 2023 to 2024, the SPB improves by 50% less (or deteriorates by 50% more) than what is included in the Commission 2023 autumn forecast. The SPB remains at that reduced level afterwards.

Stress-test scenarios

Three stress tests indicate how shocks to macro-financial variables may affect debt trajectories compared to the baseline. The shocks affect real GDP growth, interest rates and exchange rates.

1. **The 'adverse r-g' scenario** assumes that the interest-growth rate differential is permanently higher than in the baseline, by 1 pp., as of 2024. This higher differential is obtained by applying simultaneous adverse shocks to short- and long-term market interest rates and to economic growth. This scenario illustrates the risk of a moderate worsening or reversal of the interest-growth rate differential, while the baseline currently still rests on the assumption of relatively contained financing conditions (in line with markets' expectations) for most Member States.

([13]) For a detailed discussion, see Annex A3.2.
([14]) Carnot, N. and de Castro, F. (2015), 'The discretionary fiscal effort: an assessment of fiscal policy and its output effect', European Economy Economic Papers 543.

(Continued on the next page)

Box (continued)

2. **The ‘financial stress’ scenario** assumes a one-year increase in market interest rates by 1 pp. in 2024 for all countries. Moreover, a risk premium is added for those countries where debt exceeded 90% of GDP in 2023, in line with the findings in Pamies et al. (2021) ([15]).

3. **The sensitivity test on the nominal exchange rate** applies a shock – equal to the maximum annual change in the country’s exchange rate observed over the last 10 years – for the first year of the forecast horizon (2024), after which the baseline assumption prevails. This stress test only applies to non-euro area countries.

([15]) The risk premium is equal to 0.06 times the excess of the 2023 debt level over 90%, in those countries where debt exceeded 90% of GDP in 2022. This is based on Pamies, S., Carnot, N. and Patarau, A. (2021), ‘Do fundamentals explain differences between euro area sovereign interest rates?’, European Economy Discussion Paper, No. 141.

I.3. LONG-TERM FISCAL SUSTAINABILITY ANALYSIS

Main takeaways

The long-term risk classification is based on two complementary fiscal gap indicators that show the fiscal effort required to achieve two specific long-term fiscal goals. The S2 indicator measures the fiscal effort needed to stabilise public debt over the long term. The S1 indicator measures the fiscal effort required to bring the government debt-to-GDP ratio to 60% in 2070, hence capturing vulnerabilities due to high debt levels. Importantly, the results reflect the updated ageing costs (see forthcoming Ageing Report 2024 and Box I.3.3).

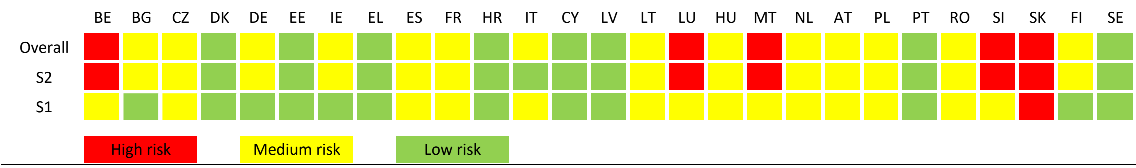
Combining the S2 and S1 results, the overall long-term fiscal sustainability risks are considered to be high in five Member States (Belgium, Luxembourg, Malta, Slovenia and Slovakia). The driving factor behind the high-risk assessment is the S2 indicator reflecting both increasing ageing costs and unfavourable initial budgetary positions in some cases. The latter is a large driver in Belgium, Malta and Slovakia. The rise in the cost of ageing is mainly due to the significant projected increase in pension spending, the largest component in all five countries.

The overall long-term fiscal sustainability risks are considered to be medium in fourteen Member States. The driving factor behind this risk assessment is generally the S2 indicator, reflecting projected increases in ageing costs (largest component in Czechia, Germany, Ireland, Spain, Lithuania, Hungary, the Netherlands and Austria) and/or an unfavourable initial budgetary position (largest component in Bulgaria, France, Poland and Romania), for Finland the role of the two drivers is broadly equal. Only in the case of Italy, the overall risk classification is modified by the S1 indicator, with a significant fiscal effort needed to reduce the debt-to-GDP ratio from the current high level to 60% by 2070.

The overall long-term fiscal sustainability risks are considered to be low in eight Member States. This reflects both favourable initial budgetary positions and limited projected costs of ageing in most of the cases (as in Denmark, Estonia, Greece, Portugal and Sweden). In the case of Cyprus, the relatively higher increase in the projected cost of ageing is offset by a very favourable initial budgetary position, while in Croatia and Latvia, decreasing ageing costs offset the impact of a relatively less favourable initial budgetary position. In some cases (Cyprus and Portugal), the low-risk classification rests on the assumption of sustaining a relatively large structural primary surplus by historical standards.

Compared to the 2022 Debt Sustainability Monitor, long-term risks remained unchanged in twenty three Member States, are higher in one Member State and lower in three Member States. For Lithuania, long-term risks are now medium compared to low in the 2022 edition due to a higher projected increase in ageing costs. Croatia had S2 and S1 values at the lower bound of the medium risk band in the previous report, the indicators now show low long-term risks due to both a somewhat more favourable initial budgetary position and slightly more decreasing projected ageing costs. For Hungary and the Netherlands, the improvement of the long-term risk classifications (going from high to medium) is due to an improvement of the value of the S2 indicator, capturing a more favourable initial budgetary position, and a somewhat lower increase in ageing costs in the case of the Netherlands.

Table I.3.1: **Overview of overall long-term risk classifications, S2 and S1**



Source: Commission services.

This chapter assesses fiscal sustainability risks over the long term. The assessment is based on two complementary fiscal gap indicators that show the upfront fiscal adjustment required to achieve two specific long-term fiscal goals:

- the *S2 indicator* measures the fiscal effort required to stabilise government debt in the long term (infinite time horizon);
- the *S1 indicator* measures the fiscal effort required to bring the government debt-to-GDP ratio to 60% by 2070.

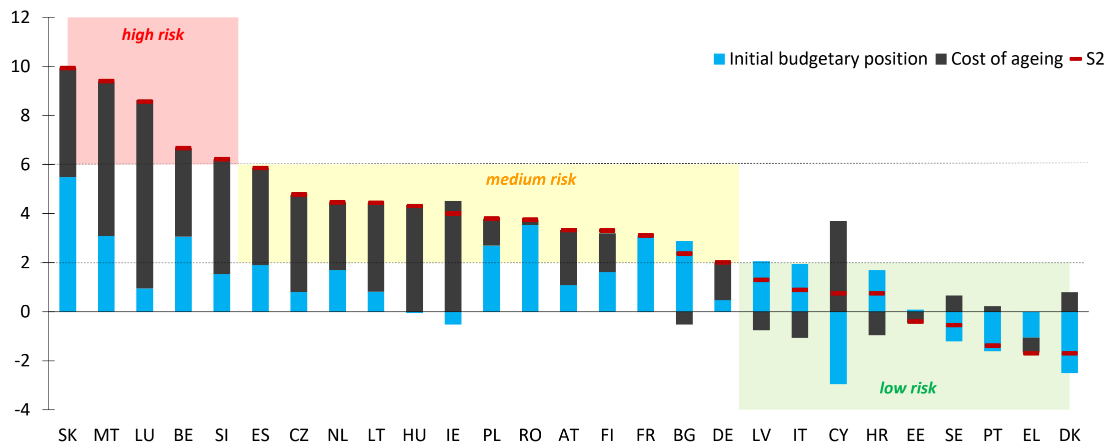
The Chapter is structured as follows. Section I.3.1 describes the results for the S2 indicator, Section I.3.2 focuses on the findings of the S1 indicator, before Section 3.3 concludes with the overall risk classification.

I.3.1. THE S2 INDICATOR

S2 – baseline

The S2 indicator measures the permanent adjustment of the structural primary balance (SPB) that is required to stabilise public debt over the long term. It consists of two components, namely (i) the 'initial budgetary position', which measures the gap between the initial SPB and the debt-stabilising structural primary balance and (ii) the future ageing costs.

Graph I.3.1: **S2 – baseline (pps. of GDP)**



Source: Commission services.

The S2 indicator identifies five Member States as having high fiscal risk in the long term (see Graph I.3.1, Table I.3.1**).** Member States are considered at high risk if an overall adjustment of at least 6 pps. of GDP is needed to stabilise debt in the long term. For Slovakia, Malta and Luxembourg the required adjustment is 8.6 to close to 10 pps. of GDP. In the case of Belgium and Slovenia, the S2 indicator is about 6-7 pps. of GDP.

Based on the S2, thirteen Member States are considered to face medium fiscal risks in the long term. Member States are considered at medium risk if an overall adjustment between 2 and 6 pps. of GDP is needed to stabilise debt in the long term. The S2 indicator points to medium risks in Spain, Czechia, the Netherlands, Lithuania, Hungary, Ireland, Poland, Romania, Austria, Finland, France, Bulgaria and Germany, with values ranging from 5.9 pps. of GDP (Spain) to 2 pps. of GDP (Germany).

The S2 signals low fiscal risks for nine countries in the long term. Member States are considered at low risk if an overall adjustment below 2 pps. of GDP is needed to stabilise debt in the long term. According to the S2 indicator, the following countries are considered at low risk: Latvia, Italy, Cyprus, Croatia, Estonia, Sweden, Portugal, Greece and Denmark. In few countries (Denmark, Greece, Portugal, Sweden and Estonia), no adjustment would be needed to ensure debt stabilisation over the long-term (conditional to maintaining a fiscal position close to its initial value).

Table I.3.2: **S2 – breakdown (pps. of GDP)**

	S2	S2 components		Cost of ageing components			
		Initial budgetary position*	Cost of ageing	Pen-sions**	Health-care	Long-term care	Edu-cation
BE	6.7	3.1	3.6	2.2	0.5	1.5	-0.7
BG	2.4	2.9	-0.5	-1.0	0.3	0.2	0.0
CZ	4.8	0.8	4.0	2.0	0.6	1.2	0.1
DK	-1.7	-2.5	0.8	-2.1	0.7	2.8	-0.6
DE	2.0	0.5	1.5	0.5	0.5	0.4	0.2
EE	-0.4	0.1	-0.5	-1.1	0.5	0.5	-0.5
IE	4.0	-0.5	4.5	2.6	1.3	1.1	-0.5
EL	-1.7	-1.1	-0.6	-1.0	0.7	0.0	-0.3
ES	5.9	1.9	4.0	2.7	1.1	0.7	-0.5
FR	3.1	3.1	0.0	-0.6	0.6	0.6	-0.7
HR	0.7	1.7	-1.0	-1.3	0.6	0.1	-0.4
IT	0.9	1.9	-1.1	-1.5	0.6	0.5	-0.7
CY	0.7	-3.0	3.7	3.3	0.7	0.1	-0.4
LV	1.3	2.1	-0.8	-1.3	0.5	0.3	-0.2
LT	4.4	0.8	3.6	2.5	0.7	0.7	-0.3
LU	8.6	1.0	7.7	5.7	0.9	1.3	-0.2
HU	4.3	-0.1	4.4	3.5	0.4	0.3	0.1
MT	9.4	3.1	6.3	3.1	1.6	1.7	-0.1
NL	4.5	1.7	2.8	1.2	0.6	1.6	-0.7
AT	3.3	1.1	2.2	0.1	1.1	1.3	-0.3
PL	3.8	2.7	1.1	-0.6	0.9	0.7	0.1
PT	-1.4	-1.6	0.2	-1.5	1.2	0.4	0.1
RO	3.7	3.5	0.2	-0.8	0.6	0.3	0.0
SI	6.2	1.5	4.7	3.1	0.9	0.9	-0.2
SK	9.9	5.5	4.5	1.9	1.1	1.2	0.2
FI	3.3	1.6	1.6	0.4	0.6	1.5	-0.9
SE	-0.6	-1.2	0.7	-0.5	0.6	1.1	-0.6
EU	2.9	1.4	1.4	0.3	0.7	0.8	-0.3
EA	3.0	1.5	1.4	0.5	0.7	0.7	-0.4

* gap between the initial and the debt-stabilising SPB (it thus ignores future ageing costs, which are measured separately).
** net of taxes on pensions and compulsory social security contributions paid by pensioners.
Source: Commission services.

For a majority of countries, both the initial budgetary position and the projected ageing costs matter for the S2 indicator. The 'initial budgetary position' measures the gap between the initial SPB and the debt-stabilising structural primary balance. It thus ignores future ageing costs, which are measured separately. The sum of the initial budgetary position and the projected ageing costs determines the overall S2 value. In all Member States except for Greece, a fiscal adjustment is required based on at least one of the two components. In Denmark, Ireland, Greece, Cyprus, Hungary, Portugal and Sweden, the initial budgetary position is negative, which means that the structural primary balance could deteriorate without destabilising the debt ratio – not accounting for any ageing costs (see Table I.3.2). In Bulgaria, Estonia, Greece, Croatia, Italy and Latvia, ageing costs are projected to decline over a long-term, which implies that no fiscal adjustment (even some deconsolidation) is needed to stabilise debt *all else being equal*.

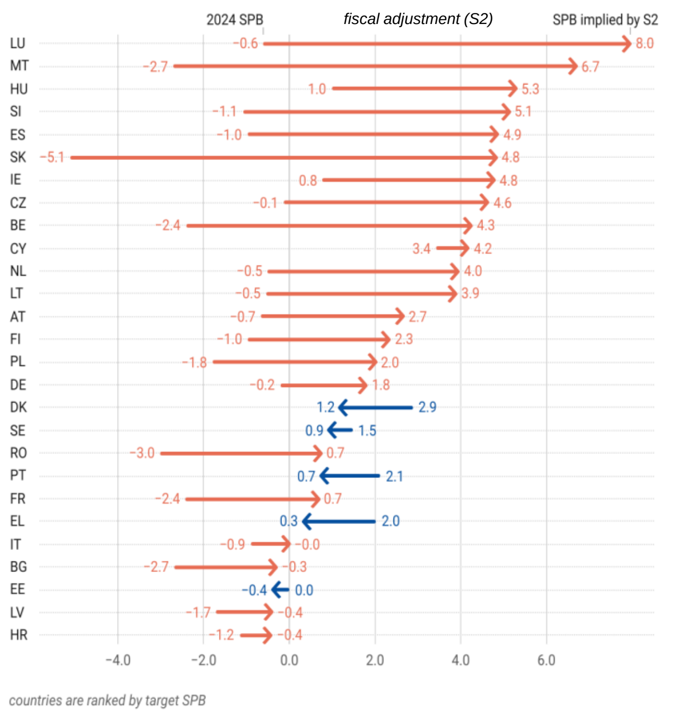
For the EU as a whole, both the unfavourable initial budgetary position and the ageing costs are important drivers of the S2 indicator. In the EU as a whole, S2 indicates that an average fiscal adjustment of 2.9 pps. of GDP would be required to stabilise debt in the long term. Both the initial budgetary situation and ageing costs necessitate an adjustment of 1.4 pps. of GDP.

For the five high-risk countries, ageing costs are a main determinant of the S2. For Luxembourg and Malta, the ageing component exceeds 6 pps. of GDP, meaning that ageing costs alone suffice to put these countries in the high-risk category. The projected increase in ageing costs in those countries mainly stems from pension expenditure and, to a lesser extent, from healthcare and long-term care expenditure (see Table I.3.2). The increase in ageing costs is somewhat lower but also a significant factor in the S2 indicator in the other high-risk Member States (Belgium, Slovenia and Slovakia).

S2 – implied structural primary balance

In most countries a significant improvement of the SPB would be needed to stabilise the debt ratio in the long term. The required SPB to stabilise the debt ratio in the infinite time horizon can be calculated as the sum of i) the SPB in 2024 – the last forecast year before the projection starts and the adjustment is calculated – and ii) the fiscal adjustment required to stabilise the debt ratio in the long term as measured by S2. As shown in Graph I.3.2, to stabilise debt in the long term a SPB as high as 8% of GDP would be needed for Luxembourg, close to 7% of GDP for Malta and of around 4-5% of GDP in the cases of Hungary, Slovenia, Spain, Slovakia, Ireland, Czechia, Belgium, Cyprus, the Netherlands and Lithuania.

Graph I.3.2: **S2 – required structural primary balance (% of GDP)**

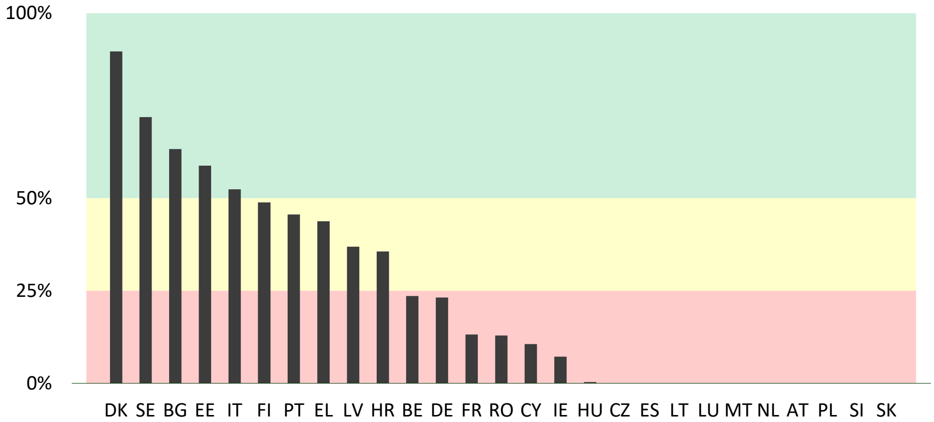


Source: Commission services.

For many Member States, the S2 indicator implies particularly demanding fiscal positions compared with historical evidence. A comparison with past fiscal performance gives an idea about the plausibility of effectively achieving the required SPBs. The required SPB can be compared with the distribution of available SPBs for each country since 1980. (33) This allows assessing how realistic the required fiscal position is, relative to actual past performance. In particular, it identifies the cases where the S2 implies a SPB that would be challenging to sustain in the long term, assuming this required SPB can be achieved in the first place. Graph I.3.3 orders the required SPBs according to their percentile ranks. It shows that the S2-implied SPB has, in the past, (nearly) never been achieved in Hungary, Czechia, Spain, Lithuania, Luxembourg, Malta, the Netherlands, Austria, Poland, Slovenia and Slovakia. (34) In Ireland, Cyprus and Romania, the SPB implied by the S2 was reached only occasionally, only a handful of times at best; in France, Germany and Belgium still less than the quarter of the time over the past three decades. In the case of Cyprus, the low-risk classification as per the S2 indicator thus rests on the assumption of a relatively large primary surplus by historical standards.

(33) For some countries, data are not available for the entire period since 1980.
(34) This factual observation doesn't mean that such structural primary balance level couldn't be achieved in the future, through policy action.

Graph I.3.3: **S2 – plausibility of the required structural primary balance (% of cases achieved in the past)**



Based on available SPBs since 1980.
Source: Commission services.

S2 – comparison with previous results

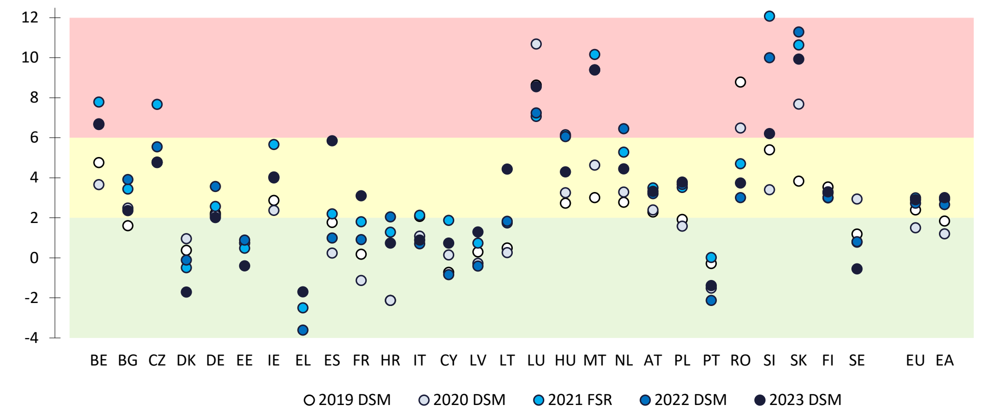
For the EU as a whole, the S2 indicator points to slightly more ambitious structural primary balance needed to stabilise debt in the long term compared with last year. Graph I.3.4 compares the latest S2 with those in the 2019, 2020 and 2022 Debt Sustainability Monitors (DSM) and in the 2021 Fiscal Sustainability Report (FSR). S2 values for the EU as a whole have been relatively close to the lower bound of the medium risk category in recent years with a temporary dip in the 2020 DSM. It dropped from 2.4 pps. of GDP in the 2019 DSM to 1.5 pps. in the 2020 DSM ([35]) and bounced back in the 2021 FSR to 3.0 pps. Results in the 2022 DSM showed a slight decrease to 2.7 pps. of GDP and in this report another slight rise to 2.9 pps. of GDP, with some cross-country heterogeneity. Compared to the 2022 DSM, the Member States that recorded the largest increase in the S2 are Spain, Lithuania and France, reflecting the impact of latest changes in the pension systems and/or in the underlying demographic and macroeconomic assumptions. The largest negative differences, i.e. lower S2 implying smaller adjustment needs, are recorded in Slovenia and the Netherlands, also in line with revisions of the underlying assumptions (see Box I.3.3). The S2 risk classification deteriorated from low – in the 2022 DSM – to medium for Spain, France and Lithuania. It improved compared to last year for Hungary and the Netherlands (high to medium) and for Croatia (medium to low).

The slight increase in the S2 for the EU as a whole compared to the previous year masks larger changes in several countries mainly due to changes in projected ageing costs. The 2022 DSM was based on the Commission 2022 autumn forecast and on the projections from the 2021 Ageing Report. The 2023 DSM is based on the Commission 2023 autumn forecast and the latest update of ageing related budgetary projections to be published in the 2024 Ageing Report (See Box I.3.1). Graph I.3.5 provides a comparison with the S2 calculated in the 2022 DSM, including a breakdown of the difference between the initial budgetary position and ageing costs. It shows that the changes in the projected ageing costs are the key driver behind the changes in the S2, causing changes in both directions to the S2 in the different cases. The increase in projected ageing costs contributed the most to the change in the S2 indicator for Spain (4.6 pps of GDP), Cyprus (2.6 pps) and Lithuania (2.3 pps). By contrast, the decrease in projected cost of ageing reduced the S2 the most for Slovakia (3.1 pps of GDP), Slovenia (2.7 pps) and Bulgaria

([35]) For the 2020 DSM, the improvement reflected an adjustment to the baseline fiscal assumption due to the COVID-19 crisis.

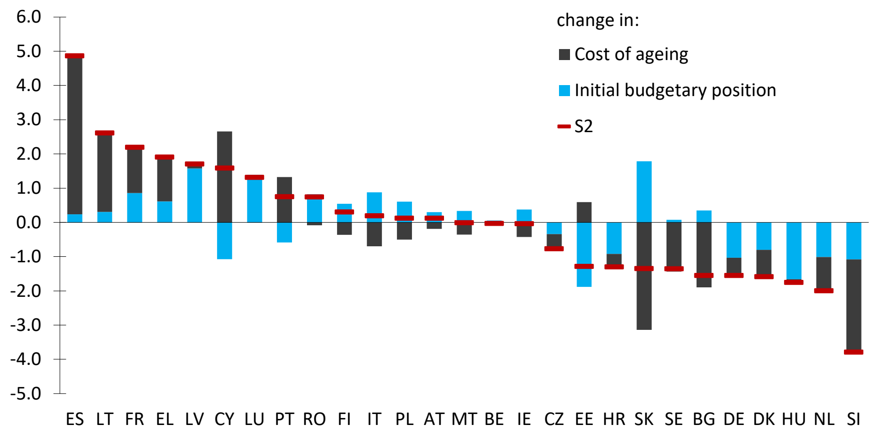
(1.9 pps). In all cases, these changes reflect latest pension reforms and / or revisions of the underlying demographic and macroeconomic assumptions (see Ageing Report 2024, volume 1 [36]).

Graph I.3.4: **S2 – comparison across recent Commission forecasts**



• No S2 indicator was calculated for EL in the 2019 and 2020 DSMs;
• 2019 DSM: Commission 2019 autumn forecast & 2018 Ageing Report (ageing costs 2022-2070);
• 2020 DSM: Commission 2020 autumn forecast & 2018 Ageing Report (updated for HR, IT, RO & SK to reflect pension reforms; ageing costs included once the pre-crisis SPB was projected to be reached);
• 2021 FSR: Commission 2021 autumn forecast & 2021 Ageing Report (ageing costs 2024-2070).
• 2022 DSM: Commission 2022 autumn forecast & 2021 Ageing Report (ageing costs 2025-2070).
• 2023 DSM: Commission 2023 autumn forecast & 2024 Ageing Report (ageing costs 2025-2070).
Source: Commission services.

Graph I.3.5: **S2 – difference to 2022 DSM (pps. of GDP)**



Source: Commission services.

(36) European Commission and EPC (2023), '2024 Ageing Report: Underlying assumptions and projection methodologies', European Economy, Institutional Paper 257

S2 – sensitivity analysis

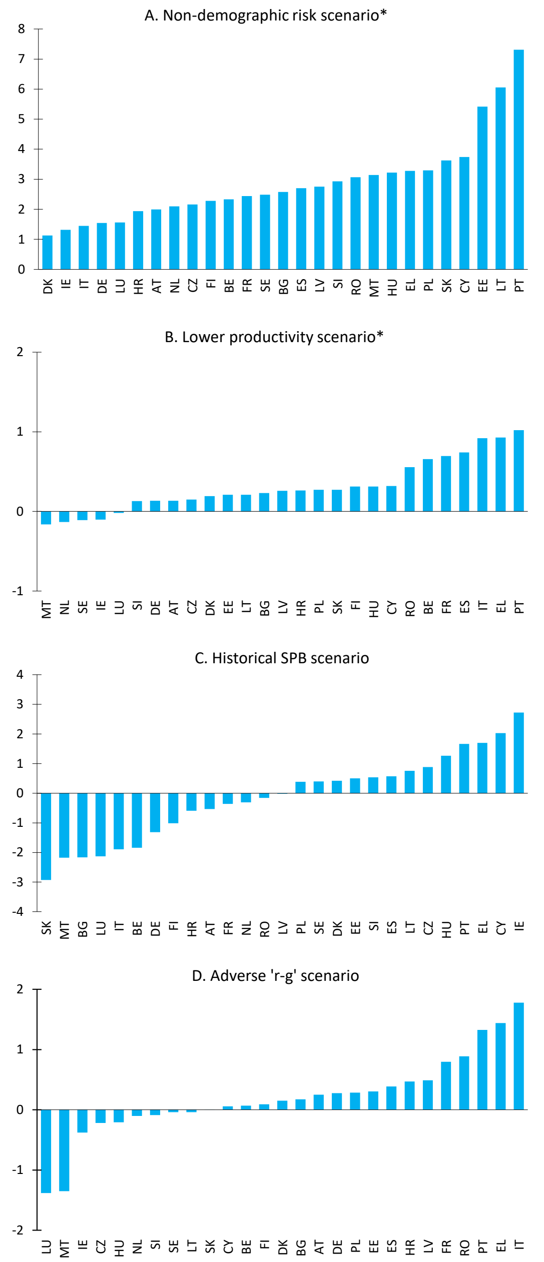
Four sensitivity scenarios were run to capture uncertainty surrounding the S2 indicator. Long-term projections are surrounded by uncertainty. In order to illustrate the impact of this uncertainty, the S2 'no-fiscal policy change' baseline results are compared with results under alternative macro-fiscal scenarios. To this purpose, four such scenarios are considered. Box I.3.2 provides the technical assumptions for each of these scenarios, as well as the detailed results. Graph I.3.6 presents the results in terms of deviation from the baseline.

- The **non-demographic risk scenario** adjusts the healthcare and long-term care expenditure projections for possible developments in non-demographic factors such as technological progress and convergence process. Under this scenario, the S2 would be considerably higher in all Member States (see Graph I.3.6-A). For Portugal, Lithuania, and Estonia, the S2 would be at least 5 pps. of GDP higher than the baseline results. Compared to the baseline, seven additional countries would be assessed at high risk, namely Czechia, Spain, Lithuania, Hungary, the Netherlands, Poland, and Romania. In addition, Estonia, Croatia, Italy, Cyprus, Latvia and Portugal would be assessed at medium risk compared to low risk in the baseline.

- The **lower productivity scenario** determines the S2 value in case ageing cost projections are based on lower productivity growth than assumed in the baseline. For a majority of the countries, the S2 value would be limitedly affected by such a scenario (see Graph I.3.6-B), with the impact notably reflecting pension benefit indexation rules. For most countries, this scenario would increase the S2 indicator. The adverse impact of lower productivity is highest in Portugal, Greece, Italy, Spain, France, Belgium and Romania (0.5-1 pps. of GDP higher than in the baseline). This would not affect the risk classification, however.

- The **historical SPB scenario** assumes that the SPB converges to its historical average level, thus improving (deteriorating) the initial budgetary position when the SPB forecast for 2024 is below (above) the historical average. Convergence to past fiscal performance reduces/increases the fiscal effort required to stabilise debt over time for about the same proportion of Member States (see Graph I.3.6-C). For Slovakia, the S2 indicator would be close to 3 pps. of GDP lower than its baseline value,

Graph I.3.6: **S2 – sensitivity analysis (deviations from baseline in pps. of GDP)**



*2024 Ageing Report scenario; see Box I.3.2.
Source: Commission services.

for Malta, Bulgaria, Luxembourg, Italy and Belgium, the difference is around 2 pps. of GDP. On the other hand, the fiscal gap would be significantly higher for Ireland, Cyprus, Greece and Portugal, reflecting the fairly strong fiscal position forecasted in 2024 compared with historical performance. Under this scenario, the risk classification would deteriorate in Ireland and Spain from medium to high risk, in Cyprus from low to medium risk, while it would improve in Belgium from high to medium risk and in Bulgaria and Germany from medium to low risk.

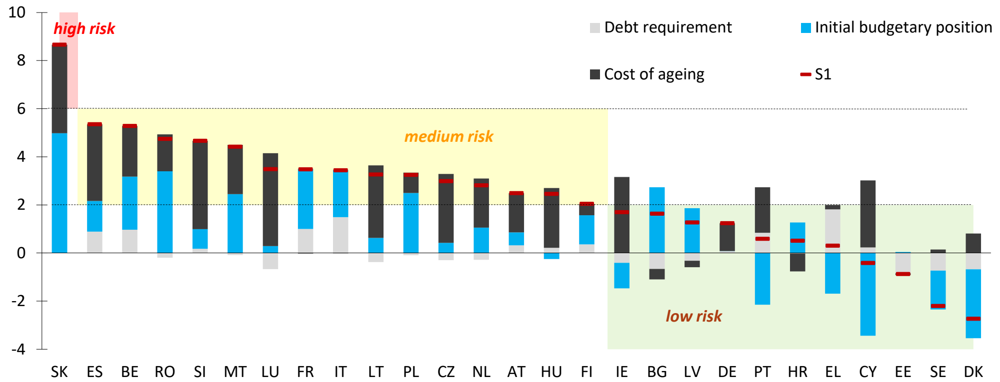
- The **adverse 'r-g' scenario** assumes a 1 pp. higher difference between interest rates and GDP growth. This implies a less favourable snowball effect and, especially for countries with high debt stocks, a higher required fiscal adjustment to stabilise the debt ratio. ([37]) Italy, Greece and Portugal would be the most affected if the interest-rate growth differential were indeed to widen (see Graph I.3.6-D). Their S2 value would go up by more than 1 pp. of GDP since a larger improvement in the SPB would be needed to counteract the impact on the debt ratio of a higher r-g. Under this scenario, Spain moves from medium to high risk and Italy from low to medium risk.

I.3.2. THE S1 INDICATOR

S1 – baseline

The S1 indicator measures the permanent fiscal effort needed in 2025 to bring the debt-to-GDP to 60% by 2070. The S1 indicator consists of three components, namely (i) the 'initial budgetary position', which measures the gap between the 2024 SPB and the debt-stabilising structural primary balance, (ii) the debt requirement, which is related to the distance of the current debt-to-GDP ratio to the 60% reference value and (iii) the future ageing costs.

Graph I.3.7: **S1 – baseline (pps. of GDP)**



Source: Commission services.

According to the S1 indicator, one Member State is identified as having high risks in the long term. Member States are considered at high risk if an overall adjustment of more than 6 pps. of GDP would be needed to bring debt to 60% of GDP by 2070. The S1 indicator suggests that Slovakia has an adjustment need of 8.7 pps. of GDP to have its debt-to-GDP ratio at 60% in 2070 (see Graph I.3.7).

The S1 indicator signals medium fiscal risks for fifteen Member in the long term. Member States are considered at medium risk if an overall adjustment between 2 and 6 pps. of GDP would be needed to bring debt back to 60% of GDP by 2070. The following countries fall in the medium risk category: Spain,

([37]) In exceptional circumstances, the impact can be favourable due to debt stabilising at a low level.

Belgium, Romania, Slovenia, Malta, Luxembourg, France, Italy, Lithuania, Poland, Czechia, the Netherlands, Austria, Hungary, and Finland.

Eleven Member States are considered to have low fiscal risks in the long term according to the S1 indicator. Member States are considered at low risk if an overall adjustment below 2 pps. of GDP would be needed to bring debt to 60% of GDP by 2070. According to the S1 indicator, the low risk countries are: Ireland, Bulgaria, Latvia, Germany, Portugal, Croatia, Greece, Cyprus, Estonia, Sweden and Denmark.

For the EU as a whole, the S1 is driven in particular by ageing costs followed by the initial budgetary position and the debt requirement. Table I.3.3 breaks down the overall S1 value into its three components. For the EU as a whole, the average S1 of 2.6 pps. of GDP is composed of (i) 1.2 pps. of GDP to absorb the budgetary impact of rising ageing costs, (ii) 1.0 pp. to close the gap between the 2024 SPB and the debt-stabilising structural primary balance and (iii) 1.0 pp. to bring government debt down from an expected 82.7% of GDP in 2024 to 60% in 2070. This average hides important country differences.

Table I.3.3: **S1 – breakdown (pps. of GDP)**

	S1	S1 components			Cost of ageing components			
		Initial budgetary position	Debt require-ment	Cost of ageing	Pen-sions*	Health-care	Long-term care	Edu-cation
BE	5.3	2.2	1.0	2.1	1.3	0.4	1.0	-0.6
BG	1.6	2.7	-0.7	-0.4	-0.9	0.3	0.1	0.0
CZ	3.0	0.4	-0.3	2.9	1.6	0.5	0.7	0.1
DK	-2.7	-2.9	-0.7	0.8	-1.2	0.4	1.9	-0.4
DE	1.2	0.0	0.1	1.2	0.3	0.3	0.4	0.1
EE	-0.9	0.0	-0.8	-0.1	-0.4	0.4	0.3	-0.4
IE	1.7	-1.1	-0.4	3.2	2.0	0.9	0.7	-0.4
EL	0.3	-1.7	1.8	0.2	-0.2	0.7	0.0	-0.2
ES	5.4	1.3	0.9	3.2	2.3	0.9	0.4	-0.5
FR	3.5	2.5	1.0	0.0	-0.4	0.5	0.4	-0.5
HR	0.5	1.3	0.0	-0.7	-0.9	0.5	0.1	-0.4
IT	3.4	2.0	1.5	0.0	-0.4	0.5	0.4	-0.5
CY	-0.4	-3.4	0.2	2.8	2.6	0.5	0.1	-0.3
LV	1.3	1.9	-0.3	-0.3	-0.7	0.4	0.2	-0.2
LT	3.3	0.6	-0.4	3.0	2.3	0.5	0.5	-0.3
LU	3.5	0.3	-0.7	3.9	2.9	0.5	0.7	-0.2
HU	2.5	-0.3	0.2	2.5	1.9	0.3	0.2	0.1
MT	4.4	2.4	-0.1	2.1	0.8	0.8	0.8	-0.3
NL	2.8	1.1	-0.3	2.0	0.9	0.4	1.2	-0.5
AT	2.5	0.5	0.3	1.6	0.3	0.8	0.8	-0.3
PL	3.2	2.5	-0.1	0.8	-0.2	0.7	0.4	0.0
PT	0.6	-2.1	0.8	1.9	0.6	1.0	0.3	0.0
RO	4.7	3.4	-0.2	1.5	0.8	0.5	0.2	0.1
SI	4.7	0.8	0.2	3.7	2.5	0.7	0.6	-0.2
SK	8.7	5.0	0.0	3.7	1.9	0.9	0.7	0.2
FI	2.0	1.2	0.4	0.5	-0.2	0.4	1.0	-0.7
SE	-2.2	-1.6	-0.7	0.1	-0.5	0.4	0.7	-0.4
EU	2.6	1.0	0.4	1.2	0.4	0.5	0.5	-0.3
EA	2.8	1.0	0.6	1.2	0.5	0.5	0.5	-0.3

* net of taxes on pensions and compulsory social security contributions paid by pensioners
Source: Commission services.

As for S2, for the majority of the Member States, ageing costs are the main determinant of S1. In fourteen countries, the increase in ageing costs by 2070 is the main driver of the S1 indicator and in another four Member States (Romania, Belgium, Malta and Slovakia), although the initial budgetary position contributes even more to the S1, this component is responsible for between 1.5 and 3.7 pps. of

GDP of the S1 value. A high ageing cost contribution is primarily driven by rising pension expenditure in several Member States with at least 1.5 pps. of GDP coming from this element (Luxembourg, Cyprus, Slovenia, Spain, Lithuania, Ireland, Slovakia and Czechia), though higher spending for healthcare and long-term care also play a role. In fact, healthcare and long-term care spending are projected to increase fiscal gaps as captured by S1 for all Member States, while falling pension expenditure reduces the sustainability gap in several cases, reflecting past pension reforms.

In most Member States, the unfavourable budgetary position also increases the S1 indicator. The unfavourable initial budgetary position in 2024 implies a debt increase over the projection period in 20 Member States, *all else equal*. Bridging the gap with the debt-stabilising SPB requires an improvement of the SPB of 5 pps. of GDP in Slovakia and between 2 and 3.4 pps. in Romania, Bulgaria, France, Poland, Malta, Belgium and Italy. Seven countries can allow their SPB to deteriorate to a varying extent while not endangering debt stabilisation all else being equal.

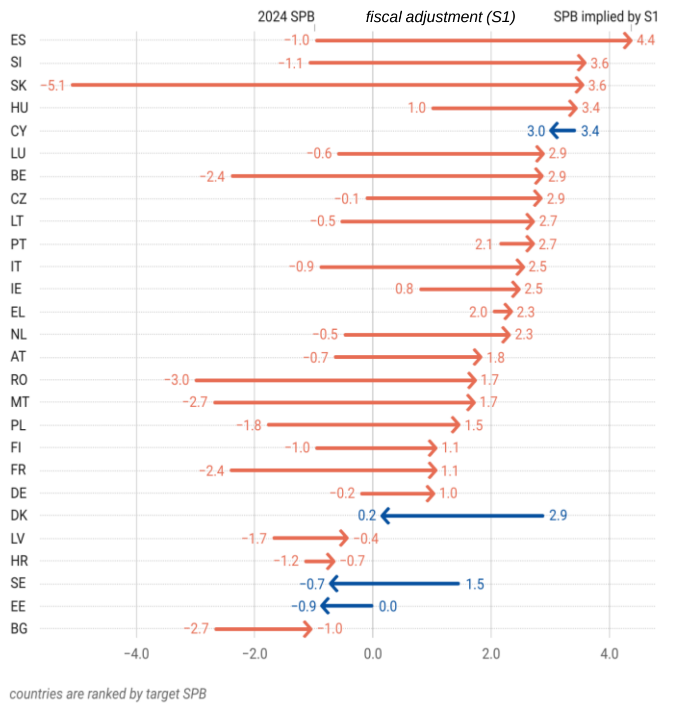
The government debt ratio in 2024 exceeding the 60% threshold further leads to an increase in the S1 in twelve Member States. Since the S1 indicator requires debt ratios to converge to 60% of GDP, the larger the gap to this mark, the larger the required fiscal adjustment. On the other hand, countries with debt above 60% of GDP in 2024 need to improve their SPB. Projected debt ratios for 2024 range from 151.9% of GDP for Greece to 20.5% for Estonia. As a result, they have the largest and smallest debt requirement contributions to S1, 1.8 pps. and -0.8 pps. of GDP respectively (see Table I.3.3). Debt convergence requires a fiscal adjustment of 0.8-1.8 pps. of GDP in Member States with the highest debt-to-GDP ratios, i.e. Greece, Italy, France, Belgium, Spain and Portugal. ([38])

([38]) For countries below the 60% mark, the required effort is negative, i.e., ceteris paribus, a deterioration of the SPB is compatible with reaching the 60% of GDP level.

S1 – implied structural primary balance

The S1 adjustment determines the SPB required for convergence to a debt-to-GDP ratio of 60% in 2070. This required SPB is the sum of i) the structural primary balance in 2024 – the last forecast year before the projections and calculated adjustment – and ii) the S1 value. A SPB of more than 4% of GDP would be needed in Spain to bring government debt to 60% of GDP (see Graph I.3.8). For Slovenia, Slovakia, Hungary, and Cyprus the required SPB also amounts to at least 3% of GDP.

Graph I.3.8: **S1 – required structural primary balance (% of GDP)**

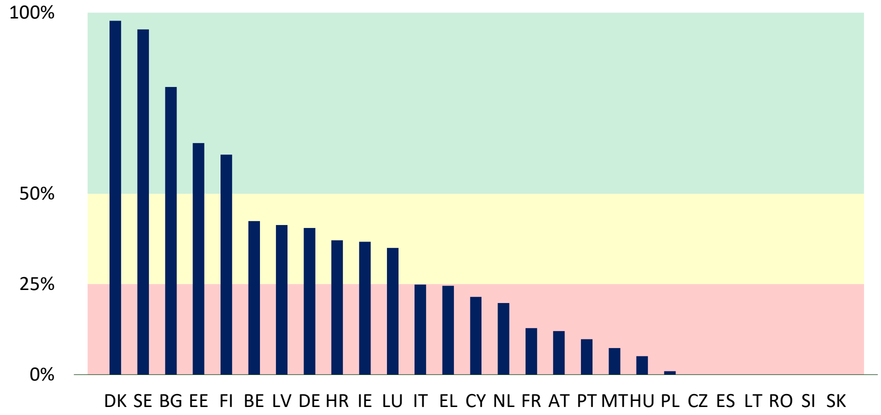


Source: Commission services.

The percentile rank of the required SPB gives an indication of the plausibility of the fiscal adjustment implied by S1. The required SPB can be benchmarked against the distribution of available SPBs for each country since 1980. ([39]) This allows assessing how realistic the required fiscal position is relative to past performance. ([40]) Graph I.3.9 orders the required SPBs according to their percentile ranks. The required SPB has never been achieved in Czechia, Spain, Lithuania, Romania, Slovenia and Slovakia. In the Netherlands, France, Austria, Portugal, Malta, Hungary and Poland, the SPB implied by the S1 was achieved less than 20% of the time during the past three decades. In the case of Portugal, the low-risk classification as per the S1 indicator thus rests on the assumption of a relatively large primary surplus by historical standards.

([39]) For some countries, data are not available for the entire period since 1980.
([40]) This factual observation doesn't preclude future policy action to improve public finances.

Graph I.3.9: **S1 – plausibility of the required structural primary balance (% of cases achieved in the past)**



Based on available SPBs in 1980-2021.
Source: Commission services.

S1 – sensitivity analysis

Four sensitivity scenarios were run to capture uncertainty surrounding the S1 indicator. The same scenarios as for the S2 indicator are considered (see definitions in the previous section and in Box I.3.2). Graph I.3.10 presents the results in terms of deviations from the baseline.

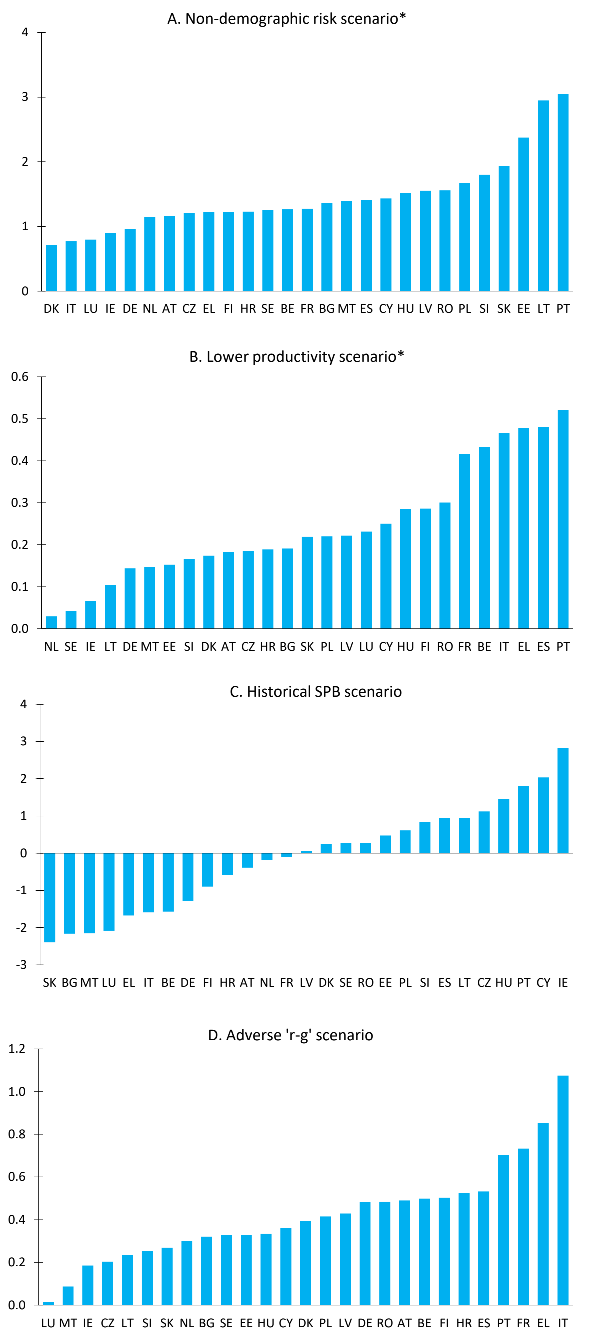
- Under the **non-demographic risk scenario**, the S1 is about 1-3 pps. of GDP higher for all Member States (see Graph I.3.10-A). The biggest differences are for Portugal, Lithuania and Estonia with an S1 of at least 2 pps. above the baseline value. Belgium, Spain, Lithuania, Romania and Slovenia are considered at high fiscal risk under this scenario in addition to Slovakia. The risk category moves from low to medium for Bulgaria, Germany, Ireland, Latvia and Portugal.

- Under the **lower productivity scenario**, the S1 changes to a lesser extent compared to the baseline (see Graph I.3.10-B). For Portugal, Spain, Greece, Italy, Belgium and France, the S1 indicator is at least 0.4 pps. of GDP higher than in the baseline. There is no change in the risk classification compared to the baseline.

- Under the **historical SPB scenario**, the budgetary position improves (deteriorates), if, for a country, the SPB forecast for 2024 is below (above) the historical average. As a consequence, this lowers (increases) the S1 value. If the past fiscal performance were assumed to be repeated, the fiscal effort to reduce the debt ratio to 60% of GDP by 2070 would fall by more than 2 pps. of GDP in Slovakia, Bulgaria, Malta and Luxembourg (see Graph I.3.10-C), while it would increase by more than 2 pps. of GDP for Ireland and Cyprus. As regards the S1 risk classification, Italy, Luxembourg and Finland would go from medium to low risk. Ireland and Portugal would make the opposite move and Spain would go from medium to high risk.

- Under the **adverse ‘r-g’ scenario**, a less favourable snowball effect is assumed so that a higher fiscal adjustment is needed to push the debt ratio to the 60% mark, in particular for countries with current high debt ratios. Italy, Greece, France and Portugal would be the most affected by a higher interest-growth rate differential (see Graph I.3.10-D). Their S1 value would go up by 0.7-1.1 pps. of GDP because a larger improvement in the SPB would be needed to offset the increase in the debt ratio caused by a higher ‘r-g’. Yet, risk classifications would not change compared to the baseline.

Graph I.3.10: **S1 – sensitivity analyses (deviations from baseline in pps. of GDP)**



*2024 Ageing Report scenario; see also Box I.3.2.
Source: Commission services.

I.3.3. OVERALL LONG-TERM FISCAL SUSTAINABILITY RISKS

The overall long-term fiscal sustainability risks are assessed based on both the S2 and S1 indicators. As discussed in Box I.3.1, the S2 indicator provides the starting point for the overall assessment of long-term fiscal risks. In addition, the S1 indicator, capturing vulnerabilities due to high debt levels, might lead to a one-notch deterioration of the risk classification. Table I.3.4 shows the risk classifications based on both indicators separately and provides the overall long-term risk classification.

- **Five Member States have high fiscal sustainability risks in the long term** (Belgium, Luxembourg, Malta, Slovenia and Slovakia). The main driving factor behind this risk assessment for all countries is the S2 indicator (for Slovakia also supported by the S1), and largely reflects increasing ageing costs. The latter is due to the significant projected increase in pension spending (largest component in all five countries).

- **Fourteen Member States face medium fiscal sustainability risks in the long term** (Bulgaria, Czechia, Germany, Ireland, Spain, France, Italy, Lithuania, Hungary, the Netherlands, Austria, Poland, Romania and Finland). The driving factor behind this risk assessment is generally the S2 indicator, reflecting projected increases in ageing costs (largest component in Czechia, Germany, Ireland, Spain, Lithuania, and Hungary) and/or an unfavourable initial budgetary position (largest component in Bulgaria, France, Poland, Romania and Finland). Only in the cases of Italy is the overall risk classification modified by the S1 indicator, which causes a deterioration of the overall risk classification from low to medium risk over the long term, given debt vulnerabilities captured by the S1 indicator.

- **Eight Member States have low fiscal sustainability risks in the long term** (Denmark, Estonia, Greece, Croatia, Cyprus, Latvia, Portugal and Sweden). This reflects both contained cost of ageing over the long-term impact and favourable initial budgetary positions in most cases. In the cases of Croatia and Latvia decreasing ageing costs offset the impact of a relatively less favourable initial budgetary position, while in the case of Cyprus, it is the favourable initial budgetary position that offsets the impact of the significant projected increase in ageing costs. In some cases (Cyprus and Portugal), the low-risk classification rests on the assumption of a relatively large structural primary surplus by historical standards.

Table I.3.4: Overall long-term risk classification, S2 and S1

	Overall	S2	S1
BE	HIGH	HIGH	MEDIUM
BG	MEDIUM	MEDIUM	LOW
CZ	MEDIUM	MEDIUM	MEDIUM
DK	LOW	LOW	LOW
DE	MEDIUM	MEDIUM	LOW
EE	LOW	LOW	LOW
IE	MEDIUM	MEDIUM	LOW
EL	LOW	LOW	LOW
ES	MEDIUM	MEDIUM	MEDIUM
FR	MEDIUM	MEDIUM	MEDIUM
HR	LOW	LOW	LOW
IT	MEDIUM	LOW	MEDIUM
CY	LOW	LOW	LOW
LV	LOW	LOW	LOW
LT	MEDIUM	MEDIUM	MEDIUM
LU	HIGH	HIGH	MEDIUM
HU	MEDIUM	MEDIUM	MEDIUM
MT	HIGH	HIGH	MEDIUM
NL	MEDIUM	MEDIUM	MEDIUM
AT	MEDIUM	MEDIUM	MEDIUM
PL	MEDIUM	MEDIUM	MEDIUM
PT	LOW	LOW	LOW
RO	MEDIUM	MEDIUM	MEDIUM
SI	HIGH	HIGH	MEDIUM
SK	HIGH	HIGH	HIGH
FI	MEDIUM	MEDIUM	LOW
SE	LOW	LOW	LOW

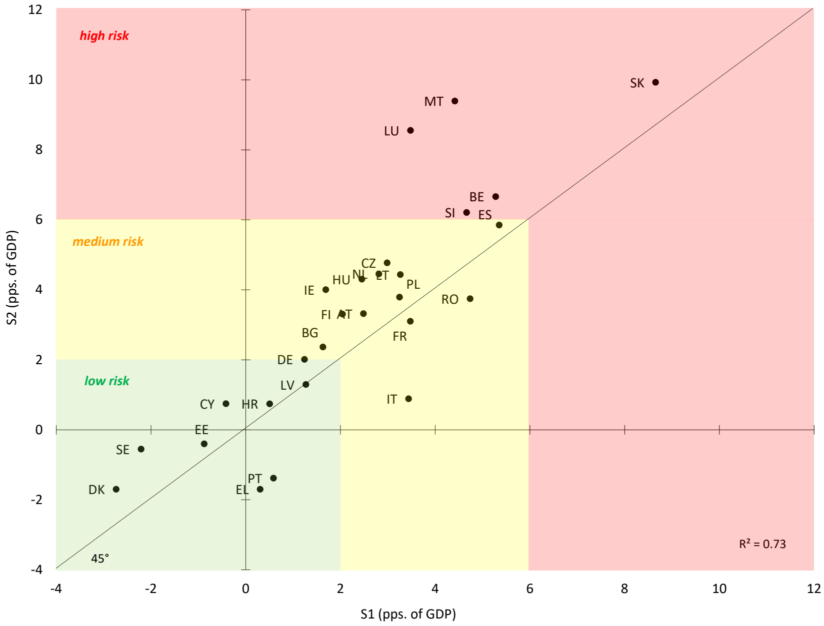
Source: Commission services.

In most cases, the S1 indicator confirms the conclusion derived from the S2 indicator alone. The S2 and S1 indicators show a high correlation despite capturing somewhat different objectives: debt stabilisation over the long term – irrespective of the debt level – versus debt convergence to the 60% of GDP reference threshold (see Graph I.3.11). ([41]) S1 and S2 depend on present values which are calculated over different periods. Anything that weighs on public finances over an infinite horizon (as for S2), rather

([41]) The correlation between S1 and S2, as measured by the R squared value, amounts to 0.73 (see Graph I.3.11).

than only until 2070 (as for S1), will imply a larger present value. In the case of Belgium, for instance, the cost of ageing is projected to be higher in 2070 than it is now. If we assume that that high level does not stop in 2070 but continues over an infinite horizon (as we do to calculate S2), the present value of this 'eternal' high cost is larger. The same holds for interest expenditure, implying that stabilising a high debt over an infinite horizon is more demanding than over around 50 years, hence a higher initial budgetary position (see also Box I.3.1). The signals provided by both indicators are identical for 18 countries. In 9 cases, the risk classification based on S1 differs from that based on S2. In almost all cases, the S2 signal determines the overall long-term risk classification; only in the case Italy, the overall risk classification is modified by the S1 indicator.

Graph I.3.11: **Relationship between S2 and S1**



Source: Commission services.

Compared to the 2022 DSM, overall long-term fiscal sustainability risks … :

- ***remained unchanged in twenty-three countries*** (see Table I.3.5 for a comparison).
- ***worsened in one country.*** For Lithuania, long-term risks are now medium, compared to low in the 2022 DSM. This deterioration is driven by a revision of ageing cost projections worsening both the S1 and S2 indicators.
- ***declined in three countries (Croatia, Hungary and the Netherlands)***. For these countries, the S2 indicator was the main driver of the classification and the S2 was relatively close to the lower bound of the corresponding threshold of the risk category in the 2022 DSM. In all three cases, both components of the indicator improved somewhat leading to the change in the classification.

Table I.3.5: **Overall long-term risk classifications in the 2022 and the 2023 DSM**

2022 DSM \ 2023 DSM	Low	Medium	High
Low	DK, EE, EL, CY, LV, PT, SE	**LT**	
Medium	**HR**	BG, CZ, DE, IE, ES, FR, IT, AT, PL, RO, FI	
High		**HU, NL**	BE, LU, MT, SI, SK

Note: The risk classification of countries in bold and green/red has improved/deteriorated compared to the 2022 DSM.
Source: Commission services.

Box I.3.1: Methodology behind the long-term fiscal sustainability analysis

This box explains the methodology behind the Commission's long-term fiscal sustainability analysis. Long-term fiscal sustainability relates to the achievement of governments' intertemporal budget constraint. This constraint, also known as the solvency condition, refers to a country's capacity to meet its net debt obligations through future primary surpluses. Other things being equal, the higher the projected cost of ageing, the more difficult it is to fulfil the intertemporal budget constraint, as higher revenue – in present terms – is required to cover these costs, in addition to the other non-interest expenditure and debt service.

The fiscal sustainability challenges that arise from demographic ageing in the EU have been monitored for several decades. Since the early 2000s, the Commission and the Economic Policy Committee prepare on a regular basis long-term budgetary projections. The 2021 Ageing Report was published in May 2021 and the upcoming 2024 Report is to be published in spring 2024. Following an agreement in the Economic Policy Committee, this Debt Sustainability Report is based on the latest update of those ageing related budgetary projections, covering the period up to 2070, that is to be published in the 2024 Ageing Report. To account for ageing costs, a long-term fiscal gap indicator was introduced in the 2006 Fiscal Sustainability Report, the 'S2 fiscal sustainability indicator'. The S1 indicator also factors in future ageing costs as well as the EU fiscal rules' debt anchor. Together they determine the long-term risk classification.

The S2 indicator

The S2 indicator is the central element of the long-term sustainability analysis. It is based on the infinite version of the government budget constraint. More specifically,

– this fiscal sustainability gap indicator shows the immediate and permanent adjustment to the current structural primary balance – subsequently kept constant at the adjusted value forever – that is required to stabilise the debt-to-GDP ratio over the infinite horizon; ([1])

– this upfront adjustment is assumed to take place in 2025, based on the forecast for 2024 included in the Commission 2023 autumn forecast;

– the 2024 structural primary balance – the primary balance adjusted for the cycle and one-off fiscal measures – as provided by the Commission 2023 autumn forecast serves as starting point, providing a proxy for the 'no-fiscal policy change' assumption;

– over the T+10 horizon, GDP projections are based on the EU Commonly Agreed Methodology (EUCAM) updated to the Commission 2023 autumn forecast;

– ageing costs as projected for the upcoming 2024 Ageing Report are accounted for as from 2025 onwards, as this change in (net) expenditure affects the structural primary balance; ([2])

– beyond the T+10 horizon, (long-term) interest rate assumptions and GDP projections are from the upcoming 2024 Ageing Report. Over the long term, a progressive normalisation of financing conditions is assumed, with the `r-g' differential stabilising at around 1 pp. for the EU.

– the following thresholds are used to assess the scale of the sustainability challenge: if the S2 value (in percentage points of GDP) is lower than 2, the country is assigned 'low risk'; if S2 is between 2 and 6, the country is assigned 'medium risk'; and if S2 is above 6, the country is assigned 'high risk'. These threshold values are identical to those applied in earlier reports.

([1]) See Annex A5 for the precise calculation of the S2 and S1 indicators.
([2]) The S2 and S1 indicators include pension expenditure net of taxes on pensions and compulsory social security contributions paid by pensioners, as well as health care, long-term care and education expenditure.

(Continued on the next page)

Box (continued)

S2's focus on the intertemporal budget constraint is relevant. It is a well-established element of long-term fiscal sustainability assessments that remains ever relevant to cater for numerous factors such as interest-rate growth differential developments that have been putting upward pressure on public finances recently; or ageing costs that are projected to increase in many countries, putting permanent pressure on the primary balance. This, in the context of historically high level of debt in several Member States, a succession of recent crises, and future structural headwinds confirms the relevance of assessing fiscal sustainability challenges also over the long-term.

S2 measures the size of long-term fiscal imbalances without relying on a specific debt target. The intertemporal budget constraint implies that public debt stabilises in the long term, in the sense that future structural primary balances cover future debt servicing and ageing costs. It says nothing about the level at which this stabilisation takes place, thus ignoring risks linked to high debt levels. The adjustment implied by the S2 indicator might in fact lead to debt stabilising at (very) high levels. As a result, based solely on S2, some countries might be deemed on a sustainable long-term path despite their debt ratios stabilising at a high levels. ([3])

To address this shortcoming, the S1 indicator is used to complement the S2 indicator for the long-term fiscal risk assessment ([4]). As described above, the S2 indicator provides an important, although partial signal for the assessment of long-term fiscal risks. The S1 indicator is thus used to complement it imposing a restriction on the level at which debt stabilises.

The S1 indicator

S1 is a fiscal gap indicator that relies on a finite version of the budget constraint, imposing convergence to a debt target of 60% of GDP. More specifically,

- S1 measures the upfront fiscal adjustment to the structural primary balance required to reach a debt-to-GDP ratio of 60% in 2070, the end-point of the latest Ageing Report projections;
- this upfront adjustment is assumed to take place in 2025, i.e. the first year of the projection;
- as done for the S2 indicator, the 2024 structural primary balance as provided by the Commission 2023 autumn forecast serves as starting point;
- as done for the S2 indicator, ageing costs are explicitly accounted for as of 2025;
- in terms of risk signal, the S1 thresholds are aligned with the S2 thresholds, i.e. if the S1 value (in percentage points of GDP) is lower than 2, the country is assigned 'low risk'; if S1 is between 2 and 6, the country is assigned 'medium risk'; and if S1 is above 6, the country is assigned 'high risk'.

While the S1 and S2 are both fiscal gap indicators that measure the required fiscal effort to achieve long-term fiscal goals, two differences exist. First, the components of S1 and S2 differ. Both indicators have two components in common, namely the initial budgetary position and the cost of ageing. However, in the case of S1 the "debt requirement" is the third requirement. For a high-debt country, everything else unchanged, that third component is positive and would imply that S1 > S2. Second, S1 and S2 depend on present values which are calculated over different periods. Anything that weighs on public finances over an infinite horizon, rather than only until 2070, will imply a larger present value. In the case of Belgium, for instance, the cost of ageing is projected to be higher in 2070 than it is now. If we assume that that high level does not stop in 2070

([3]) For a detailed discussion of the strengths and shortcomings of the S2 indicator, see Box 3.2 in European Commission (2018), Debt Sustainability Monitor 2017, European Economy, Institutional Paper 71.

([4]) Until the 2022 Debt Sustainability Monitor, long-term fiscal risk assessment was based on the S2 indicator and the DSA. For a detailed description of the change from the DSA to a then revised S1 indicator as a complement to the S2 indicator, please see Box 3.1 of the Debt Sustainability Monitor, 2022, pp 71-75; https://economy-finance.ec.europa.eu/document/download/efcd41eb-16dd-4fac-bb9e-d01456b1ef6a_en?filename=ip199_en_UPD.pdf

(Continued on the next page)

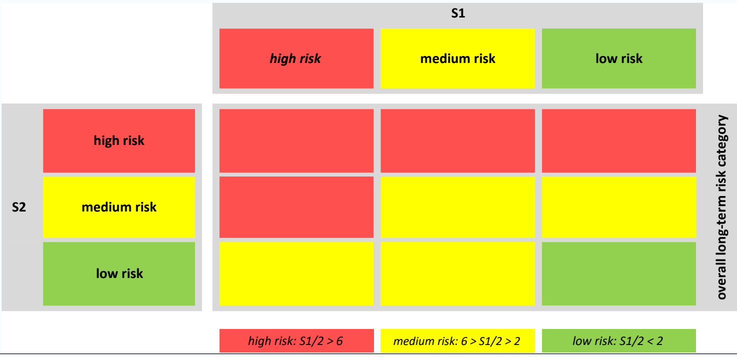
Box (continued)

but continues over an infinite horizon (as we do to calculate S2), the present value of this 'eternal' high cost is larger. The same holds for interest expenditure, implying that stabilising a high debt over an infinite horizon is more demanding than over around 50 years, hence a higher IBP.

Overall long-term risk classification

The overall long-term risk classification is based on the S2 complemented by the S1 indicators. Table 1 shows how S2 and S1 indicators combine into the overall long-term risk classification. The S1 signal can worsen the outcome based on S2 by one notch, but it can never improve the S2 results.

Table 1: **Determination of overall long-term risk classification**



Reading example: A country with a medium (low) S2 indicator and a high S1 indicator has an overall long-term risk classification of high (medium).
Source: Commission services.

Box I.3.2: S1 and S2 – sensitivity scenarios: description and results

Non-demographic risk scenario

The non-demographic risk scenario adjusts the healthcare and long-term care expenditure projections for possible developments in non-demographic factors such as technological progress and convergence process. It is based on a sensitivity scenario from the forthcoming 2024 Ageing Report, where it is called ‘Risk’ scenario. The scenario assumes a partial continuation of upward healthcare expenditure trends, notably due to technological progress, and an upward convergence of coverage and costs of long-term care towards the EU average.

Lower productivity scenario

The lower productivity scenario determines the S2 value in case ageing cost projections are based on lower productivity growth than assumed in the baseline. This scenario is based on a sensitivity scenario from the forthcoming 2024 Ageing Report, where it is called ‘Lower TFP growth’ scenario. While the Ageing Report baseline projections assume a gradual convergence of total factor productivity growth (TFP) to 0.8% for all Member States, this scenario assumes convergence to a lower TFP growth rate of 0.6%.

Historical SPB scenario

The historical structural primary balance (SPB) scenario assumes that the SPB converges to its historical average level, thus improving (deteriorating) the initial budgetary position when the SPB forecast for 2024 is below (above) the historical average. It uses the European Commission forecasts until 2024, followed by gradual convergence to the historical SPB average in 2028. The historical average is based on available data for 2008-2022.

Adverse 'r-g' scenario

This scenario applies a 1 pp. higher difference between nominal interest rates (r) and nominal GDP growth (g). The ‘r-g’ differential determines the snowball effect. This implies a less favourable snowball effect and, especially for countries with high debt stocks, a higher required fiscal adjustment to stabilise or reduce the debt ratio.

(Continued on the next page)

Box (continued)

Table 1: **Results of sensitivity scenarios (pps. of GDP)**

	S1 indicator					S2 indicator				
	Baseline	Non-demographic risk*	Lower productivity*	Historical SPB	Adverse 'r-g'	Baseline	Non-demographic risk*	Lower productivity*	Historical SPB	Adverse 'r-g'
BE	5.3	6.5	5.7	3.7	5.8	6.7	9.0	7.3	4.8	6.7
BG	1.6	3.0	1.8	-0.5	2.0	2.4	4.9	2.6	0.2	2.5
CZ	3.0	4.2	3.2	4.1	3.2	4.8	6.9	4.9	5.7	4.6
DK	-2.7	-2.0	-2.6	-2.5	-2.3	-1.7	-0.6	-1.5	-1.3	-1.6
DE	1.2	2.2	1.4	0.0	1.7	2.0	3.6	2.1	0.7	2.3
EE	-0.9	1.5	-0.7	-0.4	-0.5	-0.4	5.0	-0.2	0.1	-0.1
IE	1.7	2.6	1.8	4.5	1.9	4.0	5.3	3.9	6.7	3.6
EL	0.3	1.5	0.8	-1.4	1.2	-1.7	1.6	-0.8	0.0	-0.3
ES	5.4	6.8	5.8	6.3	5.9	5.9	8.6	6.6	6.4	6.2
FR	3.5	4.8	3.9	3.4	4.2	3.1	5.5	3.8	2.7	3.9
HR	0.5	1.7	0.7	-0.1	1.0	0.7	2.7	1.0	0.2	1.2
IT	3.4	4.2	3.9	1.8	4.5	0.9	2.3	1.8	-1.0	2.7
CY	-0.4	1.0	-0.2	1.6	-0.1	0.7	4.5	1.1	2.8	0.8
LV	1.3	2.8	1.5	1.3	1.7	1.3	4.0	1.6	1.3	1.8
LT	3.3	6.2	3.4	4.2	3.5	4.4	10.5	4.6	5.2	4.4
LU	3.5	4.3	3.7	1.4	3.5	8.6	10.1	8.5	6.4	7.2
HU	2.5	4.0	2.7	3.9	2.8	4.3	7.5	4.6	5.6	4.1
MT	4.4	5.8	4.6	2.3	4.5	9.4	12.5	9.2	7.2	8.0
NL	2.8	4.0	2.8	2.6	3.1	4.5	6.6	4.3	4.1	4.4
AT	2.5	3.7	2.7	2.1	3.0	3.3	5.3	3.5	2.8	3.6
PL	3.2	4.9	3.5	3.9	3.7	3.8	7.1	4.1	4.2	4.1
PT	0.6	3.6	1.1	2.4	1.3	-1.4	5.9	-0.4	0.3	-0.1
RO	4.7	6.3	5.0	5.0	5.2	3.7	6.8	4.3	3.6	4.6
SI	4.7	6.5	4.8	5.5	4.9	6.2	9.1	6.3	6.7	6.1
SK	8.7	10.6	8.9	6.3	8.9	9.9	13.6	10.2	7.0	9.9
FI	2.0	3.3	2.3	1.1	2.5	3.3	5.6	3.6	2.3	3.4
SE	-2.2	-1.0	-2.2	-1.9	-1.9	-0.6	1.9	-0.7	-0.2	-0.6

The cells are highlighted in line with the thresholds for the long-term risk classification (see Box 3.1), namely: greater 6 (red), between 2 and 6 (yellow) and below 2 (green). Values in bold: higher than baseline; values in italics: lower than baseline. *Ageing Report scenario.
Source: Commission services.

Box I.3.3: Ageing cost projections

Population projections indicate a fast demographic ageing in the next decades, with the working-age population expected to decrease sharply. According to Eurostat's latest demographic projections, the median age in the EU would rise by around 4.5 years by 2070 (Eurostat, 2023; EC-EPC, 2023). ([1]) Demographic ageing is expected to take place in all EU Member States, though to varying degrees and speed. This reflects the general assumptions of a further rise in life expectancy, below-replacement fertility rates and net migration in line with recent trends. As a result, the population composition would change radically, due to more older people and fewer people at working-age. This demographic shift has important budgetary consequences. More people will receive pension, health and long-term care benefits, while at the same time the number of contributors to Member States' social security systems will fall, even when assuming a higher employment rate.

According to the forthcoming *2024 Ageing Report*, total ageing-related expenditure would rise in most Member States by 2070 (see Table 1)**.** The *Ageing Report* provides long-term projections for expenditure on pension, healthcare, long-term care and education. Over the period 2022-2070, age-related expenditure is expected to rise by 1.2 pps. of GDP on average in the EU. Spending would go up in 20 Member States and by at least 5 pps. of GDP in Luxembourg, Malta, Slovakia, Slovenia, Hungary, Belgium and Spain. In 6 Member States, the projections show an overall downward impact, due to a projected decline in pension expenditure by 2070 and, to a lesser extent, lower spending on education. For several of these countries, ageing costs are nevertheless expected to increase in the next decades.

Table 1: **Expected change of ageing costs between 2022 and 2070 (in pps. of GDP)**

	pensions	healthcare	long-term care	education	total
LU					10.7
MT					8.6
SK					6.1
SI					5.4
HU					5.2
BE					5.1
ES					5.1
IE					4.9
LT					4.6
CY					4.1
CZ					3.7
NL					3.5
FI					2.7
AT					2.6
DE					2.0
PL					1.9
DK					1.4
SE					0.8
BG					0.6
RO					0.2
EE					0.0
HR					-0.2
PT					-0.5
FR					-0.7
LV					-1.9
IT					-2.0
EL					-2.4
EU					1.2

Source: 2024 Ageing Report (forthcoming).

Pension expenditure would rise considerably in many Member States, especially in the next decades. In 2070, public pension spending would be very similar to the current average level in the EU. However, expenditure is projected to increase in 16 Member States. The largest increases would be in Luxembourg, Malta, Hungary, Slovenia, Spain, Cyprus, Belgium and Lithuania, with an increase of at least 3 pps. in the pension expenditure-to-GDP ratio. By contrast, 11 Member States would see public pension expenditure decline by 2070, despite an initial increase in pension spending in most of them. These pension

([1]) European Commission and EPC (2023), '2024 Ageing Report: Underlying assumptions and projection methodologies', European Economy, Institutional Paper 257.

(Continued on the next page)

Box (continued)

projections are based on current legislation: they take into account planned increases in legal retirement ages and apply the legal indexation rules. There are significant policy risks surrounding the baseline projections. If already legislated but not yet enacted increases in the legal retirement age are revoked, pension expenditure would rise more. The same holds for possible measures to counteract the general decline in pension adequacy underpinning the baseline projections.

Healthcare spending is expected to increase in quasi all countries, though to varying degrees. The forthcoming *2024 Ageing Report* baseline projections assume that half of the future gains in life expectancy will be spent in good health, that unit costs evolve in line with GDP per capita and that the income elasticity of healthcare spending converges from 1.1 in base year 2022 to 1 by 2070. An average increase in healthcare spending of 0.4 pps. of GDP is projected by 2070. The budgetary impact of rising health care spending is projected at more than 1 pp. of GDP in Poland, Austria, Luxembourg, Spain, Ireland and Slovakia, and more than 2 pps. in Slovakia. Only in Latvia health care spending would slightly decline by 2070 as compared to 2022.

Likewise, a general increase in long-term care spending is projected to contribute to ageing costs. The forthcoming *2024 Ageing Report* baseline projections assume that half of the projected gains in life expectancy are spent without disability. As countries become richer, they are likely to spend a larger proportion of their GDP on long-term care. This is modelled in the baseline by including the assumption that the income elasticity starts at 1.1 in base year 2022, falling to 1 by 2070 for those countries that are below the first quartile in terms of expenditure on long-term care as a proportion of GDP. An average increase in long-term care expenditure of 0.8 pps. of GDP is projected by 2070 in the EU, with a rise of more than 1 pp. in Sweden, Slovakia, Ireland, Czechia, Austria, Luxembourg, Belgium, Finland and the Netherlands, more than 2 pps. in Malta and more than 3 pps. in Denmark.

Education expenditure is expected to fall in most countries, though mostly to a limited extent. The forthcoming *2024 Ageing Report* baseline education projection focuses on the impact of demographic factors, the key assumption being a constant students-to-staff ratio. At EU aggregate level, public education spending is projected to fall by 0.5 pps. of GDP in 2022-2070. An increase of maximum 0.3 pps. of GDP is expected in 6 Member States. For a large majority of countries, education spending would decline because of demographic ageing (implying a lower number of students), though by about 1 pp. of GDP at the most.

The updated figures show a similar increase in the total cost of ageing for the EU compared with the *2021 Ageing Report* though with substantial upward revisions for several countries. The overall increase between 2022 and 2070 of +1.2 pps. compares to +1.1 pps. of GDP in the *2021 Ageing Report*. The higher projected increase in ageing costs for some countries (e.g. Spain, Lithuania, Cyprus and Malta) are driven by the updated pension expenditure projections, which are higher for most Member States. The revisions for the other items are generally smaller.

The forthcoming *2024 Ageing Report* includes a set of sensitivity tests that illustrate the extent to which the expenditure projections react to changes in key assumptions. These include demographic, labour force and productivity trends, as well as policy scenarios for pension expenditure, and non-demographic cost drivers of healthcare and long-term care. Non demographic factors could cause a considerably higher increase than estimated under the baseline healthcare and long-term care projections. This scenario and the lower productivity scenario are among the sensitivity scenarios for the S1 and S2 indicators (see Box 3.2).

I.4. ADDITIONAL AGGRAVATING AND MITIGATING RISK FACTORS FOR FISCAL SUSTAINABILITY

Main takeaways

This chapter explores additional aggravating and mitigating risk factors for fiscal sustainability. These factors are only partially reflected in the analysis of the previous chapters but are critical to provide an overall assessment of fiscal sustainability risks. The risk factors include the structure of debt, government liabilities beyond (EDP) public debt, in particular contingent liabilities, as well as government assets and net debt.

Recent developments in the structure of government debt are overall favourable across the EU, **although the increased share of short-term debt in some Member States remains a potential source of concern.** Over the past years, a general trend of lengthening debt maturities has been observed. However, in several Member States, the share of short-term debt, that had partially receded in 2021, has increased in 2022. The investor base is large and diversified in many Member States. Asset purchases' programmes by the Eurosystem in recent years resulted in a substantial increase of the share of government debt held by central banks, representing a stable financing source. Though, the impact of the on-going unwinding of such programmes needs monitoring. Lastly, few non-euro area Member States are exposed to foreign exchange rate risks.

Risks concerning government contingent liabilities, that had increased due to the COVID-19 pandemic in 2020, appear overall limited. The recourse to government guarantees was moderate and on a declining path in most Member States in 2022, with guarantee schemes granted in response to the pandemic having expired in the course of 2021 and 2022. A snapshot analysis of bank balance sheets points to contained vulnerabilities in most Member States. Simulations based on the Commission's SYMBOL model show that (implicit) contingent liabilities' risks linked to the banking sector persist only in few Member States, and mainly under a stressed scenario.

The holding of (large) financial assets in some Member States mitigate fiscal sustainability risks, even though net debt increased across the board over the past years. Country rankings for indebtedness are similar when comparing gross and net debt ratios. Both indicators increased in the majority of Member States over the past decades, notably reflecting the succession of crises.

Additional aggravating and mitigating risk factors are taken into account as a complement to the quantitative results in order to ensure a comprehensive overall assessment of fiscal sustainability challenges. The previous chapters presented quantitative results on the basis of the DSA risk framework as well as fiscal sustainability indicators. Yet, these quantitative results need to be complemented by additional aggravating and / or mitigating risk factors that are only partially factored in in the quantitative results of the framework. Such factors are particularly relevant in times of economic stress and elevated uncertainty.

A number of key aggravating and mitigating risk factors are analysed in this chapter. Section 4.1 provides an analysis of the debt structure, notably in terms of maturity, currency denomination and holders, which gives an important indication of potential vulnerabilities (or strengths). Section 4.2 examines implicit and contingent liabilities, and notably those stemming from the banking sector, including on the basis of the Commission SYMBOL model. Section 4.3 discuses other relevant factors, including government assets. The additional risk factors considered in this chapter are treated horizontally in the overall assessment, insofar the identified vulnerabilities or supporting factors may materialise in the short, medium or long term. ([42])

I.4.1. RISKS RELATED TO THE GOVERNMENT DEBT STRUCTURE

The structure of government debt can play an important role in ensuring sustainable public finances in different ways. First, by determining the level and response of interest payments to changes in economic and financial conditions. Second, by influencing the degree of risks, notably refinancing and rollover risks. According to the IMF (2014), an optimal government debt portfolio should minimise interest payments subject to a prudent degree of refinancing and rollover risks (cost-risk trade-off). ([43])

The debt composition needs to be analysed along several dimensions. In this section, the analysis focuses on three aspects: the maturity structure, the currency denomination composition and the nature of the investors' base. ([44]) With this aim, three main variables are used to analyse the debt structure: i) the share of short-term debt in total government debt (at original maturity); ii) the share of debt denominated in foreign currency in total government debt, and iii) the share of debt held by non-residents in total government debt.

([42]) Some other factors are not examined in this chapter. This concerns in particular the quality of institutions. As shown by a rich literature, the quality of institutions is an important supporting factor of public debt sustainability. In the EU, a deeply integrated region of mainly advanced economies, evidence suggests that the quality of institutions would be on average higher and less heterogeneous than in other parts of the world (for a literature review, see Box 1.2 in European Commission (2019), Fiscal Sustainability Report 2018, *European Economy Institutional Paper*, No. 094.

([43]) IMF (2014), "World Economic Outlook: recovery strengthens, remains uneven" April.

([44]) Other dimensions could also be considered such as the type of interest rates (fixed / variable), and relatedly the presence of indexation mechanisms (e.g., inflation-linked bonds), or state-contingent features, as well the nature of debt instruments (the latter is analysed to some extent in section 4.2 of this chapter).

A risk-based approach is applied to capture additional vulnerabilities or mitigating factors stemming from the composition of government debt. The values of the three main selected variables are analysed against critical thresholds of fiscal risk obtained through the same signalling approach, which is used for the computation of S0 ([45]). The results are reported for all Member States in the form of a heat map (see Table I.4.1) ([46])

The share of short-term government debt has increased and remains high in 14 Member States, while the decline initiated last year in some countries is confirmed. With a high share of short-term debt, a government may be vulnerable to increases in monetary policy rate, and to rapid changes in financial markets' perceptions. ([47]) From this angle, fiscal risks persist for several EU countries (see Table I.4.1). The share of short-term debt is considered high in 14 Member States, in particular in Sweden (about 28% of total government debt) but also in Portugal, Italy, Finland, Netherlands, Malta, and Germany (above 10% of total government debt). After the peak recorded during the COVID-19 crisis and the subsequent drop in 2021, the ratio of short-term debt slightly increased in several Member States in 2022 while pursuing its overall decrease for the EU/EA as a whole (see Graph I.4.1). ([48])

Table I.4.1: **Risks related to the government debt structure (2022)**

	1. Short-term public debt (original maturity)	2. Public debt in foreign currency	3. Public debt held by non-residents
	Shares of total debt (%):		
BE	**8.3**	0.0	**55.4**
BG	0.0	**71.6**	47.7
CZ	5.7	11.3	31.6
DK	**10.1**	2.5	25.0
DE	**10.2**	1.6	20.3
EE	**7.0**	0.0	73.6
IE	**6.8**	0.0	**53.1**
EL	6.6	0.0	**78.2**
ES	5.1	0.0	40.8
FR	**8.3**	0.0	47.3
HR	4.4	*73.6*	32.4
IT	**13.1**	0.1	26.8
CY	1.3	0.0	**93.2**
LV	1.3	0.0	**64.0**
LT	0.0	0.0	**61.4**
LU	2.1	0.0	**52.1**
HU	**9.9**	28.5	34.1
MT	**10.3**	0.0	22.0
NL	**11.0**	0.0	39.7
AT	**7.1**	0.3	**61.4**
PL	1.8	24.2	35.7
PT	**17.5**	0.0	44.7
RO	6.1	**53.8**	49.6
SI	3.4	0.1	**54.8**
SK	0.7	0.0	48.0
FI	**12.1**	3.9	**49.4**
SE	**27.8**	11.1	14.9

(1) Upper and lower thresholds: (i) Share of short-term government debt: upper threshold 6.57%; lower threshold 5.3%; (ii) Share of government debt in foreign currency: upper threshold 31.58%; lower threshold 25%; (iii) Share of government debt held by non-residents: upper threshold 49%; lower threshold 40%. (2) Share of the short-term public debt is based on partially missing information for Netherlands and Denmark. (3) For Croatia, the bulk of foreign debt denominated in euro, and the country joined the euro area in 2023.(4) Foreign-held debt figures are shown against a double shading that blends the colour coding of volatility risks from non-resident tenure (left side of the shaded cells) with that of sovereign risk given by the average spread on 10-year government bonds vs. Germany (right side of the shaded cells).
Source: Eurostat.

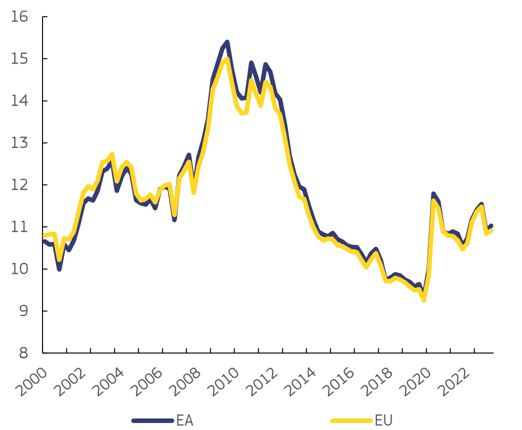
([45]) For details on the signals approach see Chapter 1. This methodology shows that, based on historical events, the three variables appear to be relatively good leading indicators of fiscal stress.

([46]) See also the statistical fiches in volume 2 of the 2021 Fiscal Sustainability Report. Fiscal risk levels are determined accordingly: i) high risk (red), if the values are at or above the threshold of fiscal risk from the signals' approach; ii) medium risk (yellow), if the values are below the threshold obtained from the signals' approach, but at or above a benchmark of around 80% of the same threshold; iii) low risk (green) otherwise. For information on the methodology, see European Commission (2022), Fiscal Sustainability Report 2021, *European Economy Institutional Paper*, No. 171.

([47]) If the structure of debt tends to be fairly stable over time, in the wake of major (financial) crises or large scale financial innovation (such as quantitative easing), changes in the debt composition can be large and sudden (see Abbas, A., Blattner, L., De Broeck, M., ElGanainy, A. and Hu, M. (2014), Sovereign debt composition in advanced economies: a historical perspective, *IMF Working papers*, No. 14 / 162 and also Box 3.4 in Chapter 3 of European Commission (2019), Fiscal Sustainability Report 2018, *European Economy Institutional Paper*, No. 094).

([48]) This recent change in financing choices in favour of securities with shorter maturities is also confirmed by the ECB (https://data.ecb.europa.eu/blog/blog-posts/rebound-short-term-debt-securities-issuance).

Graph I.4.1: **Share of sort-term debt (%of total general government debt)**



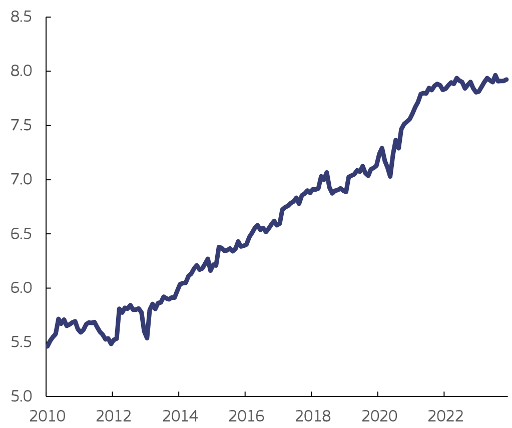
(1) Share of short-term debt includes currency and deposit, short-term debt securities and short-term loans.
Source: Eurostat

Yet, the high and increasing level of the average maturity of government debt reduces vulnerabilities. The average (residual) maturity of government debt (securities) has increased significantly in recent years. Although its level has stabilised lately, the average maturity remained at a high value of close to 8 years on average end 2023 (see Graph I.4.2). This high level is observed for most countries, and the maturity was particularly long in 2023 in Austria, Belgium, Ireland, Slovenia, Greece and Slovakia (close to or above 10 years, see Table I.4.2). Moreover, the weight of short-term debt *as a share of GDP* is worth considering in parallel (e.g., for Sweden, given the low level of total government debt as a share of GDP, this ratio is limited) ([49]). In the case of external short-term debt of non-euro area Member States, the level of a country's international reserves equally deserves consideration. ([50]) Last, Treasury cash-flow management has an influence both on the headline short-term debt and the availability of other liquid financial assets, such as cash deposits, which could mitigate potential stress (see also Section 4.3).

The share of debt denominated in foreign currency is limited overall, except for few non-euro area Member States. As advanced economies finance themselves overwhelmingly in their own currency, currency-related fiscal risks are largely absent for the EU Member States that have adopted the euro (see Table I.4.1). ([51]) Yet, foreign currency-denominated debt is large in some Central and Eastern European countries (CEEC). This is the case of Bulgaria and Romania (with a share well above 50% of total debt), ([52]) as well as to a lesser extent Hungary, Poland, Czechia and Sweden (with a share well above 10% of total debt). In the case of Croatia, the bulk of debt shown on Table I.4.1 is denominated in euro, and the country joined the euro area in 2023. For all these Member States, hedging of foreign currency positions can mitigate potential exchange rate risks, ([53]) whereas pegs or currency boards also significantly reduce exposure to fiscal risks from the share of public debt in foreign currency. ([54]) Moreover, in these countries, the major share of foreign currency issuances is denominated in euro. Over time it can be noticed that while the share of the foreign currency borrowing has stabilised or slightly decreased in some of these countries (i.e., Bulgaria, Romania, Denmark), it has increased in others (i.e., Croatia, Czechia, Hungary, Poland, Sweden).

([49]) See S0 indicator table on fiscal variables.
([50]) The extent to which international reserves are greater or equal than the country's stock of short-term external debt (the Greenspan-Guidotti rule) shows whether the country has enough resources to counter a sudden stop in capital flows and its capacity to service its short-term external debt.
([51]) A domestic currency denomination traditionally protects governments against currency mismatches between a government's interest expenditure and tax revenue. Yet, in some countries, the rationale behind foreign-currency-denominated debt issuance is to attract foreign investors, not willing to bear the foreign currency risk. Ultimately, this may reduce funding costs for these governments (all else being equal) by reducing liquidity premia (see Eller, M. and J. Holler (2018), Digging into the composition of government debt in CESEE: a risk evaluation, Oesterreische Nationalbank (OeNB)).
([52]) Bulgaria has a currency board since 1997 and nearly all of its foreign currency debt is issued in euro. While the peg is maintained, shocks to debt in foreign currency are virtually zero. Croatia has tightly managed arrangements, also limiting exchange rate fluctuations.
([53]) Hedging operations are not taken into account in the DSM.
([54]) On the idiosyncrasies of different exchange rate regimes and the extent to which exchange rate shocks could impact the public debt-to-GDP ratios see European Commission (2017), Debt Sustainability Monitor 2016, *European Economy Institutional Paper*, No. 47. - Chapter 2, Box 2.2.

Graph I.4.2: **Average residual maturity of government debt securities (in years, simple average over EU Member States)**



(1) Data are missing for Estonia.
Source: ECB.

EU Member States' investor base is solid, though in some cases, the substantial share of debt held by non-residents creates vulnerabilities. ([55]) Several euro-area Member States are found to have large shares of foreign held government debt, including Cyprus, the Baltic countries, Austria, Belgium, Slovenia, Ireland and Luxembourg (all beyond 50% of total government debt; see Table I.4.1). However, in some cases, this high share reflects important official lending associated to past financial assistance programmes (in particular, Greece, Cyprus and Portugal; see Graph I.4.3 below).

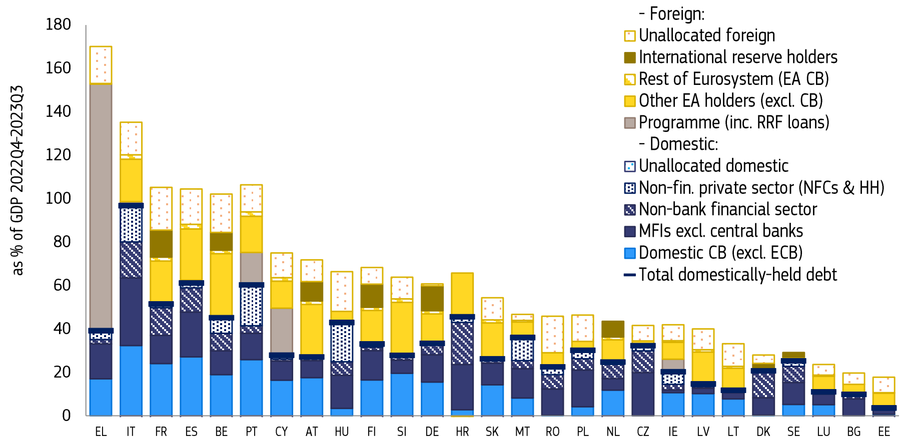
Table I.4.2: **Average residual maturity of debt (general government)**

	Debt securities					All debt (2022)
	Dec. 2009	Dec. 2021	Dec. 2022	Nov. 2023	Diff. 2023 - 09	
BE	5.5	10.7	10.9	11.0	5.5	10.9
BG	4.3	7.4	7.1	7.4	3.1	7.8
CZ	6.2	6.4	6.2	6.1	-0.1	6.3
DK	8.1	8.3	9.2	9.1	1.0	:
DE	5.5	7.2	7.5	7.9	2.3	:
EE	:	6.7	7.3	6.6	:	7.6
IE	6.3	10.8	10.8	10.6	4.3	8.5
EL	7.9	9.2	9.5	8.9	1.0	20.0
ES	6.5	7.8	7.7	7.7	1.1	8.0
FR	6.4	8.2	8.4	8.4	2.0	8.5
HR	:	5.5	5.5	5.4	:	6.1
IT	7.3	7.1	7.0	7.0	-0.4	7.7
CY	3.1	7.7	7.9	8.0	4.9	7.3
LV	3.7	8.9	7.6	7.2	3.5	6.4
LT	:	9.3	8.8	8.3	:	9.3
LU	3.9	6.0	6.6	8.1	4.2	6.5
HU	4.1	6.8	6.4	6.2	2.1	5.8
MT	5.3	8.7	8.1	7.9	2.6	8.4
NL	5.2	8.1	8.1	8.8	3.6	9.3
AT	7.3	11.3	11.5	13.0	5.7	:
PL	5.3	4.4	4.2	4.8	-0.5	4.8
PT	6.1	7.1	7.0	7.5	1.4	6.7
RO	2.3	7.4	7.2	7.1	4.8	7.8
SI	5.9	9.7	10.1	9.6	3.7	9.9
SK	4.5	8.5	8.2	8.6	4.1	8.5
FI	4.1	7.3	7.4	7.5	3.4	7.5
SE	5.4	4.6	4.9	5.0	-0.4	3.4
Average (simple)	5.4	7.8	7.8	7.9	2.6	8.0

Source: ECB (debt securities), ECB, Eurostat, national sources (all debt).

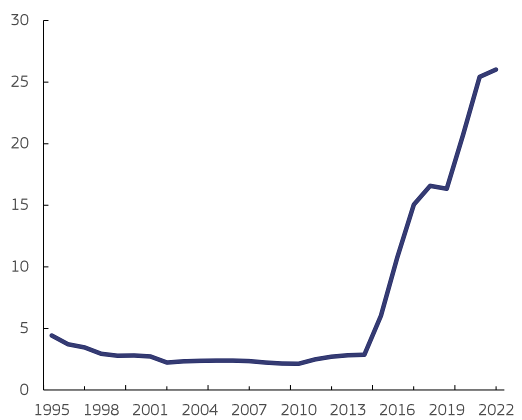
([55]) Indeed, the foreign investor base tends to be more volatile and prone to sudden stops in situations of heightened uncertainty.

Graph I.4.3: **Holders of government debt (market value, % of GDP, 2023-Q4)**



(1) Only data for total MFIs (Monetary Financial Institutions) are reported. The split between commercial banks and central banks is an estimate based on annual nominal data. The category 'International reserve holders' represents holdings by international organisations and non-EA central banks as reserve assets. The category '(Rest of) Eurosystem' includes holdings by the ECB. The category 'Non-financial private sector' represents holdings by non -financial corporations (NFCs) and households (HH).
Source: Commission services based on ECB, Eurostat and IMF.

Graph I.4.4: **Share of government debt held by domestic central banks (% of total govt. debt, EA aggregate)**



(1) Based on Maastricht debt (at face value).
Source: ECB.

In general, it may also be beneficial for financial and macroeconomic stability as a higher share of foreign investors reduces the risks of adverse loops between the sovereign and the national banking systems. ([56]) For some other non-euro area Member States such as Romania and Bulgaria, the significant share of foreign held debt could be associated with a search for yield given a more emerging markets status and relatively small local-currency markets.

A detailed overview of government debt allocations by different holders indicates that a significant share of government debt is held by domestic central banks - and the ECB for euro area Member States. By end 2023, in more than half of euro area countries, at least one quarter of government debt was held by domestic Central Banks (see Graph I.4.3). Largest shares are observed in Slovenia (close to 35%), Slovakia, Spain, Finland and Germany (close to 30% respectively). For high debt countries, this share varies from less than 10% (Greece) to more than 28% (Spain). Moreover, for the EA as a whole, the share of debt held by (domestic) Central Banks has significantly increased since 2014 (when this share amounted to less than 3%; see Graph I.4.4), notably reflecting asset purchases' programmes.

For almost all EA countries, the detailed overview of government debt allocation by different holders also indicates the degree of risks, notably refinancing and rollover risks. For medium size and larger euro area economies, comparatively significant shares of government debt are currently in the

([56]) Bouabdallah, O., Checherita-Westphal, C. D., Warmedinger, T., De Stefani, R., Drudi, F., Setzer, R., and Westphal, A. (2017), Debt sustainability analysis for euro area sovereigns: a methodological framework, *ECB Occasional Paper*, No. 185.

hands of non-euro area central banks in the form of reserve assets (e.g., Belgium, France, Austria, Finland, Greece, Italy and Spain). For smaller euro area economies (e.g., Slovenia, Slovakia Latvia, and Slovenia), the rest of the euro area financial sector has become a more important holder of government debt than these issuers' domestic financial sectors, suggesting that home bias is disappearing or transforming as the euro area grows more integrated financially and financial institutions follow harmonised prudential rules under the Single Rulebook (see Table I.4.1 and Graph I.4.3).

While evidence of domestic versus foreign debt holdings is mixed, the latter is more likely to entail risks when the foreign tenure is not particularly safe or confidence driven. In some Member States, such as Italy, Spain and Portugal, a high share of 2023 government debt is domestically held (see Graph I.4.3). Conversely, in a few other cases, relatively larger shares of government debt held by foreign and / or unidentified investors outside the euro area that are not reserve asset holders ('unallocated') may bear risks associated to this uncertain and potentially more volatile basis (e.g., Romania and Hungary).

The analysis of risks arising from the debt profile needs not be confined to these indicators and the associated benchmarks. Other factors, such as the exchange rate regime, the role of the central bank in mitigating short-term liquidity needs, the capacity of the market to absorb debt, influence as well the results of the analysis. The underlying reasons for debt profile vulnerabilities, such as contagion, incomplete credit markets, weak debt management practices, may also be important in this regard.

I.4.2. LOOKING BEYOND 'GOVERNMENT DEBT': RISKS RELATED TO GOVERNMENT OTHER DIRECT AND CONTINGENT LIABILITIES

This section provides an analysis of the size and, when possible, the evolution of government liabilities other than 'EDP (or Maastricht) debt' in the EU. Such a complementary analysis allows identifying additional risk factors compared to the results of the standard debt sustainability analysis provided in this report (see Chapter 2). The section 4.2.1looks in particular into government direct liabilities that are not included in the EDP debt, while sub-sections 4.2.2 to 4.2.3 discuss risks linked to contingent liabilities. Assessing the potential risks related to those liabilities, including the additional risks stemming from the banking sector, is particularly relevant in times of economic stress and high uncertainty, as vulnerabilities could eventually materialise.

I.4.2.1. EDP debt, other debt and non-debt financial instruments: a snapshot overview

The EDP debt liabilities were the main component of on-balance government gross liabilities in 2022 in all Member States. In the EU as a whole, the EDP debt was around 84% of GDP in 2022 and accounted for about nine tenths of total gross financial liabilities in 2022 (see Graph I.4.5). In terms of instrument coverage, debt securities, commonly in the form of bills, commercial papers and bonds, account for more than height tenths of the government gross debt in most Member States. Contributions of loans, coins when issued by governments and deposits held by entities classified inside general government tend to be less significant across Member States. ([57])

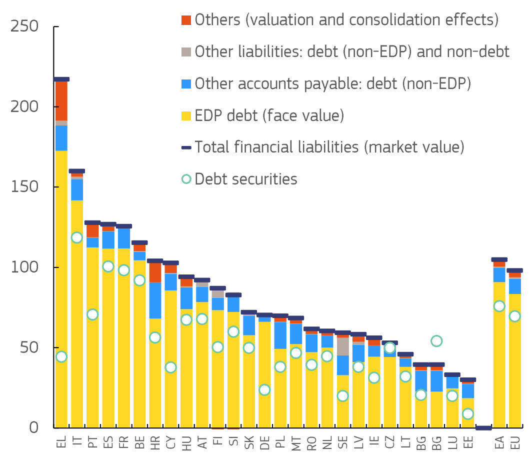
The difference between total gross liabilities and the EDP debt varies widely across Member States. In 2022, the portion of total gross government liabilities (at market value) not reflected in the EDP debt (measured at face value) ranged from 26 to 45% of GDP in Sweden, Croatia and Greece, and below 10% of GDP in Czechia, Luxembourg, Lithuania, and Germany. This difference consists of other debt

([57]) The share of loans can nevertheless be significant in some Member States, in particular in those that have benefited over the past years from financial assistance in the form of official loans.

instruments (so-called non-EDP debt), non-debt financial instruments and a gap due to different valuation and consolidation methods applied to financial liabilities. ([58])

Among non-EDP debt liabilities, ‘other accounts payable’ is the most significant component. Other accounts payable include trade credits and advances. These are in most cases outstanding short-term liabilities of the government from transactions of goods and services, and to a lesser extent other timing differences in settling obligations. During periods of financial distress, this debt instrument can become an important government financing alternative. For instance, in few Member States, such as Croatia, Italy, Portugal, Romania, and Spain government trade debt tended to be higher during the Global Financial Crisis. Over time, stocks of trade credits and advances have receded in these Member States, while increasing in others, e.g., Denmark, Finland and Germany (see Graph I.4.6). In 2022, as a share of GDP, these liabilities were highest in Belgium, Austria and Romania (2.8% of GDP each), Croatia (2.7%), Finland (2.6%), Italy (2.5% of GDP), Czechia and Germany (2.0% each), Estonia (1.8%), Denmark (1.7%), and Bulgaria and Slovenia (1.5% each), compared to an EU average of 1.8% of GDP. ([59])

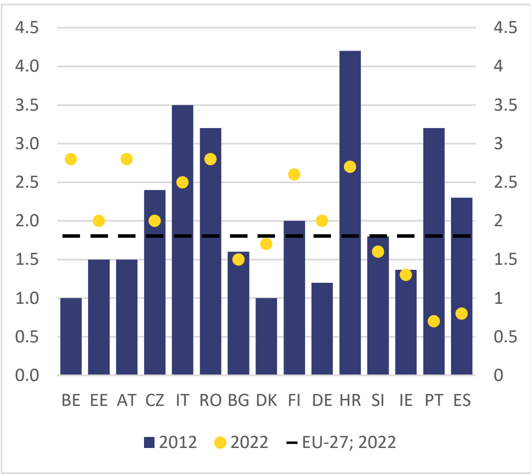
Graph I.4.5: **Debt and non-debt financial liabilities (% of GDP, 2022)**



Source: Commission services based on Eurostat.

Other liabilities (debt and non-debt financial instruments) are typically a narrow set of total government liabilities (see Graph I.4.5)**.** In 2022, these other liabilities were more relevant for Sweden (11% of GDP – of which mainly insurance, pensions and standardised guarantees), Finland (7.2% – of which mainly insurance, pensions and standardised guarantees), Austria (3.7% – of which mainly insurance, pensions and standardised guarantees), Slovenia (3%– of which mainly financial derivatives and employee stock options), Greece (2.9%), Italy (1.6%), Latvia (1.9%) and Slovakia (1.5%) , while accounting for less than 1% of GDP in other Member States.

Graph I.4.6: **Trade credits and advances in selected Member States (2012 and 2022)**



Source: Eurostat.

The gap reflecting valuation and consolidation effects can be relatively large in some Member States. Ranging from -1.7% to 26% of GDP in 2022, this gap was highest in Greece, Croatia, and Portugal, In most cases, the magnitude of this gap is affected largely by the impact of different valuation bases for the EDP debt (face value) and gross financial liabilities (market value) and to a lesser extent by the impact of the consolidation method (EDP debt is consolidated both within and between the subsectors of

([58]) The valuations of the EDP debt and ESA 2010 balance sheets are different. In particular, total gross EDP debt of the general government is valued at face value, while in ESA 2010, government gross liabilities are valued at market prices.
([59]) See Eurostat (2015), Note on Stock of Liabilities of Trade Credits and Advances, and Eurostat (2021a).

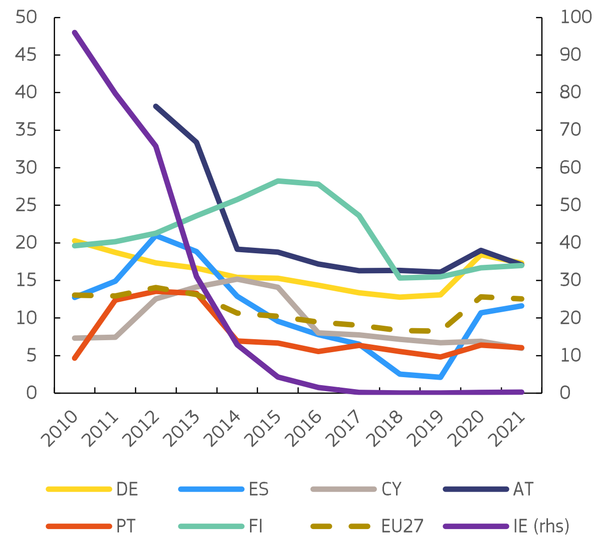
the general government, gross financial liabilities only within subsectors). The consolidation effects are in fact small in most Member States. ([60])

I.4.2.2. (Explicit) contingent liabilities in the EU

As part of the analysis of contingent liabilities presented in this report, this section contains an overview of explicit contingent liabilities, as reported by Eurostat. These explicit contingent liabilities comprise government guarantees, including those related to government interventions in the financial sector, and liabilities related to off-balance PPPs (public private partnerships). ([61])

Government guarantees and PPPs

Graph I.4.7: **Developments in government guarantees in selected EU Member States (% of GDP, 2010-2021)**



Source: Eurostat.

Government guarantees represent a source of potential fiscal cost in several Member States, in case they are called. ([62]) In 2021, the highest stock of outstanding government guarantees was recorded in Germany, Austria and Finland (about 17% of GDP respectively – see Graph I.4.7). In Germany and in Austria, guarantees were largely provided to non-financial private entities for export promotion, to public and private financial institutions during the crises, and to non-financial public corporations such as road and rail infrastructure companies. ([63]) As for Finland, a sizeable part of the guarantees was related to export guarantees, student loans and funds for supporting housing construction. For the EU as a whole, after a peak at 14% of GDP in 2012, public guarantees have progressively declined around 8% of GDP in 2019 reflecting mainly the decline in the use of government guarantee schemes for financial institutions granted in the context of the 2007 Global Financial Crisis in a number of Member States. After a rebound in 2020 due to COVID-19 related government guarantee schemes, the recourse to public guarantees has decreased to stabilise around 13% of GDP in 2021 (see Graph I.4.7).

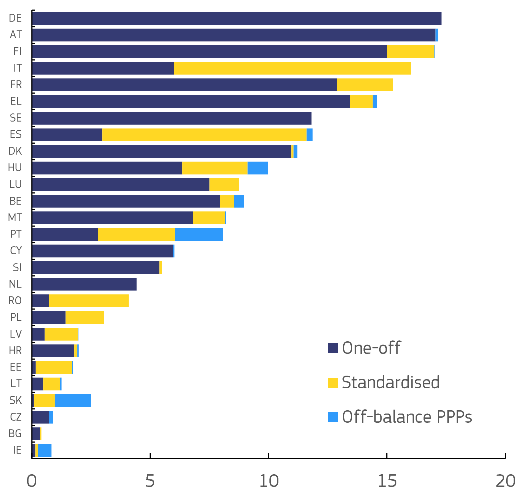
In most Member States, the largest category of government guarantees relates to one-off guarantees granted under individual contractual arrangements, usually involving more sizeable amounts. In 2021, the stock of one-off guarantees ranged from 17% of GDP in Germany and Austria respectively to less than 1% of GDP, i.e., in Czechia, Lithuania, Bulgaria, Estonia, Ireland, and Slovakia

([60]) See Eurostat (2023), Stock-flow adjustment for the Member States, the euro area and the EU, for the period 2019-2022, April 2023 EDP notification.
([61]) This information can also be found in the statistical country fiches of this report. Note that some of this information may be overlapping, e.g., guarantees issued in the context of government interventions in the financial sector form a subset of total government guarantees. For this reason, evaluating the total risk by summing up the indicators could overestimate the potential impact.
([62]) Government guarantees are typically designed to reimburse a lender in case of possible losses linked to the loans it has provided. Government guarantees are issued to promote economic stability or pursue other public policy objectives, with the examples of guarantees on student loans or guarantees on the losses incurred by exporters in case of non-payment by a trading partner.
([63]) See for instance IMF (2018), Austria. Fiscal Transparency Evaluation, *Country Report*, No. 18/193.

(see Graph I.4.8). The total amount committed in standardised guarantee schemes (issued in large numbers for small amounts) carries a more modest risk for future public expenditure in most Member States. These schemes account for more than 1% of GDP in Italy (10% of GDP), Spain (9%), Romania, Portugal and Hungary (3% each), France, Finland, Poland and Estonia (2% each), Latvia, Malta and Luxembourg (1% each).

Contingent liabilities linked to off-balance public private partnerships (PPPs) are a modest source of risk for most Member States. The use of public private partnerships (PPPs) for economic and social infrastructure projects, such as for the development of transport infrastructures and hospitals, can generate additional liabilities for the government. Depending on the distribution of risks and rewards between private and public partner, assets and liabilities related to PPPs can be recorded either on government's balance sheet or on the private partner's balance sheet. The first ones (on-balance PPPs) affect government's debt directly. However, also for those PPPs where the private partner is exposed to the majority of risks and rewards, and which are therefore recorded off government's balance sheet, government may be contractually obliged to step in under certain circumstances (for example, failure of the private partner). Overall, off-balance PPPs are only affecting few Member States (see Graph I.4.8). In 2021, more sizeable contingent liabilities related to off-balance PPPs were recorded in Portugal (2%), Slovakia (1.5% of GDP), and Hungary (0.9%).

Graph I.4.8: **Government guarantees and off-balance PPPs in EU Member States (% of GDP, 2021)**

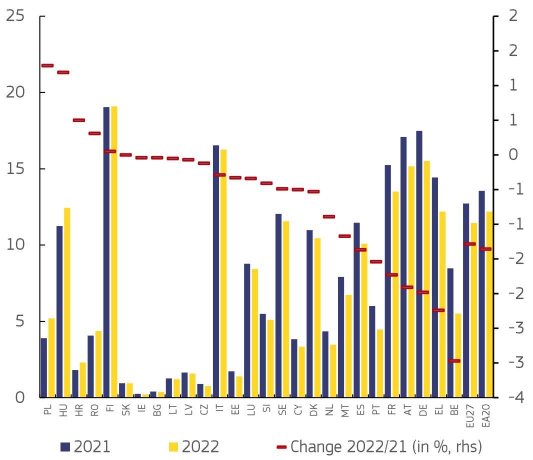


Source: Eurostat.

As a response to the COVID-19 crisis, Member States also provided significant liquidity support in the form of guarantees to households and businesses. During the COVID-19 crisis, the total stock of government guarantees for the EU as a whole increased from about 9% of GDP in 2019 to about 13% in 2021, and stabilised around 12% in 2022. [64] Large differences exist across Member States (see Graph I.4.9). While in 2022, limited increases were still recorded in Poland, Hungary (slightly above 1 pp. of GDP respectively), and Croatia (close to 1 pp.), the stock of guarantees in the remaining Member States has either stabilised (with a rise by less than 1 pp. of GDP) or decreased. The highest decrease was observed in Belgium (about -3 pps.), Greece, Germany, Austria, France and Portugal (about -2 pps. respectively). Overall, in most EU Member States the recourse to government guarantees has decreased over the period 2020-2022 (Graph I.4.9).

[64] The surge in government guarantees in response to the COVID-19 crisis was contained in most cases, and overall lower than during the Global Financial Crisis. These guarantees schemes have expired in the course on 2020-21, and some of the guarantees might still be called over the near future and eventually be reflected in public debt and deficits.

Graph I.4.9: **Stock of government guarantees (2022 level and change 2022/21)**

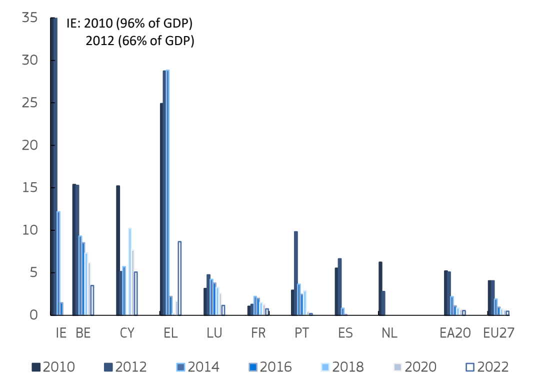


(1) The 2022/21 change is shown on the RHS.
Source: Eurostat.

Contingent liabilities related to government interventions to support financial institutions

Contingent liabilities related to government interventions to support financial institutions pursue its declining trend since 2013. Following an increase during and immediately after the Global Financial Crisis (GFC), the financial exposure of the government due to the financial stability schemes has been declining since 2013 in most Member States and in some countries already since 2012 (see Graph 4.10). In 2022, the contingent liabilities linked to financial stability schemes were close to zero in most Member States. Exceptions are Greece (9% of GDP), Cyprus (5%), Belgium (4%), Luxembourg, France and Italy (about 1% respectively). The lower level of outstanding contingent liabilities in recent years reflect the fact that improved financial stability did not require a renewal of the expiring guarantees issued as part of support packages for financial institutions and that the creation of the Banking Union and its bank resolution framework provides a credible alternative to direct public support.

Graph I.4.10: **Contingent liabilities linked to the financial sector in the EU (2010-2022)**



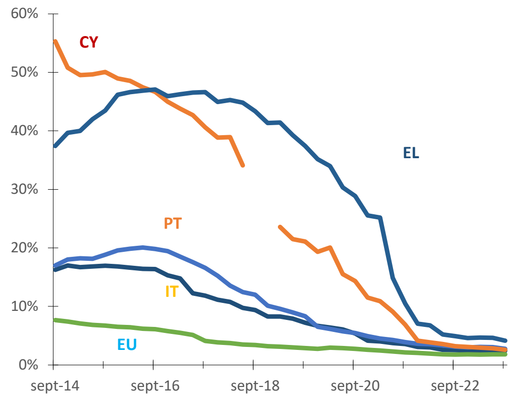
Source: Eurostat.

In order to complement the analysis of potential (implicit) contingent liabilities, additional information is provided related to the banking sector. This consists of a heat map reporting values of variables that indirectly capture potential building risks in the banking sector and that have proven in the past to be good leading indicators of banking – fiscal crises. Adverse developments in terms of private sector credit flows, bank loan-to-deposit ratios, non-performing loans and house prices, can represent substantial risks to the government's financial position in the future and thus give rise to contingent liabilities, though recent regulation, notably under the Banking Union, helps mitigate such risks.

I.4.2.3. Risks from contingent (implicit) liabilities related to the banking sector

A snapshot overview

Graph I.4.11: **Non-performing loans ratio in the EU and selected countries (% of total loans)**



Source: EBA.

Key financial indicators point to contained vulnerabilities, though caution in interpreting these developments is still warranted since the recent crisis might still affect credit quality. ([65]) Overall, recorded non-performing loans (NPLs) ratios significantly declined over the past years (see Graph I.4.11). Between mid-2022 and mid-2023, NPLs ratios continued to decline in most Member States, with more sizeable reductions in Bulgaria (-1.4 pps.), Croatia, Cyprus, Hungary, Ireland and Slovenia (about -1.0 pp respectively.). As of 2023Q2, the NPL coverage ratio shows that in the majority of Member States, NPLs are provisioned for in proportions of at least one third. Only in Cyprus, NPLs appear both high as a share of total loans, and provisioned for a level close to 33%. Additional indicators point to only contained vulnerabilities. Liquidity risks as indicated by the bank loan-to-deposit ratio are identified only in few Member States, e.g., in Denmark, Finland, Sweden and Luxembourg. Finally, after the post-pandemic period that saw strong increases in many Member States' overvalued housing markets (building on years of house price growth exceeding household incomes), house prices begun to moderate since mortgage interest rates increased coupled with high inflation putting pressure on household disposable income. However, in several Member States (e.g., Estonia, Hungary, Czechia, Lithuania, Croatia, Latvia, Slovenia, Slovakia, Bulgaria and Netherlands), risks related to developments in house prices have increased mostly in light of the very high inflation rates in these countries in 2022 and mortgage rates that have not increase substantially yet, or financing in flowing in from abroad (see Table I.4.3)

([65]) When interpreting recent figures and inferring the impact of the crises on credit risk, it should be borne in mind that the figures and risk indicators might still be affected by public support measures adopted by Member States. For instance, in the case of the COVID-19 pandemic, loan moratoria and public guarantee schemes adopted as a response to the COVID-19 crisis have provided relief to borrowers and mitigate the impact of the pandemic on bank balance sheets, while potentially deferring NPLs to the post-crisis period. In addition, in some Member States, firms in needs that benefited from State guaranteed loans have started to reimburse these loans. Given the challenging economic context, this would warrant monitoring as it could also be a source of concerns. See for instance the November 2021 issue of the risk reduction monitoring report, jointly prepared by the services of the European Commission, the European Central Bank (ECB) and the Single Resolution Board (SRB), which provides a regular assessment on risk (reduction) within the Banking Union (https://www.consilium.europa.eu/media/52788/joint-risk-reduction-monitoring-report-november-2021-for-publication.pdf).

Table I.4.3: **Potential triggers for contingent liabilities from the banking sector**

	Private sector credit flow (% GDP)	Bank loan-to-deposit ratio (%)	NPL ratio (% of total gross loans)	NPL ratio change (pps.)	NPL coverage ratio (%)	House price nominal index change (%)
BE	5.7	100.5	1.1	-0.2	47.4	5.6
BG	5.9	73.9	2.1	-1.4	64.8	**13.8**
CZ	4.5	81.2	1.1	-0.1	53.3	**16.9**
DK	**13.1**	**302.5**	1.3	-0.2	**28.9**	-0.5
DE	6.7	122.9	1.1	0.1	33.0	5.3
EE	9.2	100.8	0.6	-0.1	**31.3**	**22.2**
IE	2.0	70.5	1.8	-0.6	**30.7**	12.3
EL	1.1	59.6	**4.6**	-0.6	43.0	11.1
ES	0.3	101.8	**2.8**	0.0	42.8	7.4
FR	8.7	107.8	1.9	0.1	45.6	6.3
HR	6.0	64.5	2.1	-0.8	67.8	**14.9**
IT	2.9	92.8	**2.4**	-0.2	54.1	3.8
CY	-3.9	49.5	**2.8**	-0.7	34.2	2.7
LV	3.0	71.9	0.5	-0.1	36.8	**13.8**
LT	6.8	45.2	0.6	-0.4	40.4	**19.0**
LU	-19.5	**147.4**	1.4	0.1	40.6	9.6
HU	9.2	80.7	**3.1**	-0.6	57.7	**22.3**
MT	6.4	56.4	2.3	-0.3	**31.3**	6.7
NL	6.9	111.2	1.3	0.0	**25.9**	**13.4**
AT	5.0	98.8	1.8	0.0	47.8	11.4
PL	2.0	72.4	**4.4**	0.1	63.5	11.8
PT	2.9	73.3	**3.0**	-0.3	59.1	12.6
RO	3.3	61.3	**2.5**	-0.5	67.4	7.2
SI	5.2	66.4	1.6	-0.6	56.2	**14.8**
SK	9.3	112.7	1.6	0.1	56.8	**13.7**
FI	2.3	**173.3**	1.0	0.0	**28.7**	1.2
SE	10.3	**176.0**	0.2	0.0	34.8	3.6

(1) Upper and lower thresholds (see Annex A4): (i) Private sector credit flow (% GDP): upper threshold 11.7%, lower threshold 9.4%; (ii) Nominal house price index (Y-o-Y Change): upper threshold 13.2%, lower threshold 11.0%; (iii) Bank loans-to-deposits ratio: upper threshold 133.4%, lower threshold 107.0%; (iv) NPL ratio: upper threshold 2.3%, lower threshold 1.8%; (v) NPL ratio (Change): upper threshold 0.3 pps, lower threshold 0.2 pps; (vi) NPL coverage ratio: lower threshold 66%; upper threshold 33%.
Source: Eurostat (2022– for private sector credit flows and change in house price nominal index), EBA (June 2023 – for other variables reported).

Implicit contingent liabilities from severe stress scenarios on the EU banking sector (SYMBOL model) (66)

The banking sector is a critical component of the global economy, providing essential financial services and playing a key role in the capital allocation. In the aftermath of the 2008 global financial crisis (GFC) and the 2012 euro area sovereign debt crisis, several new mechanisms and legal provisions have been put in place over the last decade to increase the resilience of the financial sector, and notably the banking sector, to crises and cushion their impacts on public finances. However, some risks for EU public finances stemming from the EU banking sector may still arise in a hypothetical severe stress scenario, and calling for a close monitoring of the fiscal risks arising outside the realm of public finances. (67) The aim of the present analysis, which differs from stress test exercises performed by EU bank supervisors, is to estimate, in the context of a probabilistic analysis, the impact of potential banking

(66) This section has been prepared by the European Commission – DG JRC (Ispra).
(67) See, for instance (i) ECB (2020), 'Liquidity in resolution: estimating possible liquidity gaps for specific banks in resolution and in a systemic crisis. Occasional Paper Series No 250 / November 2020, and (ii) BIS (2020) Bank failure management in the European banking union: What's wrong and how to fix it. Occasional Paper No 15, July 2020.

losses on (implicit) contingent liabilities to public finances in case of the realisation of a hypothetical severe financial crisis originating from a financial shock similar of that of 2008. ([68]) ([69])

To assess to which extent vulnerability from the financial side of the economy can affect public finances in the EU, banking losses are being simulated in a severe stress scenario, based on the Systemic Model of Banking Originated Losses (SYMBOL). SYMBOL is a micro simulation model that was developed during the aftermath of the GFC by the European Commission's Joint Research Centre (JRC) and Directorate General Financial Stability, Financial Services and Capital Markets Union (DG FISMA). ([70]) By exploiting the information from EU banks' balance sheets and accounting for the existing internal loss-absorbing capacity, resolution tools and safety nets (i.e., total capital, bail-in, resolution funds), SYMBOL allows to simulate – in the event of a severe systemic banking crisis - the size of residual banking losses and recapitalisation needs that may need to be absorbed by the public sector. ([71]) Failure of any individual bank is determined by the size of the losses, compared to the actual regulatory capital available to absorb them. A bank is resolved or liquidated as soon as its actual total capital is below its minimum capital requirements. ([72]) In every simulation, the model considers whether resolution tools (only bail-in tool is used in the simulation) ([73]) and the use of resolution funds would allow to overcome the shock and cover losses, also including recapitalisations need to reach the minimum capital requirements. If not, the excess losses are assumed to impact the public finances and can be considered as contingent liabilities.

Overall, the approach used can be described as follows: ([74])

- First, the scenarios are calibrated to reproduce the severity of the 2008-2012 crisis in terms of stress on the value of banking assets, i.e., a severe and systemic financial crisis. ([75])

([68]) Instead of estimating the impact on individual banks (e.g., on CET1) following an economic financial stress on the economy, the SYMBOL modelling framework looks at the consequences in terms of systemic losses when bank losses are correlated.

([69]) The analysis does not include all second-round effects, which could also result from the fiscal impact of possible bank failures. According to the European Commission (2016 and 2019), the relationship between the government's budget and the balance sheets of banks is not uni-directional, but rather circular and dynamic. However, the analysis presented here does not consider all dynamic effects, which are deemed beyond the scope. For example, it does not account for the fact that a downgrade of sovereign bonds can decrease the value of bank assets, leading to increased funding costs and further downgrades for banks.

([70]) The SYMBOL framework is not intended as a stress test of individual European banks as it is done in the context of the EBA/ECB stress testing framework, but rather as an assessment of the potential for the system as a whole to generate contingent losses in extreme stress or tail risk scenarios. As such, it is not appropriate to make any comparisons between the SYMBOL and EBA/ECB stress testing frameworks, since both the aims and underlying modelling assumptions (including the assumed stress levels) are different. Furthermore, the model has been used by (i) the EBA for the call for advice regarding funding in resolution and insolvency part of the review of the crisis management and deposit insurance framework (available here), and (ii) the European Commission in the impact assessment accompanying the proposal for the reform of bank crisis management and deposit insurance framework (available here).

([71]) The SYMBOL results presented in this section do not take into account in the safety net cascade the Common Backstop to the Single Resolution Fund (SRF) recently added to the existing arsenal.

([72]) Under all scenarios, the required level of recapitalisation is set at 10.5% of risk weighted assets (RWA) for each bank plus global systemically important banks (GSIBs) and other systemically important institutions (OSII) buffers. This represents the minimum level of capital and capital conservation buffer set by the Capital Requirement Regulation (CRR) and Capital Requirement Directive (CRD). Pillar 2 requirements are not included in the recapitalisation needs, as in the past this data was not uniformly published.

([73]) Resolution in this exercise refers to bail-in with recapitalisation, i.e., banks are resolved by restructuring and continuing on the market. In practice, other instruments can be used such as sale of business/bridge bank tool where the bank may exit the market and there is no need to recapitalise it so that it continues to comply with minimum capital requirements. See the SRB MREL dashboard for more information (https://www.srb.europa.eu/en/content/mrel-dashboard-0).

([74]) The approach follows Benczur P., Berti K., Cariboni J., Di Girolamo F. E., Langedijk S., Pagano A., and Petracco Giudici M. (2015). Banking Stress Scenarios for Public Debt Projections. European Economy Economic Papers 548, and the Commission 2022 Debt Sustainability Monitor.

([75]) The period 2008-2012 covers two sub-periods: the 2008-2009 GFC and the euro area sovereign debt crisis in 2011-2012. The *stress* and *severe stress* scenarios impose a similarly sized underlying shock but use different assumptions on other model parameters, i.e., the *severe stress* scenario explicitly models that banks are forced to fire-sell their assets which gives rise to significantly higher bank losses (see more details in the Methodological annex). Also, to estimate the banking loss and recapitalisation needs that each Member States would be expected to face in case of a future major financial crisis, the focus is

- Second, the scenarios consider the latest available data on banking balance sheets (as of end 2022) and account for the quality of banking assets based on current situation. ([76])

- Third, the scenarios take into account, in addition to banks' total capital, the existing tools and safety nets for bank recovery and resolution (bail-in and resolution funds – RF) to partly cover banks' losses and recapitalisation needs. ([77])

- Fourth, banks' excess losses (i.e., losses in excess of the available total capital of a bank) and recapitalisation needs (i.e., funds necessary to restore the bank's minimum level of capitalisation) that cannot be covered by legal safety net are assumed to fall on national public finances.

- Fifth, the bail-in and safety nets are assumed to prevent the onset of any further contagion effects. ([78])

- Finally, less significant institutions are assumed to be liquidated in case of residual losses and recapitalisation needs, while significant institutions might be recapitalised or liquidated. ([79])

SYMBOL also allows splitting final losses into excess losses (i.e., losses in excess of total capital) and recapitalisation needs (before and after the private safety nets). ([80]) This provides differentiated impacts of these two types of funding needs on national public finances. Bank losses in excess of capital, usually covered by capital injections (subsidies) in the banking sector, are considered to affect public deficit and debt. As for recapitalisation needs, they are assumed be recouped (and thus "reintegrating" public finances at a later stage) as government receives shares in the bank in exchange. ([81]) Consequently, recapitalisation needs affect only gross debt (through stock-flow adjustments).

on the extreme realisations of the common factor (including recapitalisation needs) obtained from SYMBOL. For instance, bank losses and recapitalisation needs triggered by the global financial crisis are proxied by state aid data, in particular the total recapitalisation and asset relief provided to banks over 2008-12 (around EUR 615 billion), see European Commission (2014), State Aid Scoreboard 2014, and Benczur et al (2015) op.cit.

([76]) The 'current situation' refers to 'short-term' results - occurring in one-year time - assuming constant bank balance sheets (end of 2022) in line with the current situation where there is a full implementation of the EU financial Regulation. Since NPLs have been a significant concern for banks and supervisors, the model includes specific adjustments, reflecting the potential insufficient provisioning for NPLs in a severe banking crisis: non-collateralised NPLs are assumed to count as loan losses for the system, while those that are collateralised (by immovable property) are redeemable subject to a recovery rate. Extra losses from NPLs are then added to those obtained from the SYMBOL simulation before the intervention of any safety net tools. The mechanism generates extra losses which might materialise in case of a severe banking crisis, even for banks that are not failed. See the technical annex for more details.

([77]) It should be borne in mind that the focus of the SYMBOL model being the banking sector, it assumes that the banks' losses and recapitalisation needs (partly) disappear once the safety nets are applied. In practice, these losses and recapitalisation needs are transferred to other sectors (e.g., domestic insurance, pension funds or households, or foreign sector) that hold bail-inable bonds and related contingent liabilities. When including these effects, final results could be higher.

([78]) In the SYMBOL model, potential contagion across banks through bail-in is disregarded due to scarce data. Moreover, the model assumes that contagion across global systemically important banks (GSIBs) due to the bail in has been already addressed by the EU banking reform package, where crossholdings of total loss-absorbing capacity (TLAC) instruments are to be deducted between GSIBs.

([79]) This assumption is consistent with the fact that entities under direct ECB supervision do not go automatically into resolution, as the SRB decides on a case-by-case basis the resolution of the bank. To model the decision on public interest, we divide the banks into three groups: GSIBs, significant institutions s (excluding GSIBs), and less significant institutions. We associate each group with a probability of going into resolution if failing or likely to fail. For GSIBs and their subsidiaries, this probability is set to 100% (i.e., GSIBs will always be resolved); for significant entities, we consider an 80% resolution probability, and the remaining institutions will always go into insolvency when failing (i.e., with a resolution probability equal to 0%). Furthermore, it should be noted that some *less significant institutions* in the Banking Union are currently earmarked for resolution and not for liquidation, thus it might be that this assumption is not fully aligned with the actual choice of liquidating versus resolving a bank.

([80]) The estimates from the waterfall of loss allocation according to the liability structure is presented in Table 1 below.

([81]) The recapitalisation needs are considered recoverable, as the capital injection is exchanged for shares (resulting in partial government ownership of the bank), which is recorded as a financial transaction affecting neither the deficit nor the net debt, but only the gross debt through the stock-flow adjustment. This is valid under the assumption that such recapitalisations meet the following criteria of the Eurostat's decisions on the statistical recording of public interventions to support financial

We report results for two alternative scenarios, both referring to the same minimum required level of recapitalisation ([82]), namely:

Stress scenario: In this scenario, bank losses are simulated for a hypothetical stress scenario, without the modelling for 'fire sales' mechanism. The losses due to NPLs (as per balance sheet) are calculated by using a constant recovery rate (RR).

Severe stress scenario: Building on the stress scenario, this scenario includes a 'fire sales' mechanism, which assumes that, during financial crisis, banks that are exposed to the same shock would have a common negative impact on the value of the assets and would be forced to liquidate assets to keep their liquidity position. This generates a fire-sales environment that is included by increasing the asset correlation among banks. This eventually affects the banks' asset value, and severity of the crisis, compared to the stress scenario. In addition, NPL losses are modelled by linking the level of recovery rates to the size of the common shock. ([83]) Hence, the higher the correlation, the more important are the losses. This reflects the markets' pressure to clean up their balance sheets during a financial crisis, and to what extent the dynamics are correlated across countries.

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institutions and markets: the financial instrument used ensures a sufficient non-contingent rate of return and the State Aid rules are complied with (see March 2013 Decision and the earlier July 2009 Decision).

([82]) The required level of capitalisation considered is 10.5% of the bank's Risk Weighted Asset (RWA), i.e., the minimum level of capital and capital conservation buffer set by the CRR and CRD, plus any buffer for Global Systemically Important Institution (G-SIIs) or Other Systemically Important Institutions (O-SIIs). Although mandatory, we do not include Pillar 2 Requirements (P2R) to keep consistency with the exercise from past years, when data on P2R was not consistently available for all institutions.

([83]) See the methodological annex for additional details.

The analysis relies on the latest available unconsolidated banks' balance sheet data (as of end-2022), covering commercial, saving, and cooperative banks. ([84]) The sample includes 2635 EU banks and accounts for around 75% of the total assets of the EU banking system. ([85]) The sample ratio changes for each Member States ranging from 31% in Ireland to higher than 100% in Finland and Estonia. ([86]) This variability calls for a cautious reading of the results, notably for countries with a low coverage ratio (i.e., low share of total assets) and small number of banks as any change in the data could have large effects on results. For the reference year 2022, unconsolidated data for commercial, saving and cooperatives banks are included. The data provided by Orbis Bank Focus occasionally lack information on specific variables for some banks in the sample (e.g., capital, risk weighted assets (RWA), provisions, NPLs). In those cases, complementary data sources are used, and statistical methodologies are applied to impute missing data. ([87])

When estimating the impact of potential bank losses on public finances, SYMBOL implements the loss allocation cascade according to the legislation currently in force to partly cover banks' excess losses and recapitalisation needs before the involvement of general government. Throughout the cascade of safety net interventions, it can then be traced how much of each of these two types of financing needs are picked up by the different tools, e.g., total capital, bail-in of liabilities and Resolution Fund interventions (Table I.4.4).

Table I.4.4: **Leftover financial needs after each safety net tool (% of GDP 2022), stress scenario**

	Excess losses plus recap	Excess losses plus recap after bail in	Excess losses plus recap after RFs
BE	0.4%	0.3%	0.1%
BG	0.1%	0.1%	0.1%
CZ	0.2%	0.2%	0.1%
DK	0.2%	0.1%	0.1%
DE	0.4%	0.1%	0.0%
EE	0.2%	0.2%	0.1%
IE	0.4%	0.4%	0.1%
EL	1.0%	1.0%	0.2%
ES	1.1%	0.9%	0.3%
FR	1.1%	0.5%	0.2%
HR	0.1%	0.1%	0.0%
IT	0.5%	0.4%	0.1%
CY	0.6%	0.4%	0.1%
LV	0.1%	0.1%	0.0%
LT	0.2%	0.1%	0.0%
LU	7.0%	6.6%	2.4%
HU	0.2%	0.2%	0.1%
MT	0.2%	0.1%	0.0%
NL	0.4%	0.3%	0.1%
AT	0.3%	0.3%	0.1%
PL	0.2%	0.2%	0.1%
PT	0.5%	0.4%	0.1%
RO	0.0%	0.0%	0.0%
SI	0.2%	0.2%	0.0%
SK	1.0%	1.0%	0.4%
FI	0.4%	0.1%	0.0%
SE	0.1%	0.0%	0.0%

(1) The results are presented as- occurring in one-year time - assuming constant bank balance sheets (end of 2022) in line with a situation where there is a duly implementation of the EU legal financial safety nets as presented in Annex A6.
Source: Commission services.

([84]) The main source for these banks' financial statements is the Orbis BankFocus database. Other sources, for aggregated data at EU level, are the ECB statistical warehouse and the EBA risk dashboard.

([85]) Descriptive statistics on the representativeness of the sample by country and additional balance sheet data are provided in the methodological annex.

([86]) The sample ratio refers to ratio between the sample total assets (source: Orbis Bank Focus) and the population total assets (source: ECB), and it is used to adjust (by upscaling or downscaling) the amount of SYMBOL potential losses. The sample ratio changes per Member States. Usually, when this ratio is above 100%, this reflects discrepancy issues due to different accounting principles between the ECB data and the balance sheet from the Orbis Bank Focus database. In the case of Finland and Estonia, the final balance sheets include higher Total Assets than the value collected and reported by the ECB (December 2022).

([87]) Capital is imputed via a robust regression by using common equity, while RWA are approximated using the total regulatory capital ratio (at bank or country level). Missing values for provisions have been estimated by country aggregates coming from the EBA dashboard (https://www.eba.europa.eu/risk-analysis-and-data/risk-dashboard), while missing values for NPLs have been imputed by applying a robust regression using provisions as explanatory variable. Recovery rates (country aggregates) are taken from the World Bank (2020 Doing Business report 2020). Also, see the Methodological Annex for further details.

In fact, if after depletion of capital, a bank is failing or left undercapitalised with respect to the minimum level established in the scenarios, the bail-in tool is applied at individual bank level. ([88]) If this is not enough, and a Resolution Fund (RF) is allowed to intervene, it is then assumed to intervene up to 5% of the total assets of each bank. ([89]) Given that the coverage in terms of the number and total assets of banks in the sample is not complete, the RF is assumed to have ex-ante funding equal to 1% of covered deposits in the sample. Any leftover losses or recapitalisation needs not covered after all available tools have intervened are finally assumed to be covered by the government, taking into account the ratio between the total assets (TA) in the sample and the population of all banks.

Overall simulated (residual) banks' losses and recapitalisation needs are overall limited thanks to the safety nets. Table I.4.5 shows the simulated bank losses in excess (i.e., after duly applying all the different layers of the legal safety nets), and which would be considered as (implicit) contingent liabilities for governments. ([90]) This positive development is captured by the SYMBOL thanks to the fundamentally stronger bank capital and liquidity positions in the EU. Banks also rely on strengthened risk management processes brought about by the EU financial reforms agenda.

In details, the results point to limited (implicit) contingent liabilities risks coming from the banking sector for almost all Members States, but Luxembourg, where this is mainly explained by the size of the banking sector in relation to national GDP. Under the stress scenario, the expected budgetary impact of a major crisis seems contained for most Member States with losses and recapitalisation needs generally not exceeding 1% of the GDP (see Table I.4.5). ([91]) The highest figures are recorded for Luxembourg (2% of GDP). Under the severe stress scenario, a more significant impact is being simulated, with combined potential losses and recapitalisation needs reaching up to 1% of GDP in most Member States. In a few countries, they would exceed 1% of GDP (Greece (1.2% of GDP) and Spain (1.5%), and up to 7% of GDP in Luxembourg (7.5%). There are several reasons why Luxembourg exhibits a high magnitude of losses. First of all, the size of the banking sector (in terms of assets) in Luxembourg is nearly EUR 1 trillion as compared to its GDP of approximately EUR 80 billion. In addition, about 25% of its GDP comes from the financial sector. As a result, any substantial change to even a mid-sized bank in terms of its capital management is expected to imply non-negligible effects in the SYMBOL results. ([92])

([88]) The Bank Recovery and Resolution Directive (BRRD) does not establish a harmonised level of liabilities eligible for bail-in, but Art. 44 sets out that the Resolution Fund (RF) can kick in only after shareholders and holders of other eligible instruments have made a contribution to loss absorption and recapitalisation of at least 8% of total liabilities and own funds (TLOF), approximated by total assets or TA). Since bank-level data on bail-inable liabilities is unavailable, the bail-in tool is modelled in both the short- and long-term by imposing that individual banks hold a Loss absorbing capacity (LAC) of at least 8% of their TLOF. In practice banks with total capital under this threshold are assumed to meet the 8% minimum threshold via bail-inable liabilities. In the simulation, bail-in stops once the 8% of TA limit has been reached. If a bank holds capital above 8% of TA, there would be no bail-in, but capital might be bearing losses above 8% of TLOF.

([89]) Art. 44 of the BRRD sets out that the contribution of the resolution financing arrangement cannot exceed 5% of the total liabilities. In case of excess demand for Single Resolution Fund (SRF), funds are rationed in proportion to demand (i.e., proportionally to excess losses and recapitalisation needs after the minimum bail-in, capped at 5% of TA at bank level).

([90]) SYMBOL provides the important advantage of allowing incorporating features of the national banking systems, while remaining within a unified conceptual framework across EU Member States. In particular, in a DSA context, it takes into account the distribution of the size (total assets), the asset quality (risk-weighted assets or RWA), and the capitalisation (regulatory and total capital) of each Member State's banking sector. All these elements can lead to important cross-country differences in terms of simulated losses and recapitalisation needs pointing to heterogeneous level of fiscal risks stemming from the banking sector.

([91]) We consider the 1% of GDP as a threshold to provide a comparison with the historical cost of banking crises, including the GFC.

([92]) It is also worth noting that most of the banks in Luxembourg are part of large European and international banking groups.

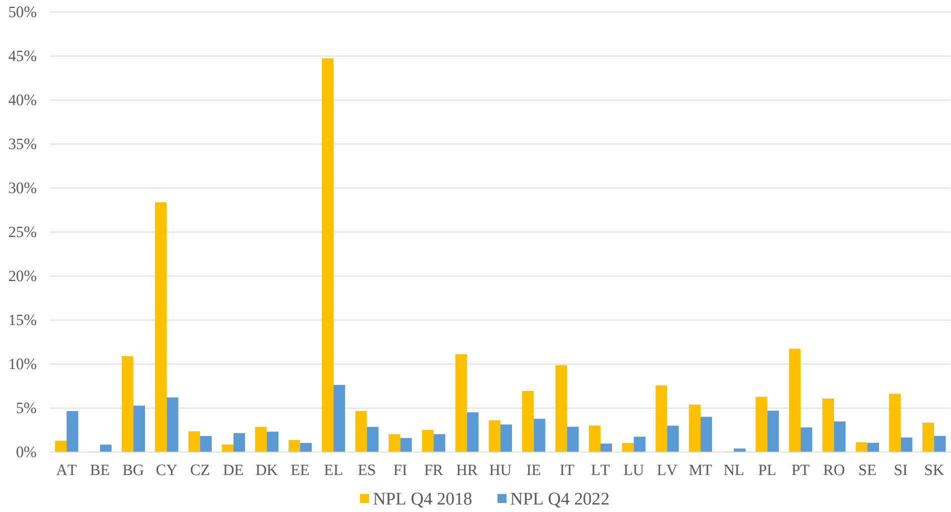
Table I.4.5: **Implicit contingent liabilities from banks' excess losses and recapitalisation needs**

	2024 DSM				2019 DSM			
	Stress		Severe stress		Stress		Severe stress	
Scenarios:	(a)		(b)		(a)		(b)	
	Excess losses	**Recap needs 10.5%**	**Excess losses**	**Recap needs 10.5%**	**Excess losses**	**Recap needs 10.5%**	**Excess losses**	**Recap needs 10.5%**
	To deficit and debt	Directly to debt	To deficit and debt	Directly to debt	To deficit and debt	Directly to debt	To deficit and debt	Directly to debt
BE	0.0%	0.1%	0.0%	0.5%	0.0%	0.1%	0.0%	1.5%
BG	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%	1.6%
CZ	0.0%	0.1%	0.0%	0.2%	0.0%	0.1%	0.0%	1.2%
DK	0.0%	0.1%	0.0%	0.2%	0.0%	0.1%	0.0%	0.4%
DE	0.0%	0.0%	0.0%	0.2%	0.0%	0.2%	0.0%	1.4%
EE	0.0%	0.1%	0.0%	0.3%	0.0%	0.1%	0.0%	0.5%
IE	0.0%	0.1%	0.0%	0.6%	0.0%	0.3%	0.0%	4.0%
EL	0.0%	0.2%	0.1%	1.1%				
ES	0.0%	0.3%	0.1%	1.4%	0.0%	0.9%	0.0%	5.9%
FR	0.0%	0.1%	0.1%	0.7%	0.0%	0.3%	0.0%	2.7%
HR	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%	1.0%
IT	0.0%	0.1%	0.0%	0.5%	0.0%	1.0%	0.1%	6.4%
CY	0.0%	0.1%	0.1%	0.6%	0.1%	2.7%	1.7%	15.6%
LV	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.1%	0.5%
LT	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.5%
LU	0.0%	2.4%	0.2%	7.3%	0.0%	0.5%	0.0%	8.7%
HU	0.0%	0.1%	0.0%	0.3%	0.0%	0.1%	0.0%	0.7%
MT	0.0%	0.0%	0.0%	0.2%	0.0%	0.5%	0.0%	5.2%
NL	0.0%	0.1%	0.0%	0.5%	0.0%	0.1%	0.0%	1.0%
AT	0.0%	0.1%	0.0%	0.3%	0.0%	0.2%	0.0%	1.6%
PL	0.0%	0.1%	0.0%	0.3%	0.0%	0.2%	0.0%	1.7%
PT	0.0%	0.1%	0.0%	0.5%	0.1%	1.8%	0.9%	7.0%
RO	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.6%
SI	0.0%	0.0%	0.0%	0.3%	0.0%	0.3%	0.0%	2.0%
SK	0.0%	0.4%	0.0%	0.9%	0.0%	0.5%	0.0%	1.9%
FI	0.0%	0.0%	0.0%	0.2%	0.0%	0.1%	0.0%	1.4%
SE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%

(1) The scenarios for 2023 DSM and 2019 DSM estimate the potential excess losses and recapitalisation needs for 2024 and 2020 (in % of GDP 2022 and 2018) respectively. (2) In 2019 DSM, Greece was under enhanced surveillance and therefore was not included in the debt sustainability analysis.
Source: Commission services.

When comparing latest results against the last pre-COVID exercise (based on the data of year 2020, published in the 2019 DSM), the overall assessment in terms of contingent liabilities' risks appears more favourable. Being mindful that SYMBOL is not designed for comparison of intertemporal model outcomes or their main drivers, Table I.4.5 shows lower simulated implicit contingent liabilities stemming from the banking sector, especially with respect to the stress scenario where a majority of Member States were simulated to experience losses above 1% of their GDP, with Cyprus reaching over 15% of GDP. These more favourable results in terms of simulated losses can be attributed to a sharp decrease in non-performing loans (NPLs) in almost all EU countries (see Graph 4.12). The cross-country average ratio of NPLs has decreased from 6.9% in the DSM 2019 to 2.9% in this report.

Graph I.4.12: **Ratio of non-performing loans by Member State – 2019 DSM vs. 2023 DSM**



(1) 2019 DSM refers to 2018 data, Q4 and 2023 DSM to 2022, Q4.
Source: ORBIS, Commission services.

In case of a systemic banking crisis, the probability for implicit contingent liabilities to have an impact on public finances greater than 3% of GDP is significant only for a limited set of Member States (Luxembourg, Spain and to a lesser extent Cyprus and Greece) (Table I.4.6). ([93]) Drawing from the previous results, SYMBOL allows estimating at country level the probability that public finances are significantly hit by losses and recapitalisation needs in case of a major banking crisis. ([94]) As shown in Table I.4.6, stress scenario estimates point at a very low probability to have a significant impact on public finances (of banks excess losses and recapitalisation needs) for most Member States except Luxembourg. ([95]) Under the more extreme stress scenario, this probability becomes more significant in few additional Member States, in particular Spain, Greece, Cyprus, France and Ireland.

The latest model-based probabilities are more favourable compared with the last pre-COVID exercise, i.e., based on the data of year 2020 (published in the 2019 DSM). Table I.4.6 shows lower expected implicit contingent liabilities stemming from the banking sector in this edition of the report, especially in the stress scenario. Indeed, in the 2019 DSM, a majority of Member States were expected to face significant probabilities to have their public finances being hit by more than 3% of their GDP in case of systemic banking crisis. The difference can again be attributed to a sharp decrease in non-performing loans (NPLs) in almost all EU countries.

([93]) It should be noted that these are not “real world” probabilities but theoretical ones, i.e., model-based measures that should not be interpreted in absolute terms.
([94]) By reporting the theoretical probability that public finances are significantly (i.e., by at least 3% of GDP) affected in a systemic banking crisis, SYMBOL provides additional contingent liability risk measure i.e., the probability distribution of the amount of public funds needed to cover losses after exhausting the protection provided by the financial safety nets.
([95]) Benczur, P., Cannas, G., Cariboni, J., Di Girolamo, F., Maccaferri, S. and Petracco Giudici, M. (2017). Evaluating the effectiveness of the new EU bank regulatory framework: a farewell to bail-out, Journal of financial stability, 33, 2017, pp. 207-223, ISSN 1572-3089.

Table I.4.6: **Model-based probabilities of public finances being hit by more than 3% of GDP, in the event of a severe crisis (i.e., involving excess losses and recapitalisation needs in at least three different EU Member States)**

	2023 DSM		2019 DSM	
	Stress	Severe stress	Stress	Severe stress
	(a)	(b)	(a)	(b)
BE	0.02%	0.35%	0.02%	0.78%
BG	0.00%	0.04%	0.00%	0.53%
CZ	0.01%	0.12%	0.02%	0.56%
DK	0.08%	0.25%	0.07%	0.45%
DE	0.00%	0.09%	0.01%	0.57%
EE	0.01%	0.21%	0.00%	0.04%
IE	0.04%	0.53%	0.12%	3.25%
EL	0.07%	0.98%		
ES	0.16%	1.32%	0.38%	8.88%
FR	0.03%	0.56%	0.04%	1.71%
HR	0.00%	0.04%	0.01%	0.54%
IT	0.02%	0.33%	0.21%	14.04%
CY	0.04%	0.57%	1.80%	49.21%
LV	0.00%	0.01%	0.00%	0.02%
LT	0.00%	0.02%	0.00%	0.04%
LU	3.72%	11.88%	0.32%	5.88%
HU	0.03%	0.19%	0.01%	0.12%
MT	0.02%	0.23%	0.18%	4.74%
NL	0.05%	0.46%	0.05%	0.68%
AT	0.01%	0.15%	0.01%	0.56%
PL	0.00%	0.11%	0.00%	0.59%
PT	0.02%	0.37%	0.70%	31.99%
RO	0.00%	0.00%	0.00%	0.04%
SI	0.00%	0.08%	0.00%	0.75%
SK	0.01%	0.30%	0.01%	0.74%
FI	0.01%	0.16%	0.08%	1.09%
SE	0.01%	0.04%	0.03%	0.20%

(1) The scenarios for 2023 DSM and 2019 DSM estimate the potential excess losses and recapitalisation needs for 2024 and 2020 (in % of GDP 2022 and 2018) respectively. (2) In 2019 DSM, Greece was under enhanced surveillance and therefore was not included in the debt sustainability analysis. (3) The losses considered are the excess losses after the safety net (i.e., including bail-in and the resolution funds). (4) Green: low risk (model-based probability lower than 0.50%), Yellow: medium risk (model-based probability between 0.50% and 1%); Red: high risk (model-based probability higher than 1%). (5) We include the current results as well as the analysis from a pre-COVID period. The map is calibrated conditional on having (a) the banking sector in distress, and (b) at least three Member States with government's contingent liabilities. See the methodological annex for more details on the computation of the heatmap.
Source: Commission services.

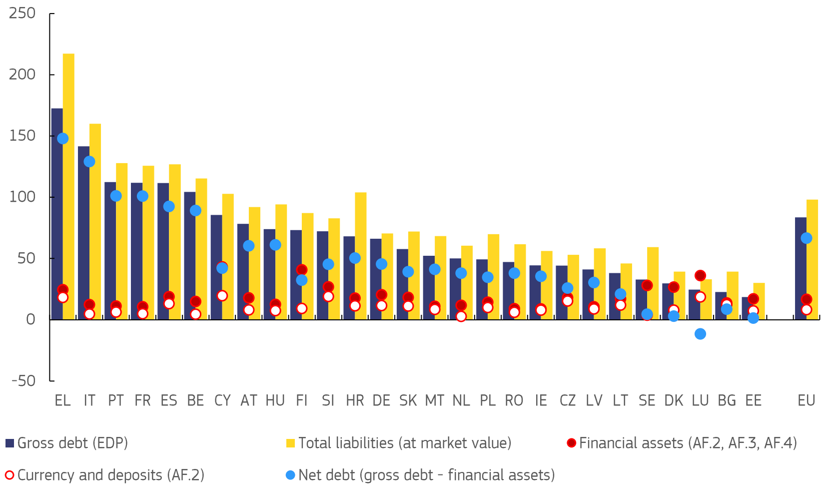
I.4.3. GOVERNMENT ASSETS AND NET DEBT

In 2022, the net debt ([96]) in the EU was about 17 pps. of GDP lower than gross debt, with sizeable differences across Member States. This essentially reflects the large variation of government financial assets across Member States, which is due to the set-up of pension systems, the past realisation of contingent events, or country-specific fiscal policies such as maintenance of large cash buffers. The difference between gross and net debt was more than 30 pps. of GDP for Cyprus, Finland and Luxembourg (see Graph I.4.13) and between 20 and 30 pps. in the cases of Sweden, Denmark, Slovenia, Greece, and Germany. For Luxembourg, among the Member States with the lowest gross debt, net debt is even negative as the value of financial assets exceeds the outstanding government debt at face value. The

([96]) Measured as the difference between, on the one hand, EDP debt and, on the other hand, financial assets in the form of currency and deposits (AF.2), debt securities (AF.3) and loans (AF.4).

difference between gross and net debt is less than 10 pps. of GDP for Ireland and Romania. Among the Member States considered, for those with the highest government debt, i.e., Greece, Italy, Portugal, Spain and France, net debt is around 15 pps. of GDP lower than gross debt (though for Greece, the difference is higher at about 25 pps. of GDP due to large cash buffers). Also in net terms, these countries have the highest debt burden among EU Member States. Overall, country rankings for indebtedness are similar when comparing gross and net debt.

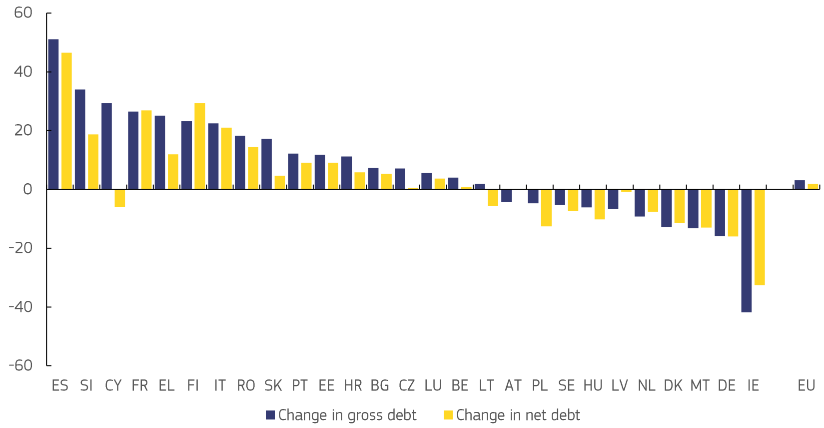
Graph I.4.13: **Gross and net debt, total liabilities and financial assets in 2022 (% of GDP)**



Source: Eurostat.

In most Member States gross and net debt ratios have increased over the past decade (see Graph I.4.14). In the majority of Member States, debt increased under both gross and net terms over the last decade. The largest decrease in both gross and net debt ratios decreased between 2010 and 2022 is recorded in Ireland, Germany, Malta and Denmark. A large (positive) difference between changes in gross and net debt is found for Cyprus. In this country, gross debt rose by about 30 pps. of GDP between 2010 and 2022, while over the same period, net debt only decreased by 6 pps. of GDP. The large-scale financial sector rescue operations led to higher deficits and debt but also involved the accumulation of financial assets. This example illustrates how net debt figures help interpret increases in gross debt that result from financial assistance to the private sector.

Graph I.4.14: **Change in gross and net government debt ratio (pps. of GDP, 2010-22)**



(1) The following financial assets are considered for the calculations of net debt: currency and deposits (AF.2), debt securities (AF.3) and loans (AF.4).
Source: Commission services based on Eurostat.

PART II

SPECIAL ISSUES

II.1. THE DSA METHODOLOGY IN THE NEW ECONOMIC GOVERNANCE FRAMEWORK

This chapter presents the role of the debt sustainability analysis (DSA) in the new EU fiscal framework, following the recent provisional agreement between the Council and the European Parliament to reform the Stability and Growth Pact ([97])**.** To ensure transparency and replicability, the chapter describes how the DSA methodology is applied in the context of the new rules, and it includes illustrative examples for fictitious countries ([98]).

II.1.1. A GREATER ROLE FOR DEBT SUSTAINABILITY IN THE FISCAL RULES

The new EU fiscal framework places each country's debt sustainability challenges at the core of the rules. One of the main reasons for revising the EU fiscal framework was that the former rules were not sufficiently differentiated across countries and did not account well for fiscal sustainability risks ([99]). The new medium-term approach allows fiscal surveillance to move towards a more risk-based framework, in which the required adjustment is country-specific and directly anchored on debt sustainability. In particular, high debt needs to be gradually reduced at a pace that reflects not only the country's initial debt level but also economic growth prospects and future budgetary burdens, such as ageing-related expenditure and interest payments.

At the same time, the framework remains transparent, common to all EU Member States, and consistent with the Treaty reference values for the debt and deficit ratios. The framework keeps its anchoring on the 60% of GDP reference value for debt, and 3% of GDP reference value for the deficit. For countries with debt above 60% of GDP or a deficit above 3% of GDP, policy action is needed to ensure that debt plausibly declines or stays at prudent levels (below 60% of GDP) over the medium term. Similarly, the deficit needs to be brought and maintained below 3% of GDP. For those countries with debt below 60% of GDP and a deficit below 3% of GDP, fiscal policy needs to ensure that these reference values are not breached over the medium term. In the new framework, the European Commission will provide technical guidance to the Member States, in the form of reference trajectories or technical information. This technical guidance will be based on the DSA, and consistent with a number of safeguards ([100]).

II.1.2. THE DSA-BASED METHODOLOGY USED TO ASSESS THE DEBT AND DEFICIT DYNAMICS OVER THE MEDIUM TERM IN THE EU FISCAL FRAMEWORK

In the context of the new framework, the Commission uses a methodology that largely draws on the standard DSA approach, but with slight adjustments to fit the specific aim of budgetary planning. As in the standard DSA, the approach consists in projecting debt over the medium term under a (no-fiscal-policy-change) baseline and applying deterministic and stochastic stress tests around it. However, the scope differs. While the standard DSA takes the initial structural primary balance (SPB) as given and assesses risks to debt sustainability if no additional fiscal policy measures are taken, the objective within

([97]) The regulations to which this chapter refers are those of the provisional political agreement of 10 February 2024 and are available at https://www.consilium.europa.eu/en/press/press-releases/2024/02/10/economic-governance-review-council-and-parliament-strike-deal-on-reform-of-fiscal-rules/.

([98]) This methodology applies for the preparation of the first medium-term plans in 2024. In the future, a working group for debt sustainability analysis will be set up and explore possible methodological improvements, including on underlying assumptions. This working group should be composed of national experts, the Commission and the European Central Bank. The European Fiscal Board and the European Stability Mechanism should be invited by the working group as observers. Moreover, the competent committee of the European Parliament may invite the Commission to present its methodology (see Recital 14c in the agreed preventive arm regulation, see footnote 1).

([99]) See Orseau, E., H. Van Noten, P. Arevalo, A. Cepparulo, G. Mourre and S. Pamies (2023), 'How to ensure fiscal sustainability in a growth-friendly manner?', *Quarterly Report on the Euro Area*, Directorate General Economic and Financial Affairs (DG ECFIN), European Commission, 21(4): 13-24, February.

([100]) The relevant articles of the agreed preventive arm regulation (see footnote 1) are Articles 5, 6, 6a, 6b and 7 for the technical guidance, Article 8 for the assessment of plausibility and Article 15 for the criteria to assess the plans.

the new EU fiscal surveillance context is to check whether a chosen fiscal adjustment path effectively leads to a declining or sufficiently low debt, even under adverse conditions. This assessment applies twice: once when the Commission calculates the reference trajectories to be provided to Member States for guidance, and once when it assesses the adjustment paths put forward by Member States in their own plans. This new approach calls for three methodological adaptations compared with the standard DSA. First, the time horizon is shifted, as the 10-year no-fiscal-policy-change assumption and the stress tests start only after the end of the adjustment period. Second, the 'lower SPB' scenario applies an exogenous shock on the SPB rather than one that depends on the planned adjustment. If the shock on the SPB depended on the planned adjustment, a larger adjustment would imply a larger shock and therefore require an even larger adjustment. To avoid this circularity effect, the shock is exogenously set to a fixed amount. Finally, the 'historical SPB' scenario of the standard DSA, which assesses the risks linked to reverting to past fiscal behaviour, is dropped as it is not relevant in a context of Member States setting (and committing to) adjustment paths.

II.1.3. THE ADJUSTMENT SCENARIO

The adjustment scenario starts with an adjustment period followed by a 10-year no-fiscal-policy-change period. While there are similarities with the standard DSA baseline, by design, the assumptions during the adjustment period differ from it.

- ***Fiscal policy:*** For the first plans, the adjustment starts in 2025, taking the fiscal position in 2024 as the initial level. During the adjustment period, a linear fiscal adjustment is assumed to compute the DSA-based requirements, although this linear profile can possibly be modified once the benchmark and safeguards are applied (see below). When computing the reference trajectories, the Commission does not make any particular assumptions on whether the adjustment comes from changes in primary expenditure or discretionary revenue measures. Beyond the adjustment period, a no-fiscal-policy-change assumption applies, with primary expenditure being only modified by changes in the cost of ageing as projected in the forthcoming 2024 Ageing Report jointly prepared by the EPC Ageing Working Group and the Commission, and with revenue remaining broadly stable as a share of GDP.

- ***GDP growth*** relies on the 'T+10 projections' based on the EU commonly agreed methodology within the Output Gap Working Group of the Economic Policy Committee, minus the feedback effect of fiscal adjustment on GDP growth via a standard fiscal multiplier of 0.75, and with the output gap closing over 3 years after the end of adjustment. Beyond the first 10 years, the macroeconomic projections of the forthcoming 2024 Ageing Report are used.

The remaining assumptions are in line with the standard DSA:

- ***Market interest rates*** and ***inflation*** are assumed to converge over a 10-year horizon to country-specific values reflecting financial markets' expectations. Beyond this horizon, they further converge over a long horizon to common values in line with the latest Ageing Report for interest rates and with the monetary policy targets for inflation.

- ***Stock-flow adjustments*** are in line with the Commission forecast up to T+2 and set to zero afterwards, except for some specific cases reflecting the building-up of public pension funds and interest deferrals on official loans. This currently applies to Luxembourg, Finland and Greece.

II.1.4. DETERMINISTIC STRESS TESTS

To account for macroeconomic uncertainty and ensure that debt plausibly declines even under more adverse assumptions, three stress tests are applied around the adjustment scenario. All three stress tests apply as from the first year after the adjustment period and are largely similar to the standard DSA stress tests (as described in Box I.2.1).

- ***'Lower SPB' scenario:*** the SPB is assumed to be reduced by 0.5 pp. of GDP in total, with a reduction of 0.25 pp. each year over the first two years, and to remain at that level afterwards, plus changes in the cost of ageing. The 0.5 pp. shock corresponds to half of the historical standard deviation of the SPB over all EU countries ([101]);
- ***'Adverse r-g' scenario:*** the interest/growth-rate differential is assumed to be permanently increased by 1 pp. over the projection horizon;
- ***'Financial stress' scenario:*** market interest rates are assumed to temporarily increase for one year by 1 pp., plus a risk premium for high-debt countries ([102]).

II.1.5. STOCHASTIC ANALYSIS

In line with the standard DSA, stochastic simulations are applied around the adjustment scenario to account for wide-ranging uncertainty. The 10 000 shocks affecting governments' budgetary positions, economic growth, interest rates and exchange rates are generated based on the historical distribution of shocks of each country (see Annex A4).

II.1.6. DSA-BASED CRITERIA

The reference trajectories and Member States' plans need to ensure that, without further adjustment, three criteria are met:

1. By the end of the adjustment period at the latest, and over the 10 following years, debt declines or stays below 60% of GDP both in the adjustment scenario and under all three deterministic stress tests;
2. In the 5 years following the adjustment period, debt declines with a sufficiently high probability, i.e. at least 70%, in line with the threshold used in the Commission's standard DSA;
3. The deficit is brought and remains below 3% of GDP over the medium term.

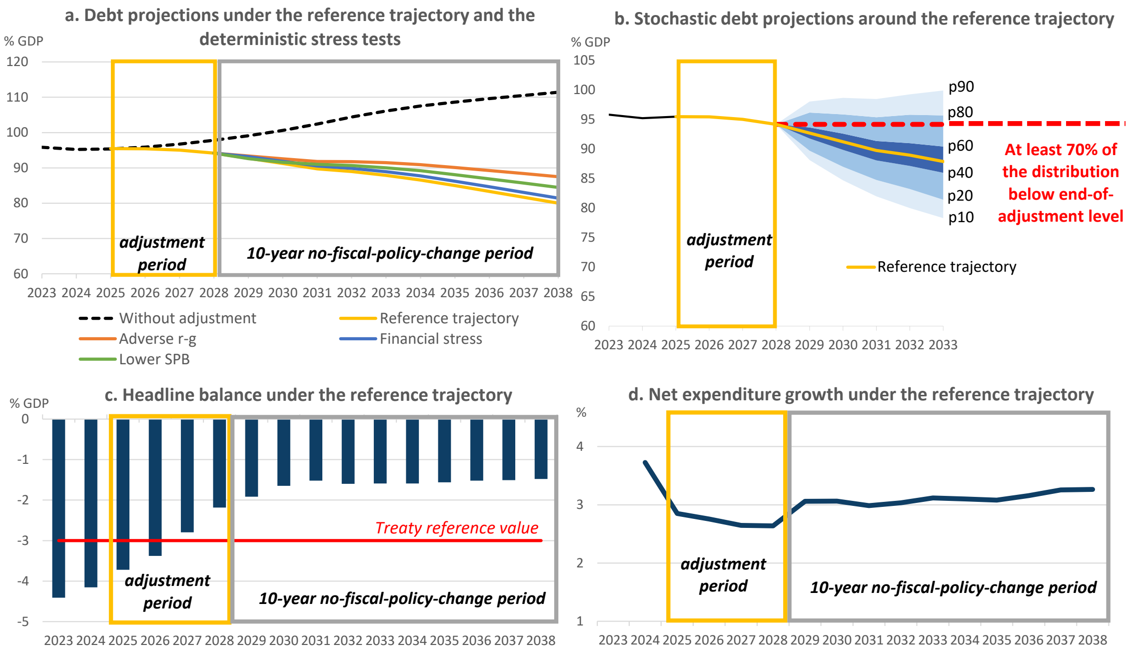
In case a smaller adjustment than the one implied by the first two criteria is sufficient to ensure that debt is brought or remains below 60% of GDP under both the adjustment scenario and all deterministic stress tests while ensuring that the third criterion is met, then that smaller, 'eased-up' adjustment is chosen.

([101]) It is also in line with the IMF's "Staff guidance note for public debt sustainability analysis for market-access countries" of May 2013.
([102]) Pamies, S., Carnot, N., and Patarau, A. (2021), "Do fundamentals explain differences between Euro Area sovereign interest rates?", European Economy — Discussion Paper, No 141, June. See also the European Commission's Fiscal Sustainability Report 2021.

II.1.7. ILLUSTRATION: AN EXAMPLE OF PLAUSIBLE DECLINE IN DEBT

The graphs below illustrate the case of an adjustment complying with the three criteria above for a fictitious country where initially debt exceeds 60% of GDP and the deficit exceeds 3% of GDP, and assuming a 4-year adjustment period. In the absence of any new fiscal measures, the SPB would remain at its 2024 level plus changes in the cost of ageing, and debt would keep increasing over the medium term (dashed line in Graph II.1.1a). The adjustment in the plan needs to be such that, by 2028 at the latest, debt declines not only under the adjustment scenario (yellow line) but also under the three adverse stress tests. Moreover, by 2033, at least 70% of the debt distribution obtained with stochastic simulations needs to stand below the 2028 debt level (Graph II.1.1b). Such an adjustment also complies with criterion (3) (Graph II.1.1c). Graph II.1.1d reports the associated path in terms of nominal net expenditure growth.

Graph II.1.1: **DSA-based criteria in the reference trajectory: an illustrative example**



Source: Commission services.

II.1.8. BENCHMARK AND SAFEGUARDS

In the new framework, three provisions need to be fulfilled in addition to the DSA-based criteria:

- The ***'deficit benchmark'*** (Art. 6(d) of the preventive arm regulation ([103])) ensures consistency with the corrective path referred to in Article [X] of Council Regulation (EC) No 1467/97, where applicable. In the simulations, it is applied by requesting a minimum annual adjustment of 0.5 pp. of GDP if the deficit exceeded 3% of GDP in the previous year. This adjustment is measured in terms of structural balance as from 2028 but, over the transition period of 2025-2027, it is applied in structural primary terms. This is in line with Recital 24 bis of the agreed corrective arm regulation.

([103]) See footnote 1.

- The ***'debt sustainability safeguard'*** (Art. 6a) requires debt to decline on average by at least 1 pp. of GDP per year as long as debt exceeds 90% of GDP, and by at least 0.5 pp. of GDP per year as long as debt stands between 60% and 90% of GDP. The average decrease is calculated from the year before the start of the adjustment period or from the year in which the excessive deficit procedure is projected to be abrogated under Council Regulation (EC) No 1467/97, whichever occurs last, until the end of the adjustment period. In the simulations, the year of abrogation of the excessive deficit procedure is interpreted as the year after the deficit comes below 3% of GDP.

- The ***'deficit resilience safeguard'*** (Art. 6b) requires an adjustment of at least 0.4 pp of GDP (0.25 pp. in case of extension) in structural primary terms until the structural balance is above or equal to -1.5% of GDP.

Unlike the debt sustainability safeguard, the deficit benchmark and the deficit resilience safeguard are applied year by year. They may therefore lead to nonlinear adjustment profiles. The principle of not backloading the effort is met by construction, except for the impact of the end of the transitory period for the deficit benchmark (see Case 2 in Table II.1.1). Moreover, the benchmark and safeguards can only be *added* to the DSA-based requirements when they are binding and cannot *reduce* the DSA-based requirements. Table II.1.1 provides some fictitious examples of cases when the adjustment complying with the DSA-based criteria would not be sufficient to fulfil all additional provisions.

Table II.1.1: **Examples of application of the benchmark and safeguards: impact on the annual adjustment requirements**

DSA-based criteria only	DSA-based criteria + benchmark and safeguards			
Case 1: Debt exceeds 90% of GDP and declines by less than 1pp. of GDP on average				
	2025	2026	2027	2028
0.70	**0.80**	**0.80**	**0.80**	**0.80**
Case 2: The headline deficit exceeds 3% of GDP for 4 years				
	2025	2026	2027	2028
0.45	**0.50**	**0.50**	**0.50**	0.64
Case 3: The structural deficit exceeds 1.5% of GDP during the projection period				
	2025	2026	2027	2028
0.30	*0.40*	*0.40*	0.30	0.30

Notes: (1) The adjustment is in terms of change in SPB as a percentage of GDP.
(2) The colour code is as follows: black normal: requirements complying with the DSA-based criteria; red bold: the deficit benchmark as measured in terms of change in the structural primary balance is binding; yellow background: the deficit benchmark as measured in terms of change in the structural balance is binding; black bold: the debt sustainability safeguard is binding; blue italics: the deficit resilience safeguard is binding.
(3) Case 1: with the DSA-based requirements, debt would decline but not at the pace implied by the debt sustainability safeguard. The safeguard implies an additional 0.1 pp. of GDP annual adjustment throughout the adjustment period.
(4) Case 2: as it takes 4 years to bring the deficit below 3% of GDP, the deficit benchmark applies first in structural primary terms in 2025-2027 and then in structural terms in 2028 (implying a higher adjustment given the projected increase in interest expenditure).
(5) Case 3: the DSA-based requirement would not be sufficient to reduce the structural deficit below 1.5% of GDP; the deficit resilience safeguard is therefore binding until it is the case.
Source: Commission services.

II.1.9. EQUIVALENCE BETWEEN REQUIREMENTS IN TERMS OF NET EXPENDITURE GROWTH AND SPB

As the Commission's debt projection model is based on the SPB and some articles of the regulation refer to this metric (in particular, Art. 6b), the reference trajectories are computed in terms of change in SPB and translated in terms of net primary expenditure growth. This is done using the standard formula below, as already used in the EU fiscal rules:

Nominal net primary expenditure growth = (yearly) potential GDP growth + inflation (as measured by the GDP deflator) – required change in the SPB / primary expenditure-to-GDP ratio

The formula to express requirements in terms of net expenditure growth uses yearly potential growth. Under the previous EU fiscal rules, the expenditure benchmark was computed using a 10-year moving average for potential growth, centred on the year under consideration; that was meant to ensure that fiscal requirements for that year rested on a relatively stable growth assumption. In the new framework, using a moving average is no longer necessary or relevant, for three reasons. *First*, the reference trajectories are computed based on projections over a horizon of 14 or 17 years, incorporating de facto some form of medium-term growth average. *Second*, using yearly potential growth ensures consistency with the DSA framework where, in the absence of fiscal effort, the SPB is held constant as a share of yearly potential GDP. This is translated into net expenditure growth evolving in line with yearly potential growth. Similarly, the year-by-year application of the benchmark and safeguards in terms of SPB needs to be matched by a yearly profile for net expenditure growth, using yearly potential growth in line with the SPB. *Third*, with annual potential growth, the time window for growth can be exactly aligned with the relevant projection period, while a 10-year moving average would include 5 years of past potential growth. Those past years, going back to the years of the COVID-19 crisis and the subsequent recovery, would unduly affect the requirements in the first years of the plans.

II.1.10. TECHNICAL INFORMATION

Technical information regards those Member States for which both the deficit and debt already stand below the Treaty reference values. For these countries, the information provided by the Commission, if requested by the Member State, is the SPB level ensuring that (in line with Art. 7.2 and Art. 15):

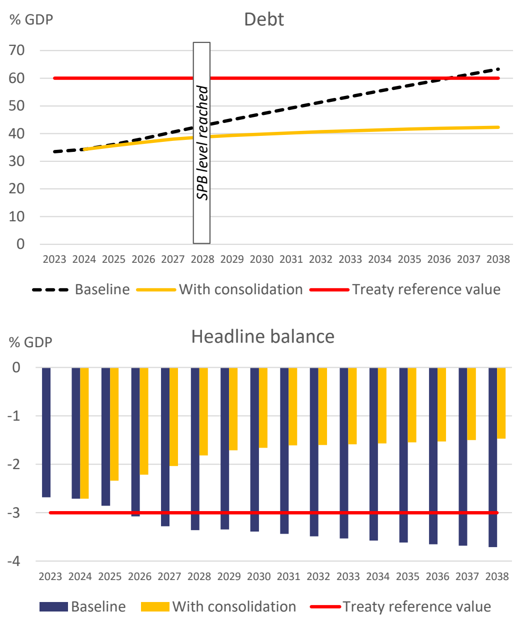
1. The headline deficit is maintained below 3% of GDP during the adjustment period (if any) and over a subsequent 10-year no-fiscal-policy-change period;

2. Debt is maintained below 60% of GDP during the adjustment period (if any) and over a subsequent 10-year no-fiscal-policy-change period;

3. The deficit resilience safeguard is fulfilled.

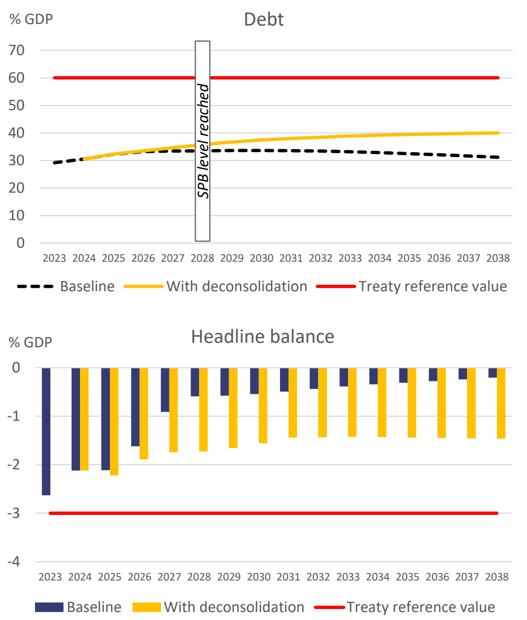
The graphs below provide illustrative examples. Graphs II.1.2 and II.1.3 illustrate, respectively, the case of a country that needs to improve its SPB to maintain its debt and deficit below the Treaty reference values and the case of a country that can deconsolidate to some extent while maintaining its debt and deficit below the Treaty reference values. In both cases, the headline deficit (which is equal to the structural deficit once the output gap has closed) is projected to reach a value slightly below 1.5% of GDP, in line with the deficit resilience safeguard.

Graph II.1.2: **Technical information: case of a country consolidating to remain below the Treaty reference values**



Source: Commission services

Graph II.1.3: **Technical information: case of a country expanding while remaining below the Treaty reference values**



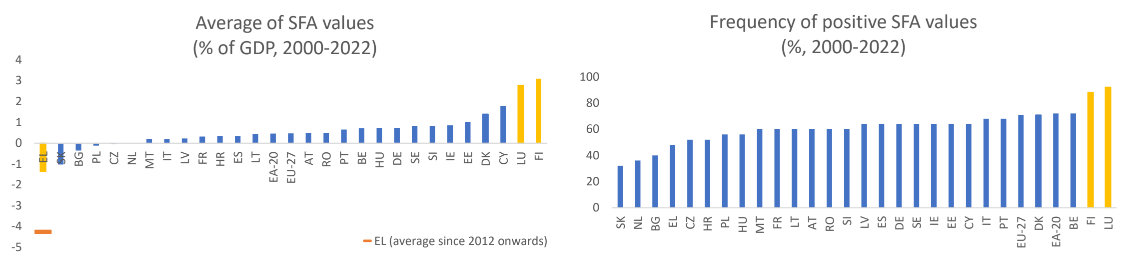
Source: Commission services.

II.2. THE REVISED STOCK-FLOW ADJUSTMENT (SFA) ASSUMPTIONS

II.2.1. RATIONALE FOR REVISING THE SFA ASSUMPTION

This chapter presents the revised standard assumption on stock-flow adjustment (SFA) used in this report. Until the DSM 2022, SFA were assumed to be equal to zero beyond the short-term (T+2) forecast for all Member States, with the exception of Greece. In the latter case, interest deferrals linked to EFSF loans justified a non-zero assumption over the medium-term projection period. As defined by Eurostat, a zero SFA value corresponds to a situation where the change in debt equals the budget balance. Consequently, a negative (positive) value of SFA is associated with a change in debt that is smaller (larger) than what is implied by the deficit (or decreases more (less) than implied by the surplus). SFA combine a wide range of sub-items, each prone to be affected by various events, and therefore are difficult to project over the medium and long term. ([104]) In most countries, SFA values appear highly volatile over time, with no clear tendency to be either systematically positive or negative. ([105]) Hence, for medium and long-term projections, a zero SFA assumption appears generally reasonable, and is in line with other institutions' practices. In some Member States, however, significant and persistent non-zero SFAs values have been observed in the past. For instance, *significant and persistent positive* SFA values are observed in Finland and Luxembourg, *while significant and recurrent negative* SFA values are also noted in the case of Greece (Graph II.2.1).

Graph II.2.1: **Historical stylised facts in SFAs across EU Member States**



Source: Commission services (AMECO).

II.2.2. HORIZONTAL CRITERIA USED IN THE REVISED SFA ASSUMPTION AND COUNTRIES CONCERNED ([106])

An adjustment of the standard SFA assumption in the DSA is warranted in case Member States fulfil three well-defined horizontal criteria. In cases where (i) SFAs have been *persistently and significantly* different from zero, (ii) such patterns can be explained by *structural factors*, and (iii) it is reasonably possible to project SFA based on *reliable and predictable* information, the SFA assumption is adjusted to more realistically reflect past and future developments. Based on these horizontal criteria, in two Member States (in addition to Greece), SFA assumption would differ from the standard zero assumption over the medium-term, namely Finland and Luxembourg. Indeed, Finland and Luxembourg are characterised by *significant and recurrent positive* SFA values due to the build-up of public pension funds, with accumulated assets amounting to about 90% and 30% of GDP respectively. ([107]) In both

([104]) See for more information Eurostat (2023), 'Stock-flow adjustment for the Member States, the euro area and the EU, for the period 2019-2022', as reported in the April 2023 EDP notification (https://ec.europa.eu/eurostat/documents/1015035/16536421/SFA-PR-2023-Apr.pdf/ad4e15c0-a532-63d6-3f83-532d6429521b?t=1682009729585).

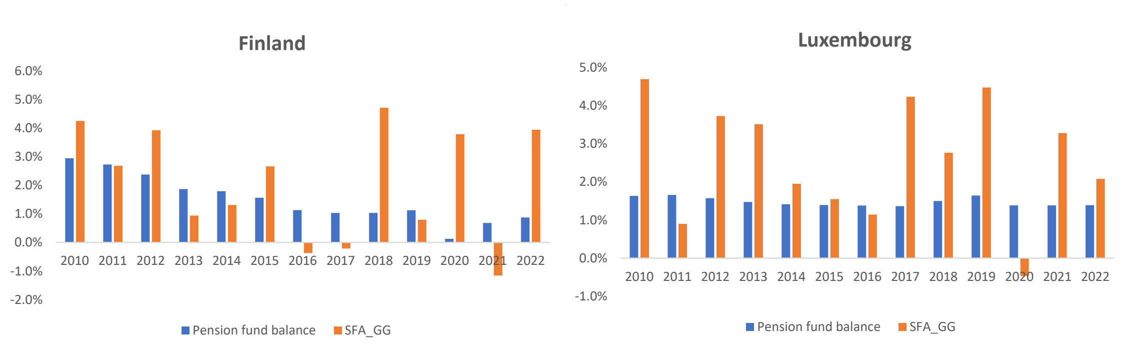
([105]) For example, most Member States experienced a temporary increase in SFA, during the 2008 global financial crisis, reflecting necessary government measures (with in particular, the use of non-budgetary measures such as bank recapitalisation operations).

([106]) Other institutions (e.g., OECD, ECB) already allow for non-zero SFA assumption in similar specific cases.

([107]) Figures based on the forthcoming 2024 Ageing Report projections.

Member States, the public pension system registers surpluses, recorded as part of the general government headline balance. This surplus is then used for the building-up of pension funds – and not to reduce debt -, materialising through the acquisition of financial assets, and recorded as a positive SFA (see Graph II.2.2). ([108]) Moreover, the use of the surplus of the public pension system for the building-up of the fund is guaranteed by law in both countries. ([109]) Last, the regular Ageing Reports (and in particular, the forthcoming 2024 edition) include projections of the public pension system surplus and the pension fund position based on commonly agreed assumptions and methodologies – prepared by the Economic Policy Committee / Ageing Working Group.

Graph II.2.2: **Social security funds' balance and SFA, % of GDP until 2022**



(1) SFA_GG refers to general government SFA
Source: Commission Services (AMECO) and figures from the forthcoming 2024 Ageing Report projections.

II.2.3. REVISED ASSUMPTION AND IMPACT ON MEDIUM-TERM DEBT PROJECTIONS AND FISCAL SUSTAINABILITY INDICATORS

II.2.3.1. Countries building public pension funds

The revised assumption makes use of the Ageing Report projections and is based on a no-policy change principle. *Over the standard T+10 DSA horizon*, SFA assumptions are directly based on the Ageing Report projections of the public pension system (fund) balance (in line with the no-policy change principle underpinning the DSA baseline). *Beyond the T+10 DSA horizon*, SFA are assumed to converge to zero, either according to a triggering criterion explicitly defined by the date when the fund is projected to be depleted (i.e., in Luxembourg, the fund is projected to be depleted as of 2047, meaning that as of this date the SFA for this country are set to zero). Otherwise, in the absence of any triggering criterion and if the position of the public pension fund is projected to keep increasing over time (as the result of property income as in Finland), SFA are assumed to gradually revert to a zero SFA assumption (in 10 years after the DSA projection horizon, meaning that, SFA are set to zero by T+20), reflecting the overall uncertainty surrounding the evolution of key drivers of SFA in the longer term.

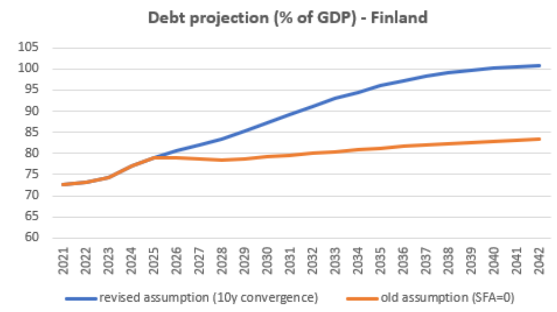
This revision has a significant effect on public debt projections, especially for Finland, but a limited impact on the long-term fiscal sustainability indicators. Based on the Commission autumn forecast

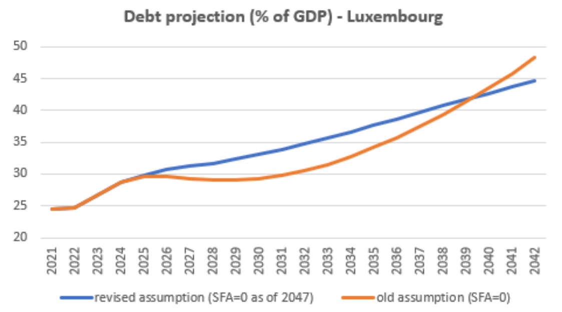
([108]) Looking at past balances of public pension funds and general government SFAs for Finland and Luxembourg, it confirms that although the correlation is not perfect, the series have been generally both positive and well correlated. The imperfect correlation is explained by the difference in scope of series (i.e., social security fund sub-sector vs. general government) and composition (with the general government SFA including specific components such as the cash-accrual adjustment to the ESA deficit, valuation effect adjustments and statistical discrepancies).

([109]) In Luxembourg, legal provisions earmark pension contributions and property income generated by the pension fund exclusively to the pension fund accumulation. They also foresee a pension deficit to be financed by tapping into the pension reserve fund in the future. In Finland, there is rather a mix of established practice and laws. Pension contributions are seemingly accumulated in the fund by usual practice, while property income, on the other hand is accumulated to the pension fund by law.

2023 and the forthcoming 2024 Ageing Report projections, such a change in the SFA assumption would increase projected debt by T+10, by 13 and 5 pps of GDP in Finland and Luxembourg respectively, compared with the previous assumption (assuming zero SFA beyond the short-term forecast period; Graph II.2.3 – upper panel). Regarding the long-term fiscal sustainability indicators, the impact of the change in the SFA assumption would be very limited in both Member States with no repercussions in terms of classification (Graph II.2.3 – lower panel).

Graph II.2.3: **Impact of alternative SFA assumptions on debt projections, the long-term risk classification and the sustainability indicators S2 and S1**





Long-term risk classification and the sustainability indicators S2 and S1

		S1	S2	Overall LT risk category
FI	Current assumption (SFA = 0)	1.7	3.2	Medium
	Adjusted assumption (SFA different from 0 until T+10, and convergence to 0 by T+20)	2.0	3.3	Medium
LU	Current assumption (SFA = 0)	3.8	8.6	High
	Adjusted assumption (SFA = 0 when fund is depleted in 2047)	3.5	8.6	High

(1) 'Old assumption' refers to the current standard assumption where SFA is set a zero beyond the short-term forecast. 'Revised assumption' refers to the case where SFA values are different from 0 over T+10 (using figures of the forthcoming 2024 Ageing Report) and converge to zero beyond T+10 in 10 years (in the case of Finland) and by 2047 in the case of Luxembourg.
Source: Commission services (based on the forthcoming 2024 Ageing report).

II.2.3.2. Countries with interest deferrals due to official lending: the case of Greece

Greece had also recorded over the past years *significant and recurrent* negative SFA values due to deferred debt interest payments on EFSF loans in the context of past financial assistance. ([110]) These deferred interested amounted to 5.4% of GDP in 2022 and estimated to reach 11.1% of GDP in 2032. Deferred interest payments on loans are currently not recorded in the (Maastricht) debt, which is defined in cash terms, but they affect the budget balance, which follows the accrual principle. As a result, in the years of the payment deferral, the corresponding amounts appear in the budget balance without affecting the debt dynamics, generating negative SFA. Instead, in the years where the outstanding financial liability is effectively repaid, the related amounts do not affect the budget balance (as they have already been recorded) but increase debt, via positive SFA. These flows were already taken into account in the debt projections, via small negative SFAs in the years of the deferrals (i.e., until 2032), and a large positive SFA in 2033 i.e., the year of the expiry of the deferral.

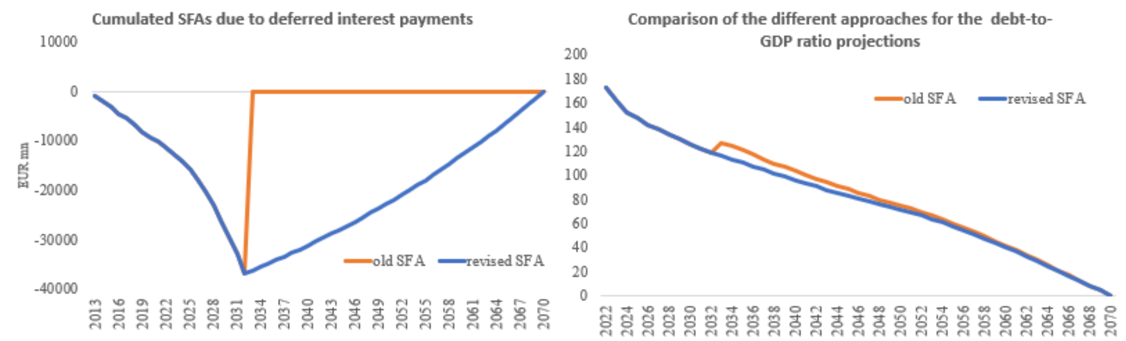
A revision of the SFA assumption is included in this report to better align the projections to statistical rules. The new SFA profile continues to apply small negative SFAs in the years of the

([110]) In the case of Greece, the current assumption is already different from the standard zero assumption with negative SFAs until 2032, positive SFAs in 2033 (equals to the sum of total deferred amounts), and zero SFAs from then onwards.

deferrals, but instead of adding the deferred amounts to the debt in 'one go' in 2033, it applies small positive adjustments in line with the actual repayment of the deferred amounts, aligning the current approach with EDP accounting. ([111]) (see Graph II.2.4 - left).

This revision has a (decreasing) impact on the debt projections in the medium-term, but no impact over the long-term. Based on the autumn forecast 2023, such a change in the SFA assumption has an impact on Greek projected debt by T+10 (about 10.8 pps. of GDP lower than the former assumption) but has no impact on projected debt over the long term, as the amount to be repaid is remains the same (see Graph II.2.4 - right). For this reason, the revision of the SFA assumption doesn't affect the values of the long-term fiscal sustainability indicators.

Graph II.2.4: **Impact of alternative SFA assumptions on debt projections for Greece**



Source: Commission services.

([111]) Recent discussions with ESM/EFSF have clarified that, at the end of the payment deferral period, Greece would repay the deferred interests according to a [linear] payment profile (instead of issuing a new loan at the end of the deferral period as assumed previously).

ANNEX A1

Criteria and decision trees used to assess fiscal sustainability risks

This annex presents the approach followed to assess fiscal sustainability risks over the short, medium and long term. Graph A1.1 provides an overview of the main building blocks. The general approach is the same as in the 2022 Debt Sustainability Monitor.

The remainder of this annex is organised as follows. Sections A1.1, A1.2 and A1.3 describe the approach to assess short-, medium- and long-term fiscal sustainability risks. Section A1.4 provides an overview of the thresholds used for the risk classification throughout the report.

A1.1. THE APPROACH USED TO ASSESS SHORT-TERM RISKS

The analysis of short-term fiscal sustainability risks relies on the composite S0 indicator. This early-detection indicator of fiscal stress follows a signalling approach: it flashes red when certain variables (among a set of 25) exceed critical thresholds beyond which they tended to be associated with episodes of fiscal stress in the past. S0 includes two sub-indices that cover the fiscal side and the financial-competitiveness side. The main benefit of this approach is therefore that it does not only consider purely fiscal factors, but also the risks that may arise from non-fiscal factors, thus recognising the role of structural weaknesses in triggering fiscal stress. Further details on S0 are available in Chapter I.1 (in particular in Box I.1.1) and Annex A2.

A1.2. THE APPROACH USED TO ASSESS MEDIUM-TERM RISKS

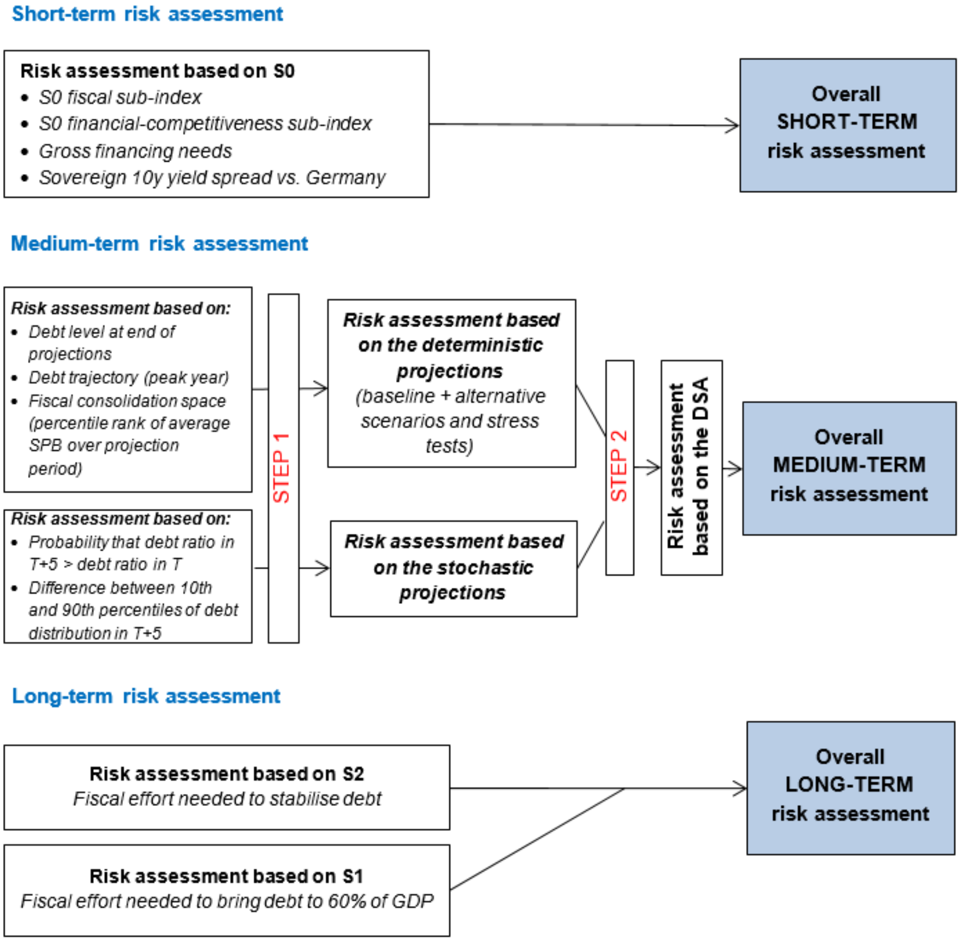
The assessment of medium-term risks is based on the debt sustainability analysis (DSA) risk classification, which is established in two steps. The first step assigns a risk category to the country under consideration for each of the deterministic projections (including the baseline) and for the stochastic projections. The second step combines the risk categories derived from the various deterministic scenarios and from the stochastic projections to conclude on the overall DSA risk classification. Further details on the DSA can be found in Chapter I.2.

In the first step, *the risk assessment based on the deterministic scenarios* depends on three criteria. These are (1) the projected debt level in 10 years' time, (2) the projected debt trajectory (as summarised by the year in which debt is projected to peak), and (3) the 'fiscal consolidation space', as measured by the percentile rank of the projected structural primary balance (SPB) in the past distribution of SPBs. The fiscal consolidation space gives an indication of whether the projected SPB is plausible in view of the country's track record, and whether the country has fiscal room for manoeuvre to take corrective measures if necessary.

The decision tree for deterministic projections describes how the three criteria interplay. First, the value of each criterion is associated with a risk category (low, medium or high, according to the thresholds reported in Table A1.1 below), then the risk categories derived from the three criteria are combined along the decision tree presented in Graph A1.2. While the risk classification starts from the risk signal associated with the projected debt level, this signal may be notched up or down by one category depending on the projected debt trajectory and the available 'fiscal consolidation space'. Fiscal consolidation space is measured by the percentile rank of the SPB within the country-specific historical distribution of the SPB. The historical distributions start at the earliest in 1980, depending on data availability. The calculations use 3-year moving averages and notably exclude major crisis years, such as the Global Financial Crisis (2008-09) and the COVID-19 pandemic (2020-21).

***The risk category based on the stochastic projections* depends on two criteria.** The first one is the probability that the debt level in 5 years' time will not exceed its current level. The second one is the amount of uncertainty, as measured by the difference between the 10th and 90th percentiles of the distribution of debt paths resulting from the stochastic projections (i.e. the difference between the worst

Graph A1.1: **The multi-dimensional approach to assess fiscal sustainability risks**



Source: European Commission.

and the best possible outcomes, leaving aside tail events). The thresholds associated with these criteria are reported in Table A1.1, and the decision tree combining the two criteria is presented in Graph A1.3.

The second step combines the signals from the deterministic and stochastic projections. Each country is first attributed a preliminary risk classification based on the baseline. This preliminary category may then be notched up, but not down. It may be adjusted from low to medium or from medium to high based on the outcome of other scenarios and stochastic projections, as described in Graph A1.4. On the other hand, if a country is considered at high risk under the baseline, the overall DSA risk category is automatically high.

Table A1.1: **DSA: thresholds for the deterministic and stochastic projections**

	Criterion		Threshold
Deterministic projections	Debt level in 2034		**High:** above 90% of GDP **Medium:** between 60% and 90% of GDP **Low:** below 60% of GDP
Deterministic projections	Debt trajectory (debt peak year)		**High:** peak year between T+7 (2030) and end of projections (2034), or still increasing by end of projections **Medium:** peak year between T+3 (2026) and T+6 (2029) **Low:** peak year within the T+2 forecast horizon (2023-2025)
Deterministic projections	Fiscal consolidation space (percentile rank of average SPB in 2025-2034)		**High:** up to 25% **Medium:** between 25% and 50% **Low:** above 50%
Stochastic projections	Probability of debt not stabilising over the next 5 years, i.e. of debt ratio in 2028 exceeding the initial debt ratio	Initial debt ratio ≥ 90%	**High:** if probability > 30% **Medium:** if 0 < probability ≤ 30% **Low:** if probability = 0
		60 % ≤ initial debt ratio < 90%	**High:** if probability > 60% **Medium:** if 30% < probability ≤ 60% **Low:** if probability ≤ 30%
		Initial debt ratio < 60%	**Medium:** if probability > 70% **Low:** if probability ≤ 70%
Stochastic projections	Size of macroeconomic uncertainty (diff. btw 10th and 90th percentiles of the distribution of debt paths)		**High:** the third of the countries with highest dispersion **Medium:** the third of the countries with intermediate dispersion **Low:** the third of the countries with lowest dispersion

Source: European Commission.

Graph A1.2: **DSA, step 1: decision tree for the deterministic projections (including the baseline)**

All deterministic DSA scenarios				
Case	Debt level	Debt path	Consolidation space	Overall
1	HIGH	HIGH/MEDIUM	ANY	HIGH
2	HIGH	LOW	HIGH/MEDIUM	HIGH
3	HIGH	LOW	LOW	MEDIUM
4	MEDIUM	HIGH	HIGH/MEDIUM	HIGH
5	MEDIUM	HIGH	LOW	MEDIUM
6	MEDIUM	MEDIUM	ANY	MEDIUM
7	MEDIUM	LOW	HIGH/MEDIUM	MEDIUM
8	MEDIUM	LOW	LOW	LOW
9	LOW	HIGH	HIGH/MEDIUM	MEDIUM
10	LOW	HIGH	LOW	LOW
11	LOW	MEDIUM/LOW	ANY	LOW

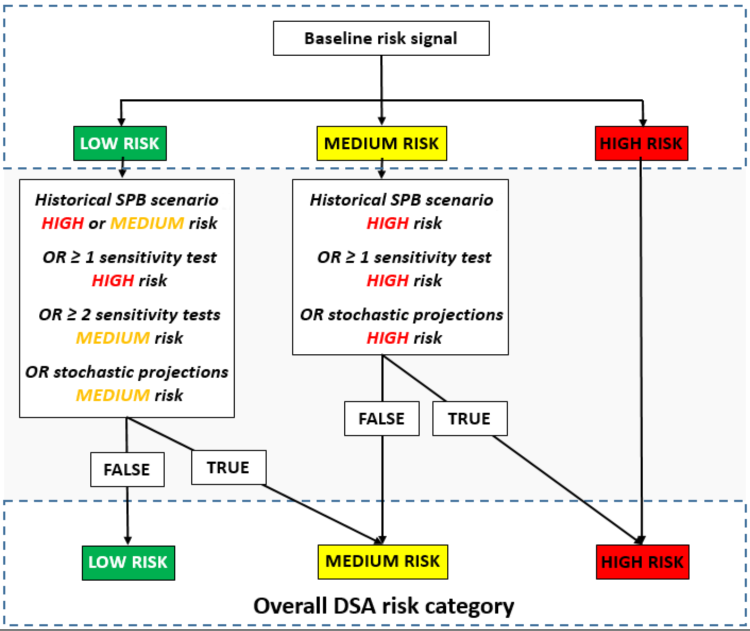
Note: the table is to be read as a decision tree, starting from the debt level then moving on to the debt path and the fiscal consolidation space. The risk category derived from the debt level in T+10 is notched up if the debt path points to high risk and the consolidation space points to medium or high risk (cases 4 and 9). Indeed, in these cases, countries have an increasing debt and limited consolidation space, meaning that there is a chance that there is no feasible adjustment path to curb the debt path. Conversely, the risk is notched down if both the debt path and the consolidation space indicator point to low risk (cases 3 and 8). In these cases, even if the projected debt level is high/medium, the debt path is decreasing, and the country has enough space to take measures in case of adverse shocks.
Source: European Commission.

Graph A1.3: **DSA, step 1: decision tree for the stochastic projections**

Probability of debt not stabilising	Size of uncertainty	Overall
HIGH	ANY	HIGH
MEDIUM	HIGH	MEDIUM
MEDIUM	MEDIUM	MEDIUM
MEDIUM	LOW	LOW
LOW	HIGH	MEDIUM
LOW	MEDIUM	LOW
LOW	LOW	LOW

Note: The table is to be read from left to right as a decision tree, starting from the probability of debt not stabilising then moving on to the size of uncertainty. It gives a strong weight to the probability of debt not stabilising over the next 5 years. Only in cases where the signal associated to this probability is medium and uncertainty is low, is the overall risk category notched down to low risk. Conversely, in cases where this probability is deemed low, but uncertainty is high, the overall risk category is notched up to medium risk.
Source: European Commission.

Graph A1.4: **DSA, step 2: decision tree for the overall DSA risk classification**



Note: it is not possible for a country to be classified at low risk under the baseline and at high risk under the stochastic projections.
Source: European Commission.

A1.3. THE APPROACH USED TO ASSESS LONG-TERM RISKS

The assessment of long-term fiscal sustainability risks is based on the S2 and S1 indicators. The S2 indicator measures the fiscal effort needed to stabilise debt in the long term, regardless of the level, based on the infinite version of the government budget constraint (see Box I.3.1). The S1 indicator measures the fiscal effort needed to bring debt to 60% of GDP by 2070. For both indicators, the risk assessment depends on the amount of fiscal consolidation needed: high risk if the required effort exceeds 6 pp. of GDP, medium risk if it lies between 2 pp. and 6 pp. of GDP, and low risk if the effort is negative or below 2 pp. of GDP (see Table A1.3). Finally, the overall long-term risk classification brings together the risk categories derived from S1 and S2. S1 may notch up the risk category derived from S2 when it signals a higher risk than S2. As a result, a country is assessed to be at high risk if (i) the S2 indicator flags high risk, irrespective of the risk category derived from S1, or (ii) S2 signals medium risk but S1 points to high risk (see Table A1.2). Similarly, a country is assessed at medium risk if S2 points to low risk but S1 flags medium or high risk. The aim of these adjustments is to capture risks linked to higher debt levels, as explained in Box I.3.1. The long-term risk classification is discussed in Chapter I.3, and technical details can be found in Annex A5.

Table A1.2: **Decision tree for the long-term risk classification**

Risk derived from S2	Risk derived from S1	Overall long-term risk category
HIGH	Any	HIGH
MEDIUM	HIGH	HIGH
	MEDIUM	MEDIUM
	LOW	
LOW	HIGH	MEDIUM
	MEDIUM	
	LOW	LOW

Source: European Commission.

A1.4. OVERVIEW OF THE THRESHOLDS USED TO ASSESS FISCAL SUSTAINABILITY RISKS

The thresholds underpinning the various heat maps presented in the report can be found in the following tables. ***The thresholds for the DSA risk classification***, both for the deterministic and stochastic projections, are reported in Table A1.1. ***For the short term,*** Table A1.3 reports the thresholds used for the S0 indicator, its sub-indices, and each of the variables that they include. The overall S0 index and its sub-indices use only one threshold, beyond which they identify vulnerabilities. For the individual variables, the upper thresholds derived from the signalling approach are complemented by lower thresholds, set at around 80% of the upper thresholds, so that variables may flash red, yellow or not flash at all. ***For the S1 and S2 indicators,*** Table A1.3 reports upper and lower thresholds to distinguish between low, medium and high risk. The percentile ranks of the SPBs required by S1 and S2 are subject to the same thresholds as average SPBs in DSA scenarios (Table A1.1).

Table A1.3: **Overview of the thresholds used for the fiscal sustainability risk classification**

	Safety	*Upper threshold*	*Lower threshold*
SHORT-TERM RISKS			
S0 overall index	<	0.46	:
S0 fiscal sub-index	<	0.36	:
S0 financial-competitiveness sub-index	<	0.49	:
Fiscal risks from the fiscal context			
Balance (% of GDP)	>	-9.6	-7.7
Primary balance (% of GDP)	>	0.2	0.3
Cyclically-adjusted balance (% of GDP)	>	-2.5	-2.0
Stabilising primary balance (% of GDP)	<	2.3	1.9
Gross debt (% of GDP)	<	68.4	54.8
Change in gross debt (% of GDP)	<	8.1	6.4
Short-term public debt (% of GDP)	<	13.2	10.6
Net debt (% of GDP)	<	59.5	47.6
Gross financing needs (% of GDP)	<	15.9	12.8
Interest-growth rate differential (%)	<	4.8	3.8
Change in governement expenditure (% of GDP)	<	1.9	1.5
Change in governement consumption (% of GDP)	<	0.6	0.5
Fiscal risks from the macro-financial context			
Yield curve (%)	>	0.6	0.7
Real GDP growth (%)	>	-0.7	-0.5
GDP per capita in PPP (% US level)	>	72.7	87.2
Net international investment position (% of GDP)	>	-19.8	-15.8
Net savings households (% of GDP)	>	2.6	3.1
Private debt (% of GDP)	<	164.7	131.8
Private credit flow (% of GDP)	<	11.7	9.4
Short-term debt non-financial corporations (% of GDP)	<	15.4	12.3
Short-term debt households (% of GDP)	<	2.9	2.3
Construction (% of value added)	<	7.5	6.0
Current account balance (% of GDP)	>	-2.5	-2.0
Change in REER (%)	<	9.7	7.7
Change in nominal ULC (%)	<	7.0	5.6
Fiscal risks from financial market developments			
Sovereign yield spreads (bp) - 10 year	<	231.0	184.8
MEDIUM-TERM RISKS			
DSA variables	see Table A1.2		
LONG-TERM RISKS			
S2 indicator	<	6	2
Percentile rank of the SPB implied by S2	>	25%	50%
S1 indicator	<	6	2
Percentile rank of the SPB implied by S1	>	25%	50%
ADDITIONAL VARIABLES			
Structure of public debt			
Share of short-term public debt (% of debt)	<	6.6	5.3
Share of public debt in foreign currency (% of debt)	<	31.6	25.0
Share of public debt held by non-residents (% of debt)	<	49.0	40.0
Contingent liabilites linked to the banking sector			
Bank loans-to-deposits ratio (%)	<	133.4	107.0
Share of non-performing loans (% of loans)	<	2.3	1.8
Change in share of non-performing loans (p.p.)	<	0.3	0.2
NPL coverage ratio (% loans)	>	66.0	33.0
Change in nominal house prix index (%)	<	13.2	11.0

Note: Variables common to the scoreboard used in the macroeconomic imbalances procedure (MIP) have different thresholds here than under the MIP, because the methodologies to calculate them are different
Source: European Commission.

ANNEX A2
The early-detection indicator of fiscal stress risk (S0)

This annex describes the methodology of the Commission's early-warning indicator S0. S0 measures fiscal stress in the following year using a signalling. It flashes red when certain variables (among a set of 25) exceed critical thresholds beyond which they tended to be associated with episodes of fiscal stress in the past. S0 includes two sub-indices that cover the fiscal side and the financial-competitiveness side.

A2.1. THE METHODOLOGY FOR THE CALCULATION OF THE THRESHOLDS

For each variable used in the composite indicator S0 the optimal threshold is chosen in a way to minimise, based on historical data, the sum of the number of fiscal stress signals sent ahead of no-fiscal-stress episodes (false positive signals – type-I error) and the number of no-fiscal-stress signals sent ahead of fiscal stress episodes (false negative signals – type-II error), with different weights attached to the two components**.** The table below reports the four possible combinations of events.

Table A2.1: **Possible cases based on type of signal sent by the variable at t-1 and state of the world at t**

	Fiscal stress episode	**No-fiscal stress episode**
Fiscal stress signal	True positive signal	False positive signal (Type I error)
No-fiscal stress signal	False negative signal (Type II error)	True negative signal

Source: Commission services

Formally, for each variable *i* the optimal threshold (t_i^*) is chosen to minimise the sum of type I and type II errors for variable *i* (respectively fiscal stress signals followed by no-fiscal stress episodes - False Positive signals - and no-fiscal-stress signals followed by fiscal stress episodes – False Negative signals) as from the following total misclassification error for variable *i* (TME_i): ([112])

$$t_i^* = \arg\min_{t_i \in T_i} \left(TME_i(t_i)\right) =$$

$$= \arg\min_{t_i \in T_i} \left(\frac{FN_i(t_i)}{Fs} + \frac{FP_i(t_i)}{Nfs} \right) \qquad (1)$$

$i = 1,.., n$

where T_i = set of all values taken by variable *i* over all countries and years in the panel; $FN_i(t_i)$ = total number of false negative signals sent by variable *i* (over all countries and years) based on threshold t_i; $FP_i(t_i)$ = total number of false positive signals sent by variable *i* (over all countries and years) based on threshold t_i; *Fs* = total number of fiscal stress episodes recorded in the data; *Nfs* = total number of no-fiscal-stress episodes recorded in the data; ([113]) *n* = total number of variables used.

As can be seen from the minimisation problem in (1), `false negative' signals are weighted more than `false positive' signals as:

([112]) Following this methodological approach the optimal threshold will be such as to balance between type I and type II errors. For variables for which values above the threshold would signal fiscal stress, a relatively low threshold would produce relatively more false positive signals and fewer false negative signals, meaning higher type I error and lower type II error; the opposite would be true if a relatively high threshold was chosen.

([113]) Here we simplify on the total number of fiscal stress and non-fiscal-stress episodes as in fact also these numbers vary across variables. This is due to the fact that data availability constraints do not allow us to use the whole series of episodes for all variables.

$$\frac{1}{Fs} > \frac{1}{Nfs}$$

This is due to the fact that the total number of fiscal stress episodes recorded over a (large enough) panel of countries will be typically much smaller than the total number of non-fiscal-stress episodes. This is a positive feature of the model as we might reasonably want to weigh the type II error more than the type I given the more serious consequences deriving from failing to correctly predict a fiscal stress episode relative to predicting a fiscal stress episode when there will be none.

The threshold for variable i (with i = 1,…, n) obtained from (1) is common to all countries in the panel. We define it as a common *absolute* threshold (a critical value for the level of public debt to GDP, or general government balance over GDP, for instance) but it could also be defined as a common *relative* threshold (a common percentage tail of the country-specific distributions). ([114]) In the latter case, while the optimal percentage tail obtained from (1) is the same for all countries, the associated absolute threshold will differ across countries reflecting differences in distributions (country *j*'s absolute threshold for variable i will reflect the country-specific history with regard to that variable). Both the aforementioned methods were applied and a decision was made to focus exclusively on the first, given that the second one tends to produce sensitive country-specific absolute thresholds for variable i only for those countries having a history of medium to high values for the variable concerned (or medium to low, depending on what the fiscal-stress-prone side of the distribution is), while country-specific thresholds would not be meaningful for the rest of the sample.

The TME function in equation (1) is the criterion we used to calculate the thresholds but it is not the only possible criterion used in the literature. The minimisation of the noise-to-signal ratio (*NSR*) is another possible option. ([115]) In this case the optimal threshold for variable i (t_i^*) is obtained as:

$$t_i^* = \arg\min_{t_i \in T_i} \left(NSR_i(t_i)\right) = \arg\min_{t_i \in T_i} \left(\frac{FP_i(t_i)/Nfs}{TP_i(t_i)/Fs} \right) \qquad (2)$$

i = 1,…,n

where $TP_i(t_i)$ = total number of true positive signals sent by variable i (over all countries and years) based on threshold t_i. The TME minimisation was preferred to this alternative criterion based on the size of the total errors produced.

A2.2. THE CALCULATION OF THE COMPOSITE INDICATOR S0

The early-detection indicator of fiscal stress (S0) is constructed in a similar way to what done in Baldacci et al. (2011) and Reinhart et al. (2000). ([116]) To a certain country j and year t, a 1 is assigned for every variable i that signals fiscal stress for the following year (a dummy d^i is created for each variable i such that $d_{jt}^i = 1$ if a fiscal stress signal is sent by the variable and $d_{jt}^i = 0$ otherwise, i.e. if a no-fiscal-stress signal is sent or the variable is missing). The value of the composite indicator S0 for country j and

([114]) See, for instance, Reinhart, Goldstein and Kaminsky (2000); Hemming, Kell and Schimmelpfennig (2003).
([115]) See, for instance, Reinhart, Goldstein and Kaminsky (2000); Hemming, Kell and Schimmelpfennig (2003).
([116]) See Berti et al. (2012). The difference with Baldacci et al. (2011) is that Berti et al. do not use a system of "double weighting" of each variable incorporated in the composite indicator based on the weight of the subgroup of variables it belongs to (fiscal and financial-competitiveness variables here) and the weight of the individual variable within the group. The difference with Reinhart et al. (2000) is in the way the individual variables' weights are computed (Reinhart et al. use as weights the inverse of the noise-to-signal ratios of the individual variables as they apply the NSR criterion, rather than the TME minimisation).

year t ($S0_{jt}$) is then calculated as the weighted number of variables having reached their optimal thresholds with the weights given by the "signalling power" of the individual variables:

$$S0_{jt} = \sum_{i=1}^{n} w_i d_{jt}^{i} = \sum_{i=1}^{n} \frac{z_i}{\sum_{k=1}^{n} h_{jt}^{k} \cdot z_k} d_{jt}^{i} \qquad (3)$$

where n = total number of variables; z_i = 1 – (type I error + type II error) = signalling power of variable i; and $h_{jt}^{k} \in \{0,1\}$ is an indicator variable taking value 1 if variable k is observed for country j at time t and 0 otherwise. ([117]) The variables are therefore assigned higher weight in the composite indicator, the higher their past forecasting accuracy. ([118])

([117]) This ensures that the sum of the weights is equal to 1 regardless of data availability (which is of course necessary to be able to analyse the evolution of the composite indicator).
([118]) Moreover, as evident from (3), the weight attached to each variable is decreasing in the signalling power attached to the other variables, as well as in the number of variables available for a given country and year.

ANNEX A3
Debt dynamics' projections: decomposition, interest rates and property incomes

A3.1. DECOMPOSING THE DEBT DYNAMICS

Deterministic government debt projections are based on a general identity characterising the evolution of the stock of debt. In a simplified version, the evolution of the government debt to GDP ratio can be described in the following way:

$$d_t = \alpha^n . d_{t-1} . \frac{(1+i_t)}{(1+g_t)} + \alpha^f . d_{t-1} . \frac{(1+i_t)}{(1+g_t)} . \frac{e_t}{e_{t-1}} - pb_t + f_t \qquad (1)$$

where d_t represents the total government debt to GDP ratio in year t

α^n represents the share of total government debt denominated in national currency

α^f represents the share of total government debt denominated in foreign currency

i_t represents the implicit interest rate on government debt ([119])

g_t represents the *nominal* growth rate of GDP (in national currency)

e_t represents the nominal exchange rate (expressed as national currency per unit of foreign currency)

pb_t represents the primary balance over GDP

f_t represents the stock-flow adjustments over GDP.

In order to obtain the debt dynamics, d_{t-1} is subtracted from both sides of equation (1). This gives the following expression:

$$\Delta d_t = \alpha^n . d_{t-1} . \frac{(i_t - g_t)}{(1+g_t)} + \alpha^f . d_{t-1} . \frac{(i_t - g_t) + \varepsilon_t . (1+i_t)}{(1+g_t)} - pb_t + f_t \qquad (2)$$

where $\varepsilon_t = \frac{e_t}{e_{t-1}} - 1$ represents the rate of depreciation of the national currency.

Decomposing further the nominal GDP growth rate, and rearranging the different terms, we obtain:

$$\Delta d_t = d_{t-1} . \frac{i_t}{(1+g_t)} - d_{t-1} . \frac{gr_t}{(1+g_t)} - d_{t-1} . \frac{\pi_t (1+gr_t)}{(1+g_t)} + \alpha^f . d_{t-1} . \varepsilon_t . \frac{(1+i_t)}{(1+g_t)} - pb_t + f_t \qquad (2)'$$

where gr_t represents the *real* growth rate of GDP

π_t represents the inflation rate (in terms of GDP deflator, in national currency)

This expression allows us identifying the key drivers of the debt ratio dynamics, in particular the snow-ball effect, which can be further decomposed into four terms:

- (+) the interest rate effect: $d_{t-1} . \frac{i_t}{(1+g_t)}$

([119]) By simplicity, it is assumed that this interest rate is the same for government debt denominated in national currency and in foreign currency.

- (-) the real GDP growth effect: $-d_{t-1}.\frac{gr_t}{(1+g_{t})}$

- (-) the inflation effect: $-d_{t-1}.\frac{\pi_t(1+gr_t)}{(1+g_{t})}$

- (+) the exchange rate effect: $\alpha^f.d_{t-1}.\varepsilon_t.\frac{(1+i_t)}{(1+g_{t})}$

As can be easily seen from this expression, both the interest rate and the foreign exchange depreciation rate contribute to the increase of the debt ratio. On the other hand, higher real GDP growth and higher inflation erode the debt to GDP ratio. ([120])

Other key contributors to the debt motion are the primary balance (pb_t) (that is further decomposed in our tables between the structural primary balance before cost of ageing, the cost of ageing, the cyclical component and one-offs and other temporary measures) and stock and flow adjustments (f_t).

As can be seen from the exchange rate effect expression, both valuation effects affecting the *stock* of foreign currency denominated debt and *interest rate* payments (on this share of government debt) contribute to the debt dynamic. ([121]) Looking at historical series, Eurostat includes the exchange rate effect on the *stock* of foreign currency denominated debt in stock and flow adjustments, while the impact due to the cost of servicing debt in foreign currency is included in interest payments. In our tables, we follow this convention.

In practice, the equation used in our model is slightly more complex than equation (1), as we consider three currencies: the national currency, the EUR (foreign currency for non-euro area countries) and the USD (foreign currency for all countries). Hence, equation (1) becomes:

$$d_t = \alpha^n.d_{t-1}.\frac{(1+i_t)}{(1+g_t)} + \alpha^{eur}.d_{t-1}.\frac{(1+i_t)}{(1+g_t)}.\frac{e_t}{e_{t-1}} + \alpha^{usd}.d_{t-1}.\frac{(1+i_t)}{(1+g_t)}.\frac{\tilde{e}_{t-1}}{\tilde{e}_t}.\frac{e_t}{e_{t-1}} - pb_t + f_t \qquad (1)'$$

where α^{eur} represents the share of total government debt denominated in euros

α^{usd} represents the share of total government debt denominated in USD

e_t represents the nominal exchange rate between the national currency and the euro (expressed as national currency per EUR)

$\tilde{e}_t$ represents the nominal exchange rate between the USD and the euro (expressed as USD per EUR).

Such a specification allows taking into account the effect of exchange rate movements on government debt not only in non-euro area countries, but also in euro area countries (among which government debt issued in USD can be significant).

([120]) This presentation, based on the government debt ratio identity equation, allows grasping the impact of real GDP growth and inflation on the debt motion coming from direct valuation effects (as government debt is expressed as a share of GDP). However, the primary balance is also influenced by economic activity and inflation. Such behavioural effects are explicitly taken into account in the fiscal reaction function scenario presented in chapter 2 of the report.

([121]) An indirect effect, due to the fact that exchange rate movements affect the value of GDP in domestic currency through changes in prices in the tradable sector, could also be shown. However, in practice, in line with other institutions practices (e.g. IMF), these effects are not isolated (data limitation would require to impose further assumptions; effect likely to be of second-order).

A3.2. PROJECTING THE IMPLICIT INTEREST RATE ON GOVERNMENT DEBT

As seen from equation (1), a key driver of the debt motion is the implicit interest rate on government debt. Projecting the implicit interest rate on government debt requires not only assumptions on *market* interest rates (for newly issued debt), but also taking into account explicitly the current and future maturity structure of government debt (between short-term and long-term government debt, and between maturing, rolled-over or not, and non-maturing government debt). This allows a differential treatment in terms of interest rates applied to successive "debt vintages", and interestingly captures different levels of exposure of sovereigns to immediate financial markets' pressures.

Formally, in our model, the implicit interest rate is expressed in the following way:

$$iir_t = \alpha_{t-1}.i_t^{ST} + (1-\alpha_{t-1}).iir_t^{LT} \qquad (3)$$

where iii_t is the implicit interest rate in year t (122)

i_t^{ST} is the *market* short-term interest rate in year t

iir_t^{LT} is the implicit long-term interest rate in year t

α_{t-1} is the share of short-term debt in total government debt (and $(1-\alpha_{t-1})$ is the share of long-term debt in total government debt). (123)

Our model considers two types of government debt in terms of maturity: short-term debt (debt issued with an *original* maturity of less than one year) and long-term debt (debt issued with an *original* maturity of more than one year). Furthermore, government debt can be decomposed between new debt (debt issued to cover new financing requirements), (124) maturing debt (i.e. existing debt that is maturing within the year (125) and that needs to be repaid), rolled-over (i.e. whose repayment is covered by newly issued debt) or not, and outstanding debt (i.e. existing debt that has not reached maturity). Combining these different aspects, α_{t-1} (and $(1-\alpha_{t-1})$) used in (3) can be described as follows:

$$\alpha_{t-1} = \frac{D_{t-1}^{STN} + D_{t-1}^{STR}}{D_{t-1}} \qquad (4)$$

$$1-\alpha_{t-1} = \frac{D_{t-1}^{o} + D_{t-1}^{LTN} + D_{t-1}^{LTR}}{D_{t-1}} \qquad (5)$$

where D_{t-1}^{STN} is the new short-term government debt in year $t-1$

D_{t-1}^{STR} is the maturing and rolled-over short-term government debt (i.e. the existing short-term debt that has reached maturity, and whose repayment is covered by newly issued short-term debt)

D_{t-1}^{LTN} is the new long-term government debt

D_{t-1}^{LTR} is the maturing and rolled-over long-term government debt (i.e. the existing long-term debt that has reached maturity, and whose repayment is covered by newly issued long-term debt)

D_{t-1}^{o} is the outstanding (non-maturing) long-term government debt.

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(122) This corresponds to i_t in the previous section.
(123) Hence, as indicated by the *t* index, these shares may vary through time depending on the debt dynamic.
(124) This amount also corresponds to the yearly budgetary deficit.
(125) Another way to describe it is that this existing debt has a *residual* maturity of less than one year.

Moreover, the implicit long-term interest rate used in (3) can be further decomposed:

$$iir_t^{LT} = \beta_{t-1}.\, i_t^{LT} + (1-\beta_{t-1}).\, iir_{t-1}^{LT} \qquad (6)$$

where β_{t-1} is the share of newly issued long-term debt (corresponding to both new debt and maturing and rolled-over debt) in total long-term government debt in year $t-1$ (and $(1-\beta_{t-1})$ is the share of outstanding long-term debt in total long-term government debt)

i_t^{LT} is the *market* long-term interest rate in year t.

The share of newly issued long-term debt (respectively outstanding debt) in total long-term government debt, used in expression (6), is described as follows:

$$\beta_{t-1} = \frac{D_{t-1}^{LTN} + D_{t-1}^{LTR}}{D_{t-1}^{O} + D_{t-1}^{LTN} + D_{t-1}^{LTR}} \qquad (7)$$

$$(1-\beta_{t-1}) = \frac{D_{t-1}^{O}}{D_{t-1}^{O} + D_{t-1}^{LTN} + D_{t-1}^{LTR}} \qquad (8)$$

Hence, replacing iir_t^{LT} in (3) by its expression in (6) gives:

$$iir_t = a_{t-1}.\, i_t^{ST} + b_{t-1}.\, i_t^{LT} + (1-a_{t-1}-b_{t-1}).\, iir_{t-1}^{LT} \qquad (3)'$$

From equation (3)', we can see that the implicit interest rate on government debt at year t is a weighted average of market short-term and long-term interest rates and of the implicit interest rate on outstanding (i.e. non-maturing) long-term debt in year $t-1$. Hence, depending on the weight of outstanding debt in total government debt, an increase of market interest rates will transmit more or less quickly to the implicit interest rate on government debt.

In the projections, the following assumptions are made:

- i_t^{LT} and i_t^{ST} are supposed to converge linearly by T+10 to the short term and 10 year long term forward rates.

- After T+10, i_t^{LT} is supposed to converge linearly to 4% in nominal terms ([126]) (2% in real terms) for all countries by the T+30 horizon;

- i_t^{ST} is supposed to converge linearly to i_t^{LT} time a coefficient corresponding to the historical (pre-crisis) EA yield curve (currently 0.5) for all countries by the T+30 horizon;

- new debt (D_{t-1}^{STN} and D_{t-1}^{LTN}) is assumed to be issued in the projections, as a proportion of the variation of government debt, based on the shares given by Estat (of short-term and long-term government debt), ([127]) whenever government debt is projected to increase; ([128])

- short-term debt issued in year $t-1$ is assumed to entirely mature within the year, and to be rolled-over (D_{t-1}^{STR}) as a proportion of past government debt, based on the share of short-term government debt given by Estat, whenever government debt is projected to increase; ([129])

([126]) For some non-euro countries, the convergence value is higher: PL, RO: 4.5%; HU: 5%, reflecting higher inflation targets by the national central banks.
([127]) More precisely, we use the average shares over the last 3 years available.
([128]) Otherwise, in the cases where government debt is projected to decrease, for instance, in case of a budgetary surplus, no new debt needs to be issued.

- a fraction of long-term debt issued in the past is assumed to mature every year, and to be rolled-over (D_{t-1}^{LTR}), whenever government debt is projected to increase. (130) This fraction is estimated based on Estat data on the share of long-term government debt and on ECB data on the share of existing long-term debt maturing within the year. (131)

Finally, the values of the different variables *over the forecast horizon* (especially i_t^{LT}, i_t^{ST} and iir_{t-1}^{LT}) are set consistently with the available forecast values of the implicit interest rate (iir_t) and information on the maturity structure of debt.

A3.3. TECHNICAL OVERVIEW OF THE T+10 METHODOLOGY

The following model is solved from T+3 up to T+10 (note that as of T+6, for the EU-15 without Germany, the model for the capital and investment module deviates from the general framework below and is governed by the rules described further down in the text):

$$YPOT_{it} = LS_{it}^{\alpha} K_{it}^{(1-\alpha)} TFPS_{it}$$

$$TFP_{it} = \frac{Y_{it}}{H_{it}^{\alpha} K_{it}^{(1-\alpha)}}$$

$$K_{it} = I_{it} + (1-\delta) K_{it-1}$$

$$I_{it} = \frac{I_{it}}{YPOT_{it}} YPOT_{it}$$

$$Y_{it} = YPOT_{it}(1 + YGAP_{it}) * 100$$

1. TFP trend: Kalman-filter extension. T+10 TFP is capped (i.e. a ceiling is imposed) on the basis of US TFP growth.

2. Capital:

a) Investment to potential GDP ratio: ARIMA process to produce extended series (extension to avoid end-point bias for HP filter)

b) Depreciation rate: fixed T+2 rate which is calculated on the basis of the capital law of motion

c) Investment rule: (K_{it} and I_{it} as defined in the equation system above) up to T+5; after T+5: a mix between a capital rule (K_{it} defined as $K_{it-1} \frac{YPOT_{it}}{YPOT_{it-1}}$) and I_{it} defined by capital law of motion) and the investment rule for EU-15 (except DE); investment rule for all other member states. The weight of the capital-rule based investment is gradually decreasing.

(129) Otherwise, in the cases where government debt is projected to decrease, for instance, in case of a budgetary surplus, only part of this maturing debt needs to be rolled-over (none when government debt is assumed to strongly decrease, for example, when a large budgetary surplus allows repaying past maturing debt).

(130) See previous footnote.

(131) More precisely, the starting point (currently 2023) is calculated based on the 2022 ECB data on the share of long-term debt that is maturing within the year. Beyond this year, it is assumed that the share of maturing long-term debt linearly converges from the value taken in the last available year (2023) to the country-specific historical average by the end of the T+10 projection horizon. Additionally, for post-program countries, IE, CY and PT, the redemption profile of official loans has been taken into account for the calculation of the long-term debt maturing within the year.

3. Trend labour: $LS_{it} = \left(POPW_{it}PARTS_{it}(1 - NAWRU_{it})\right)HPERES_{it}$

a) Working age population: use Eurostat projections on population growth ("proj_np")

b) Participation rate: up to T+5: HP-smoothed ARIMA process to produce extended series (extension beyond T+5 to avoid end-point bias for HP filter); for projection up to T+10 we use Ageing Working Group (AWG's) Cohort Simulation Model with a technical transition rule smoothing the break in T+6.

c) Average hours worked: ARIMA process to produce extended series up to T+5 (extension to avoid end-point bias for HP filter) and HP smoothed. From t+6 to t+10 we forecast hours using a stabilisation rule: hours(t) = hours(t-1)*1.5 – hours(t-2)*.5. Results are comparable with those from the AWG.

d) NAWRU (T+2 = last year of the ECFIN forecast):

Between T+2 and T+5:

$$NAWRU_{iT+1} = NAWRU_{iT} + \frac{NAWRU_{iT} - NAWRU_{iT-1}}{2}$$

$$NAWRU_{iT+2} = NAWRU_{iT+1}$$

$$NAWRU_{iT+3} = NAWRU_{iT+2}$$

Between T+6 and T+10: convergence rule and prudent rule

T+10 anchor based on panel regression (union density, tax wedge, almp, unemployment benefits replacement rate, demographics/education and a set of macro control variables i.e. TFP, real interest rate, construction)

4. Output gap: closure of the output gap by T+5; each year as of T+3, YGAP decreases by 1/3 of the T+2 YGAP. The gap closure rule states that if the gaps are not closed before the end of the medium term (T+5), they should be mechanically closed by that time.

A3.4. PROPERTY INCOME

The evolution of property income over time has been taken into account in the assessment of the medium and long-term sustainability of public finances since the 2007/08 round of assessments.

In the context of this report, property income received by Member States is considered to be the sum of returns from three categories of general government financial and non-financial assets: i) interest from debt securities – bonds, ii) dividends from equity securities – shares and iii) rents from tangible non-produced non-financial assets such as land and subsoil assets (i.e. natural resources water, mineral and fossil fuels). ([132])

([132]) This definition is somewhat narrower than the one used in national accounts, where property income (D.4) is as well the income from financial assets and non-produced non-financial assets, but sub-categories considered for these assets are more comprehensive. In national accounts the financial instruments giving rise to interest are, in addition to debt securities, monetary gold / SDRs, deposits, loans and other accounts. The use of produced non-financial assets such as buildings is a fee (P.11 / P.131).

Property income is projected up to 2070, affecting both the medium and long term fiscal sustainability assessment in the form of S1 and S2 indicators. ([133]) Property income projections are separate from and additional to present property income accounted for in the actual balances reported every year by Member States under the SCP scenario, as well as to property income reflected in the two-year forecast horizon.

In calculating the sustainability gaps, property income received by governments is explicitly modelled in a way that is different from government revenues in general. Government revenues in general are a function of the tax bases and the rates chosen by the government. Property income differs from this generalised assumption in that it is determined by market conditions rather than policy settings.

However, since the future stocks of assets and the expected rate of return on these assets that generate income for Member States' governments in the future are not always known, to render projections manageable, a number of simplifying assumptions are made.

In order to model the evolution of property income, the key assumption is that, except in the case of the building-up of pension funds, ([134]) there is no net sale or purchase of assets in the future. As such, projections for the three categories of property income rely on the general assumption that the stock of financial and non-financial assets generating this income remains constant over time ([135]) at the level of latest available data, i.e. at the values posted in T-1. This assumption implies that there is no future sale or redemption of government assets, that when short-term assets (such as bonds) mature, they are implicitly assumed to be replaced with other bonds of the same nominal value, and that property income flows received by a government from the current stock of assets are used to reimburse debt through its contribution to the general government balance, rather than to purchase other assets.

Consequently, future property income is assumed to be generated only from the upcoming returns on the assets stock and property income projections are modelled by just using further assumptions on the future evolution of the rate of return on assets.

In this sense, returns for equity and non-financial assets (rents) are generally considered to occur in line with GDP projections, whereas returns on bonds are underpinned by the additional assumptions described below.

All data for property income projections comes from Eurostat (general government property income subcategories bonds D41, equity D42 and rents D45).

Bond returns projection

These projections are based on an agreement reached in 2009 by the Economic Policy Committee's Working Group on Ageing Populations and Sustainability (AWG) and later supported in the context of the preparation of subsequent Ageing Reports, as well as on some additional assumptions.

Returns on bonds (D.41) have been considered to be as follows:

In the medium run (between T and T+30): country-specific yields on 10y government bonds apply as starting point in present year T to gradually converge to a 4% yield applied in T+30.

([133]) In the calculation of sustainability indicators (S1 and S2), the projected path of property income is conventionally included in the sub-indicator "initial budgetary position" (IBP).

([134]) In Finland and Luxembourg, the public pension system currently registers surpluses, recorded as part of the general government headline balance. These surpluses are then used for the building-up of pension funds – and not to reduce debt -, materialising through the acquisition of financial assets (See Part II.2). In this section, we focus on the projections of government financial assets position, *abstracting from* the change in the pension fund position.

([135]) Exception are natural resources for Denmark and the Netherlands, see below.

In the medium to long run (as of T+30): a constant 4% yield applies; this horizon and value are in line with the horizon used for government debt projections.

Equity returns projection

These projections are based on a method agreed by the AWG since 2007.

Using income from equity - D.42 which reports distributed returns - country-specific shares of paid dividends in GDP are calculated for the last year of available data, T-1; for each country it is considered this share remains constant over the projection horizon, thereby implicitly assuming continuing valuation effects in line with nominal GDP growth.

Rents projection

These projections are based on a method agreed by the AWG since 2007.

The share of rents (D45) to GDP is calculated for the last year of available data for each country, T-1. ([136]) This share is assumed to remain constant over the projection horizon for all countries except Denmark and the Netherlands. For these two countries rich in fossil fuels the stock of subsoil assets is assumed to deplete by 2050, so that the share of rents to GDP in these countries would decline linearly to reach the EU average ([137]) by 2050.

Returns on real estate (rentals on buildings etc.) are not included in property income in the National Accounts since they are produced and often consumed by the general government.

In sum, considering these hypotheses, the projected path of property income ultimately depends on the stock of bonds held at the start of the projection period (the higher the bonds stock, the steeper the decline in property income over time) given that the return on these bonds is assumed to converge to a 4% yield in the medium-long term.

Since both elements can affect property income projections markedly, mitigating assumptions on the starting point and length of bond returns convergence aim to avoid unrealistic boosts to property income projections (and thereby too large of a required SPB adjustment), in particular in countries with significant property income shares.

([136]) This is a simplification. Rents projections should combine the size of reserves, the timing of exploitation and the euro value of the commodity (assumption).

([137]) This average excludes excluding Denmark and the Netherlands.

ANNEX A4
Data and methodology for the stochastic debt projections

Stochastic debt projections capture a wide range of uncertainties surrounding debt dynamics. ([138]) Stochastic projections are essential for understanding the different ways in which shocks to government budgetary positions, economic growth, interest rates and exchange rates can affect debt dynamics. The shocks are calibrated taking into account country-specific conditions, namely the observed volatility in the past and the correlation between the different variables. Thus, unlike deterministic projections, which provide a single outcome based on a given scenario, stochastic projections provide a spectrum of possible debt trajectories.

This annex describes the methodology and data used for the Commission's stochastic debt projections and is divided into five sections. Section A4.1 lists the choice of variables subject to the stochastic shocks. Section A4.2 presents the quarterly data used to generate the stochastic shocks. Section A4.3 describes the methodology to derive the *annual* stochastic shocks. Section A4.4 shows how the shocks are used to obtain the debt dynamics. Finally, Section A4.5 describes the minor technical improvements made compared to the 2022 Debt Sustainability Monitor.

A4.1. CHOICE OF VARIABLES FOR STOCHASTIC SHOCKS

The key drivers of debt dynamics can be captured by the debt accumulation equation:

$$d_t = \alpha^n d_{t-1}\frac{1+i_t}{1+g_t} + \alpha^f d_{t-1}\frac{1+i_t}{1+g_t}\frac{e_t}{e_{t-1}} - b_t + c_t + f_t$$

where the components of the equation are the total government debt-to-GDP ratio in year *t* (d_t), the share of total debt denominated in national currency (α^n) and foreign currency (α^f), the implicit interest rate (i_t), the nominal GDP growth rate (g_t), the nominal exchange rate expressed in national currency per unit of foreign currency (e_t), the primary balance over GDP (before ageing costs) (b_t), the change in age-related costs over GDP in year t relative to the starting year (c_t) ([139]) and the stock-flow-adjustments (SFA) over GDP (f_t).

Stochastic shocks are simulated around the baseline for five variables of the debt accumulation equation, namely: the primary balance, the nominal short- and long-term interest rates, the nominal GDP growth rate and the exchange rate (for non-EA countries). ([140])

A4.2. QUARTERLY DATA

Quarterly data are used to compute the historical variance-covariance matrix. ([141]) Data for the government primary balance, nominal GDP growth rate and nominal exchange rate are taken from Eurostat (see Table A4.1 for an overview). Data for nominal short-term interest rates come from Eurostat and the Organisation for Economic Co-operation and Development (OECD). Nominal long-term interest rates come from Eurostat and the European Central Bank (ECB).

The definition of the variables generally follows the one used for the Commission's deterministic projections. As a rule, the definition of the variables aligns with the one used for the Commission's annual projections. The (quarterly) primary balance series is calculated as the sum of headline balance

([138]) The approach is based on Berti (2013), Stochastic public debt projections using the historical variance-covariance matrix approach for EU countries, *European Economy. Economic Papers*, No. 480. and on Beynet and Paviot (2012), Assessing the sensitivity of Hungarian debt sustainability to macroeconomic shocks under two fiscal policy reactions, *OECD Economics Department Working Paper*, No. 946.
([139]) The latter are net of taxes on pension. Property income are also included in this variable.
([140]) In the simulations, SFA are not subject to stochastic shocks.
([141]) The use of quarterly data allows to have sufficiently long time-series.

and interest payments and it is seasonally adjusted using the Census X-12-ARIMA approach. Small differences in the definitions of the interest rate series exist for Bulgaria and Estonia due to missing data availability. ([142])

The sample period ranges from Q1 2000 to Q3 2023 for most countries. This period may be shorter depending on data availability. Table A4.1 contains information on missing observations.

Outliers are identified and mitigated using a winsorising approach. For each variable and country within the sample period, the 5th and 95th percentiles are identified (based on the same sample). Observations outside these thresholds are considered outliers and replaced by the closest percentile value.

A4.3. METHODOLOGY FOR STOCHASTIC SHOCKS

The annual stochastic shocks are determined in four steps:

1. ***Transformation of (quarterly) variables into historical shocks****:* Each macroeconomic variable x is transformed into a series of historical quarterly shocks (δ_q^x), defined as the first difference of the quarterly time series of the five macroeconomic variables:

$$\delta_q^x = x_q - x_{q-1}$$

with x equal to pb, i^{ST}, i^{LT}, g and e (for non-EA countries).

2. ***Calculation of the variance-covariance matrix***: The variance-covariance matrix for the historical quarterly shocks of the five variables is calculated. The variance-covariance matrix captures country-specific conditions, namely the observed volatility in the past and the correlation between the different variables, and provides the basis for simulations over the 5-year projection period.

3. ***Run Monte Carlo simulations***: 10 000 random vectors of quarterly shocks are generated over the 5-year projection period, assuming a joint normal distribution with zero mean and variance-covariance matrix identical to that of historical quarterly shock. Although the assumption of a joint normal distribution may not perfectly match the empirical distributions observed in the data, it is strategically chosen for two main reasons. First, it simplifies the computational processes involved in the simulations, making the analysis more manageable. Second, it reduces the likelihood of drawing extreme outliers that could significantly distort the projections and lead to less reliable scenarios.

4. ***Aggregation into annual shocks***: The quarterly shocks (ε_q) are then aggregated into annual shocks of the five variables as described below.

4.1. It is assumed that the shocks to the GDP growth rate, the primary balance, the exchange rate and the short-term interest rate only affect the year *t* in which they occur, but are not persistent. The annual shock to these variables (*z*) in year *t* (ε_t^z) is then determined by the sum of the quarterly shocks, i.e.:

$$\varepsilon_t^z = \sum_{q=1}^{4} \varepsilon_q^z$$

([142]) Nominal short-term interest rates, as measured by the three-month money market rates, are not available in Eurostat for Bulgaria after 1 July 2018 and were replaced by OECD data. Nominal long-term interest rates, as measured by the long-term government interest rates (EMU convergence criterion), are not available for Estonia between January 2000 and May 2020 and were replaced by ECB data on bank interest rates. For more details see Table A.4.1.

4.2. It is assumed that the shock on the long-term interest rate (i^{LT}) is persistent. The reason is that the long-term debt issued/rolled over at the time of the shock remains in the debt stock at the market rate prevailing at the time of issue for all years until maturity. ([143]) A shock to the long-term interest rate in year *t* is therefore carried over to the following projection years in proportion to the share of maturing debt that is progressively rolled over. ([144]) The definition of the annual shock to the long-term interest rate depends on the average weighted maturity of debt. ([145])

4.2.1. For countries where the *average weighted maturity of debt* is equal to or greater than the number of projection years (T = 5 years), the annual shock ($\varepsilon_t^{i^{LT}}$) in the first projection year (t = 1) is calculated by the sum of the quarterly shocks, i.e.:

$$\varepsilon_t^{i^{LT}} = \frac{1}{T}\sum_{q=1}^{4} \varepsilon_q^{i^{LT}}$$

In the following four projection years (t = 2, …, 5), the annual shocks are calculated by averaging the effect of the current year and those of the previous year(s), i.e.:

$$\varepsilon_t^{i^{LT}} = \frac{\mathrm{t}}{T}\sum_{q=-(\mathrm{n}-1)*4}^{4} \varepsilon_q^{i^{LT}}$$

where in each year q = -4, -8, -12, -16 points to the first quarter of the previous one to four years, respectively, indicating that the calculation considers the impact of interest rate changes from those quarters on the current year's long-term interest rate shock.

4.2.2. For countries where the *average weighted maturity of debt is less than the number of projection years (T < 5)*, the above equations are adjusted accordingly to reflect a shorter carry-over of past shocks. For example, for countries with an average weighted maturity of three years (T = 3), the annual shock to the long-term interest rate is defined in the first and second projection year (t = 1) is defined as:

$$\varepsilon_t^{i^{LT}} = \frac{t}{3}\sum_{q=1}^{4} \varepsilon_q^{i^{LT}}$$

In the second projection year (t = 2) the shock is:

$$\varepsilon_t^{i^{LT}} = \frac{t}{3}\sum_{q=-4}^{4} \varepsilon_q^{i^{LT}}$$

In the third, fourth and fifth projection year (t = 3, …, 5), the shock is calculated as follows:

$$\varepsilon_t^{i^{LT}} = \sum_{q=-8}^{4} \varepsilon_q^{i^{LT}}$$

([143]) The implicit assumption made here is that long-term government bonds are issued at fixed interest rates only.
([144]) Country-specific data on the share of short- and long-term debt are provided by Eurostat and are updated each autumn.
([145]) Data for the average weighted maturity of debt by country come from the ECB and national sources if needed and are updated each autumn.

Finally, the shock to the implicit interest rate i (ε_t^i) is calculated as the weighted average of the annual shocks to the short- and long-term interest rates, i.e.:

$$\varepsilon_t^i = \alpha^{ST}\varepsilon^{i^{ST}} + \alpha^{LT}\varepsilon^{i^{LT}}$$

where α^{ST} is the share of short-term debt in total government debt and $\alpha^{LT} = (1 - \alpha^{ST})$ reflect the share of long-term debt in total government debt. These shares are taken from Eurostat. ([146])

A4.4. DERIVING THE STOCHASTIC DEBT PROJECTIONS

The stochastic debt projections assume that the shocks to the baseline are temporary. The annual shocks are applied to the baseline value of the variables as follows:

$b_t = \bar{b}_t + \varepsilon_t^b$ with $\bar{b}_t$ = baseline (from standard deterministic projections) primary balance at year *t*

$g_t = \bar{g}_t + \varepsilon_t^g$ with $\bar{g}_t$ = baseline (from standard deterministic projections) nominal GDP growth at year *t*

$i_t = \bar{\imath}_t + \varepsilon_t^i$ with $\bar{\imath}_t$ = baseline (from standard deterministic projections) implicit interest rate at year *t*

$e_t = \bar{e}_t + \varepsilon_t^e$ with $\bar{e}_t$ = baseline (from standard deterministic projections) nominal exchange rate at year *t*

In other words, if the shock in year *t* were equal to zero, the value of the variable would be the same as in the standard deterministic baseline projections.

The shocks are then entered into the debt accumulation equation to calculate debt ratios over a five-year horizon. All the steps described in Section A4.4 are repeated 10 000 times. This provides annual distributions of the debt ratio over the 5 projection years, from which we extract the percentiles to construct the fan harts.

A4.5. TECHNICAL IMPROVEMENTS COMPARED WITH THE DEBT SUSTAINABILITY MONITOR 2022

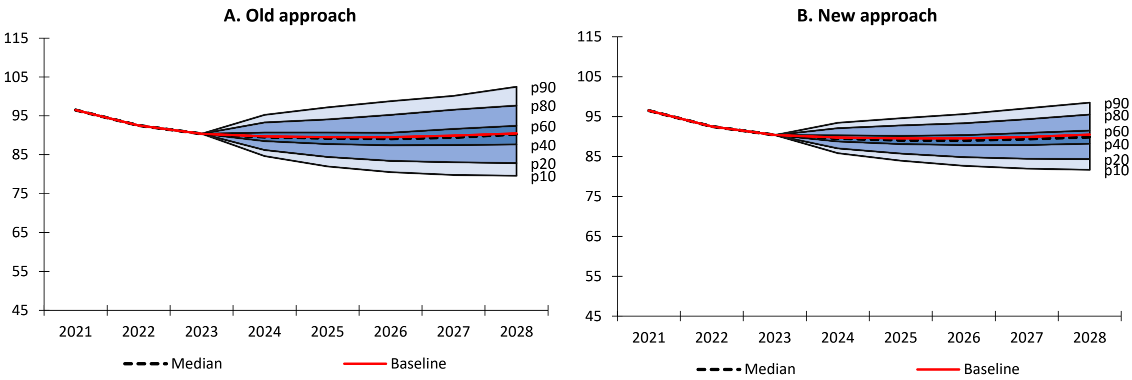
The Commission's methodology for the stochastic debt projections is well-established. The stochastic debt projections methodology was developed in 2013 ([147]) based on a variance-covariance matrix approach and has played an important role in the Commission's DSA since then, in particular in the DSA risk classification approach developed in 2016. ([148])

The following minor technical improvements were made in this current edition of the DSM:

Improvement of the quarterly dataset. The quarterly dataset used to construct the variance-covariance matrix was improved by making Eurostat the dominant source. Missing observations were filled with data from only two additional sources, namely the ECB and the OECD.

([146]) More precisely, we use the average shares over the last 3 years available.
([147]) Berti (2013).
([148]) In the Fiscal Sustainability Report 2015, an innovation was introduced compared with Berti (2013), by applying direct shocks to the primary balance (see European Commission (2016), Fiscal Sustainability Report 2015, *Institutional Paper*, No 18).

Graph A4.1: **Impact of improvements on stochastic debt projections - old vs. new approach (EA aggregate, in % of GDP)**



Source: Commission services.

Harmonisation of the sample length: The sample now starts in Q1 2000 for all countries to ensure consistency across countries, and an almost balanced panel.

Streamlining of detection and correction of outliers: Outliers are now identified and mitigated using the same winsorising approach for all countries. This helps to treat outliers consistently across countries based on a state-of-the-art methodology.

Number of random draws increased. The number of random draws was increased from 2 000 to 10 000 in line with academic standards.

Overall, the small improvements contribute to a simpler and more consistent database with limited impact on the stochastic debt projections (see Graph A4.1). A comparison with the old approach shows that the impact on the stochastic debt projections is small. For the EA aggregate, the cone width slightly decreases.

Table A4.1: **Overview of data sources to compute the historical variance-covariance matrix for the stochastic debt projections**

Variable	Frequency	Definition	Source
Exchange rate	Quarterly	Nominal exchange rate, average in national currency (= national currency for 1 euro). *Note:* Exchange rate shocks are only considered for the following six countries: CZ, DK, HU, PL, RO and SE. Since BG pegged its exchange rate to the Euro in 2005, no exchange rate volatility is expected in the future and hence no exchange rate shock is considered.	Eurostat (AVG-NAC in database ERT-BIL-EUR-Q)
Nominal GDP growth	Quarterly	Gross domestic product at current prices, million units of national currency, percentage change compared to corresponding period of previous year, seasonally and calendar adjusted data *Note:* Missing values for MT (Q1 2000 to Q4 2000)	Eurostat (national account indicator: B1GQ, unit of measure: CP_MNAC, dataset: NAMQ_10_GDP)
Short-term interest rate	Quarterly (derived from monthly averages)	Three-month money market rates, in percent per annum *Note:* • The short-term interest rate for euro area countries is identical and measured by the Euribor. For countries that joined the euro area during the sample period (EE in 2011, LV in 2014, LT in 2015 and HR in 2023), the Euribor is used between 2000 and euro area entry. • BG: Production of SOFIBOR reference rate was discontinued by the national central bank as of 1 July 2018; data filled with OECD data (see source on the right column)	Eurostat (interest rate: IRT_M3, time frequency: M, dataset: IRT_H_MR3_M OECD - Monthly Monetary and Financial Statistics (MEI)
Long-term interest rate	Quarterly (derived from monthly averages)	Government long-term interest rates (EMU convergence criterion), in percent per annum *Note*: Missing values: • CZ (Q1 2000) • CY, HU, LT, LV, MT, PL, SK (Q1 2000 to Q4 2000) • SI (Q1 2000 to Q4 2001) • BG (Q1 2000 to Q4 2002) • RO (Q1 2000 to Q1 2005) • HR (Q1 2000 to Q3 2005) • EE (Jan 2000 - May 2020) missing values are filled with ECB bank interest rate data (see source on the right column)	Eurostat (interest rate: MCBY, time frequency: M, dataset: IRT_LT_MCBY_M) ECB – MIR - MFI Interes Rate Statistics (MIR.M.EE.B.A2C.I.R.A.2 250.EUR.N; MIR.M.EE.B.A2L.A.R.A.2 230.EEK.N)
Primary balance - Net lending/ borrowing	Quarterly	Net lending/borrowing as percentage of GDP	Eurostat (national account indicator: B9, sector: S13, seasonal adjustment: NSA, unit c

(Continued on the next page)

Table (continued)

			measure: PC_GDP, time frequency: Q, dataset: GOV_10Q_GGNFA)
- Interest payable	Quarterly	Interest expenditure as a percentage of GDP, unadjusted data *Note:* Missing values: • AT (Q1 2000 to Q4 2000) • DE, EE, IE, LU (Q1 2000 to Q4 2001) • All countries (Q3 2023)	Eurostat (national account indicator: D41PAY, sector: S13, seasonal adjustment: NSA, unit of measure: PC_GDP, time frequency: Q, dataset: GOV_10Q_GGNFA)

Source: Commission services.

ANNEX A5
The long-term fiscal sustainability indicators (S1, S2)

A5.1. NOTATION

t: time index. Each period is one year

t_0: last year before the fiscal adjustment (2024 in this report).

$t_0 + 1$: first year of the long-term projection period (i.e. year of the fiscal adjustment).

t_1: final year of the long-term projection period (2070), which also corresponds to the target year for the debt ratio (relevant for S1).

Notice that $t_0 < t_1$.

D_t: debt-to-GDP ratio (at the end of year t).

PB_t: ratio of primary balance to GDP

$\Delta PB_t \equiv PB_t - PB_{t_0}$: change in the primary balance relative to the base year t_0. In the absence of fiscal adjustment, it equals the change in age related expenditure

$\Delta A_t \equiv A_t - A_{t_0}$: change in age-related costs relative to the base year t_0.

ΔPI_t: change in property income relative to the base year t_0.

CC_t: cyclical component of the general government balance (only relevant in the first years, by definition, it is zero over the long term as it vanishes with the closure of the output gap)

$SPB_t = PB_t - CC_t + one\text{-}offs_t$: ratio of structural primary balance to GDP, i.e. cyclically adjusted primary balance net of one-off and other temporary measures

r: differential between the nominal interest rate and the nominal GDP growth rate i.e.

$1 + r \equiv \frac{1+R}{1+G}$: where R and G are, respectively, the nominal interest rate and the nominal growth rate.

If the interest-growth rate differential is time-varying, we define:

$$\alpha_{s;v} \equiv (1 + r_{s+1})(1 + r_{s+2}) \dots (1 + r_v)$$

$$\alpha_{v;v} \equiv 1$$

as the accumulation factor that transforms 1 nominal unit in period s to its period v value.

A5.2. DEBT DYNAMICS

By definition, the debt-to-GDP ratio evolves according to:

$$D_t = (1 + r_t)D_{t-1} - \mathrm{PB}_t. \quad (1)$$

That is, the debt ratio at the end of year t, D_t, is a sum of three components: the debt ratio at the end of the previous year (D_{t-1}), interest accrued on existing debt during year t (rD_{t-1}), and the negative of the primary balance ($-\mathrm{PB}_t$).

Repeatedly substituting for D_t, the debt ratio at the end of some future year $T > t$ can be expressed similarly, as:

$$D_T = D_{t-1}\alpha_{t-1;T} - \sum_{i=t}^{T}\left(\mathrm{PB}_i\alpha_{i;T}\right). \tag{2}$$

The path of the debt ratio is thus determined by the initial debt ratio, accrued interest (net of growth), and the path of primary balances from t through T.

A5.3. DERIVATION OF THE S1 INDICATOR

The S1 indicator is defined as the immediate and permanent one-off improvement in the ratio of structural primary balance to GDP that is required to bring the debt ratio to 60% of GDP by year t_1 (2070).

In addition to accounting for the need to adjust the initial intertemporal budgetary position and the debt level, it incorporates financing for any additional expenditure until the target date arising from an ageing population.

Under the assumed immediate and permanent one-off consolidation, the change in the primary balance is thus given by

$$\mathrm{PB}_i = \mathrm{SPB}_{t_0} + S_1 - \Delta A_i + \Delta PI_i + CC_i \qquad \text{for } i > t_0 \tag{3}$$

Using (2), the debt ratio target D_{t_1} can then be written as:

$$D_{t_1} = D_{t_0}\alpha_{t_0;t_1} - \sum_{i=t_0+1}^{t_1}\left(\mathrm{PB}_i\alpha_{i;t_1}\right) \tag{4}$$

Replacing (3) into (4) yields:

$$D_{t_1} = D_{t_0}\alpha_{t_0;t_1} - \sum_{i=t_0+1}^{t_1}\left(\mathrm{SPB}_{t_0} + S_1\right)\alpha_{i;t_2} + \sum_{i=t_0+1}^{t_1}\left(\left(\Delta A_i - \Delta PI_i - CC_i\right)\alpha_{i;t_1}\right) \tag{5}$$

After some straightforward manipulations, ([149]) we can decompose the S1 into the following main components:

$$S_1 = \underbrace{\frac{D_{t_0}\left(\alpha_{t_0;t_1} - 1\right)}{\sum_{i=t_0+1}^{t_1}\left(\alpha_{i;t_1}\right)} - \mathrm{SPB}_{t_0} - \frac{\sum_{i=t_0+1}^{t_1}\left(\Delta PI_i\alpha_{i;t_1}\right)}{\sum_{i=t_0+1}^{t_1}\left(\alpha_{i;t_1}\right)} - \frac{\sum_{i=t_0+1}^{t_1}\left(CC_i\alpha_{i;t_1}\right)}{\sum_{i=t_0+1}^{t_1}\left(\alpha_{i;t_1}\right)}}_{A} + \underbrace{\frac{D_{t_0} - D_{t_1}}{\sum_{i=t_0+1}^{t_1}\left(\alpha_{i;t_1}\right)}}_{B} + \underbrace{\frac{\sum_{i=t_0+1}^{t_1}\left(\Delta A_i\alpha_{i;t_1}\right)}{\sum_{i=t_0+1}^{t_1}\left(\alpha_{i;t_1}\right)}}_{C} \tag{6}$$

where (A) is the initial budgetary position (IBP) (i.e. the gap to the debt-stabilising primary balance); (B) the required additional adjustment due to the debt target; and (C) the additional required adjustment due to the costs of ageing.

([149]) Add and subtract D_{t_0} on the LHS of (5), divide on both sides by $\sum_{i=t_0+1}^{t_1}\left(\alpha_{i;t_1}\right)$ and group the terms as in (6).

A5.4. DERIVATION OF THE S2 INDICATOR

The intertemporal budget constraint and the S2 indicator

According to a generally invoked definition, fiscal policy is sustainable in the long term if the present value of future primary balances is equal to the current level of debt, that is, if the intertemporal government budget constraint (IBC) is met. Let us define the S2 as the immediate and permanent one-off fiscal adjustment that would ensure that the IBC is met. This indicator is appropriate for assessing long-term fiscal sustainability in the face of ageing costs. (150)

Since the S2 indicator is defined with reference to the intertemporal government budget constraint (IBC), we first discuss which conditions are required for the IBC to hold in a standard model of debt dynamics. From (2), the debt to GDP ratio at the end of any year $t > t_0$ is given by:

$$D_t = D_{t_0}\alpha_{t_0;t} - \sum_{i=t_0+1}^{t} (PB_i \alpha_{i;t}). \tag{7}$$

Rearranging the above and discounting both sides to their time t_0 values, we obtain the debt ratio on the initial period:

$$D_{t_0} = \left(\frac{D_t}{\alpha_{t_0;t}}\right) + \sum_{i=t_0+1}^{t} \left(\frac{PB_i}{\alpha_{t_0;i}}\right). \tag{8i}$$

Assuming an infinite time horizon ($t \to \infty$) we get:

$$D_{t_0} = \lim_{t\to\infty}\left(\frac{D_t}{\alpha_{t_0;t}}\right) + \lim_{t\to\infty}\sum_{i=t_0+1}^{t} \left(\frac{PB_i}{\alpha_{t_0;i}}\right) = \lim_{t\to\infty}\left(\frac{D_t}{\alpha_{t_0;t}}\right) + \sum_{i=t_0+1}^{\infty} \left(\frac{PB_i}{\alpha_{t_0;i}}\right) \tag{8ii}$$

Either both of the limits on right-hand side of equation (8ii) fail to exist, or if one of them exists, so does the other.

Let us define the *no-Ponzi game condition* (also called the *transversality condition*) for debt sustainability, namely that the discounted present value of debt (in the very long term or in the infinite horizon) will tend to zero:

$$\lim_{t\to\infty}\left(\frac{D_t}{\alpha_{t_0;t}}\right) = 0 \tag{9i}$$

Condition (9i) means that asymptotically, the debt ratio cannot grow at a rate equal or higher than the (growth-adjusted) interest rate, which is what would happen if debt and interest were systematically paid by issuing new debt (i.e. a Ponzi game).

Combining the no-Ponzi game condition (9i) with (8ii), one obtains the intertemporal budget constraint, stating that a fiscal policy is sustainable if the present discounted value of future primary balances is equal to the initial value of the debt ratio.

(150) Note that the derivation of S2 does not assume that either the initial sequence of primary balances or the fixed annual increase (S2) are optimal according to some criterion. S2 should be considered as a benchmark and not as a policy recommendation or as a measure of the actual adjustment needed in any particular year.

$$D_{t_0} = \sum_{i=t_0+1}^{\infty} \left(\frac{PB_i}{\alpha_{t_0;i}}\right) \tag{9ii}$$

On the other hand, substituting the intertemporal budget constraint (9ii) into (8ii) implies the no-Ponzi game condition. This shows that the no-Ponzi game condition (9i) and the IBC (9ii) are, in fact, equivalent.

Assuming that the intertemporal budget constraint is satisfied through a permanent, one-off fiscal adjustment whose size is given by the S2, from $t_0 + 1$ onwards we can write:

$$PB_i = SPB_{t_0} + S_2 - \Delta A_i + \Delta PI_i + CC_i \quad \text{for} \quad i > t_0. \tag{10}$$

Then the intertemporal budget constraint (9ii) becomes

$$D_{t_0} = \sum_{i=t_0+1}^{\infty} \left(\frac{SPB_{t_0} + S_2 - \Delta A_i + \Delta PI_i + CC_i}{\alpha_{t_0;i}}\right). \tag{9iii}$$

Here the ratio of primary balance to GDP, PB_t is re-expressed in terms of the required annual additional effort, S2, and the change in age-related costs relative to the base year t_0 (as well as the change in property income and the cyclical component), combining the equation (10) with equation (9ii).

According to the theory on the convergence of series, necessary conditions for the series in equation (9ii)-(9iii) to converge are for the initial path of primary balances to be bounded and the interest rate differential in the infinite horizon to be positive ([151]). The latter is equivalent to the modified golden rule, stating that the nominal interest rate exceeds the real growth rate (i.e. $\lim_{t\to\infty} r_t > 0$). ([152])

After some rearranging, ([153]) we can decompose the S2 into the following two components:

$$S_2 = \underbrace{\frac{D_{t_0}}{\sum_{i=t_0+1}^{\infty}\left(\frac{1}{\alpha_{t_0;i}}\right)} - \mathrm{SPB}_{t_0} - \frac{\sum_{i=t_0+1}^{\infty}\left(\frac{\Delta PI_i + CC_i}{\alpha_{t_0;i}}\right)}{\sum_{i=t_0+1}^{\infty}\left(\frac{1}{\alpha_{t_0;i}}\right)}}_{A} + \underbrace{\frac{\sum_{i=t_0+1}^{\infty}\left(\frac{\Delta A_i}{\alpha_{t_0;i}}\right)}{\sum_{i=t_0+1}^{\infty}\left(\frac{1}{\alpha_{t_0;i}}\right)}}_{B} \tag{11}$$

where (A) is the initial budgetary position i.e. the gap to the debt stabilising primary balance ([154]); and (B) the additional required adjustment due to the costs of ageing.

If the interest-growth rate differential r is constant, the accumulation factor simplifies to $\alpha_{s;v} = (1 + r_{s+1})(1 + r_{s+2}) \dots (1 + r_v) = (1 + r)^{v-s}$. Then equation (10) can be simplified further by noting that:

$$\sum_{i=t_0+1}^{\infty} \left(\frac{1}{\alpha_{t_0;i}}\right) = \sum_{i=t_0+1}^{\infty} \left(\frac{1}{(1 + r)^{i-t_0}}\right) = \frac{1}{r} \tag{12}$$

Thus, for a constant discounting factor, (11) can be rewritten as:

([151]) The latter is an application of the ratio test for convergence.
([152]) See Escolano (2010) for further details on the relationships among the stability of the debt ratio, the IBC and the no-Ponzi game condition.
([153]) In addition, constant multiplicative terms are systematically taken out of summation signs.
([154]) In practical calculations, the present value of property income is also accounted for in the initial budgetary position. Property income enters the equation in an identical manner as age-related costs ΔA_t (i.e. term (B)), but with an opposite sign.

$$S_2 = \underbrace{rD_{t_0} - \mathrm{SPB}_{t_0} - r\sum_{i=t_0+1}^{\infty}\left(\frac{\Delta PI_i + CC_i}{\alpha_{t_0;i}}\right)}_{A} + \underbrace{r\sum_{i=t_0+1}^{\infty}\left(\frac{\Delta A_i}{\alpha_{t_0;i}}\right)}_{B} \tag{13i}$$

If the interest-growth rate differential and the structural primary balance are constant after a certain date (here $t_1 = 2070$), equation (11) can be rewritten as:

$$S_2 = \frac{D_{t_0}}{\sum_{i=t_0+1}^{2069}\left(\frac{1}{\alpha_{t_0;i}}\right) + \frac{1}{r\alpha_{t_0;2069}}} - \mathrm{SPB}_{t_0} - \frac{\sum_{i=t_0+1}^{2069}\left(\frac{\Delta PI_i + CC_i}{\alpha_{t_0;i}}\right) + \frac{\Delta PI_{2070} + CC_{2070}}{r\,\alpha_{t_0;2069}}}{\sum_{i=t_0+1}^{2069}\left(\frac{1}{\alpha_{t_0;i}}\right) + \frac{1}{r\,\alpha_{t_0;2069}}} + \frac{\sum_{i=t_0+1}^{2069}\left(\frac{\Delta A_i}{\alpha_{t_0;i}}\right) + \frac{\Delta A_{2070}}{r\,\alpha_{t_0;2069}}}{\sum_{i=t_0+1}^{2069}\left(\frac{1}{\alpha_{t_0;i}}\right) + \frac{1}{r\,\alpha_{t_0;2069}}} \tag{13ii}$$

where $r_t = r$ and $\Delta A_t = \Delta A_{2070}$ for $t \geq t_1 = 2070$.

Derivation of the steady state debt level (at the end of the projection period) corresponding to the S2

Assuming that the intertemporal budget constraint is satisfied and that the primary balance and the interest-growth rate differential are constant at their long-run levels after the end of the projection period, then the debt ratio remains constant at the value attained at the end point of the projection period (i.e. at $t_1 = 2070$).

To see this, rewrite (9ii) as:

$$D_{t_0} = \sum_{i=t_0+1}^{\infty}\left(\frac{PB_i}{\alpha_{t_0;i}}\right) = \sum_{i=t_0+1}^{t_1}\left(\frac{PB_i}{\alpha_{t_0;i}}\right) + \sum_{i=t_1+1}^{\infty}\left(\frac{PB_i}{\alpha_{t_0;i}}\right) \tag{14i}$$

Using (7) and the fact that for $t \geq t_1$ the primary balance and interest-growth rate differential stay constant at $\mathrm{PB}_t = \mathrm{PB}_{t_1}$ (14i) can be rearranged to obtain the debt ratio at t_1:

$$D_{t_1} = D_{t_0}\alpha_{t_0;t_1} - \sum_{i=t_0+1}^{t_1}(PB_i\alpha_{i;t_1}) = \sum_{i=t_1+1}^{\infty}\left(\frac{PB_i}{\alpha_{t_1;i}}\right) = \sum_{i=1}^{\infty}\left(\frac{PB_{t_1}}{(1+r_{t_1})^i}\right) = \frac{PB_{t_1}}{r_{t_1}} \tag{14ii}$$

Generalising the above to each $t \geq t_1$ by using (7) with the initial year changed to t_1 instead of t_0, (15) shows that for each year after t_1, the debt ratio remains unchanged at this value:

$$\begin{aligned} D_t &= D_{t_1}\alpha_{t_1;t} - \sum_{i=t_1+1}^{t}(PB_i\alpha_{i;t}) = \frac{PB_{t_1}}{r_{t_1}}(1+r_{t_1})^{t-t_1} - PB_{t_1}\sum_{i=t_1+1}^{t}(1+r_{t_1})^{t-i} = \\ &= \underbrace{\left[(1+r_{t_1})^{t-t_1} - r_{t_1}\left(\frac{1-(1+r_{t_1})^{t-t_1}}{1-(1+r_{t_1})}\right)\right]}_{=1}\frac{PB_{t_1}}{r_{t_1}} = \frac{PB_{t_1}}{r_{t_1}} \equiv \bar{\bar{D}} \quad \text{for} \quad t \geq t_1 \end{aligned} \tag{15}$$

where $\bar{\bar{D}}$ is the constant debt ratio reached after the end of the projection period.

Using (4), the primary balance at the end of the projection period can be calculated as:

$$PB_{t_1} = SPB_{t_0} + \Delta PI_{t_1} + CC_{t_1} + S_2 - \Delta A_{t_1} \tag{16}$$

Replacing (16) into (15), the constant (steady-state) debt ratio ($\bar{\bar{D}}$) is given by:

$$\overline{\overline{D}} = \frac{PB_{t_1}}{r_{t_1}} = \frac{SPB_{t_0} + \Delta PI_{t_1} + CC_{t_1} + S_2 - \Delta A_{t_1}}{r_{t_1}} \quad (17)$$

$$\text{for} \quad t \geq t_1$$

The S2 adjustment implies that the sum of debt and the discounted present value of future changes in aged-related expenditure is (approximately) constant over time.

Replacing equations (16) and (13i) into (15), and assuming a constant interest rate differential, the following equation is obtained:

$$D_t + \sum_{i=t+1}^{\infty} \left(\frac{\Delta A_i}{(1+r)^{i-t}}\right) - \sum_{i=t+1}^{\infty} \left(\frac{\Delta PI_i + CC_i}{(1+r)^{i-t}}\right) = D_{t_0} + \sum_{i=t_0+1}^{\infty} \left(\frac{\Delta A_i}{(1+r)^{i-t_0}}\right) - \sum_{i=t_0+1}^{\infty} \left(\frac{\Delta PI_i + CC_i}{(1+r)^{i-t_0}}\right) \quad (18)$$

Equation (18) can be interpreted as follows. Implementing a permanent annual improvement in the structural primary balance amounting to S2, which is both necessary and sufficient to secure intertemporal solvency, implies that the sum of explicit debt (the first term in both sides) and the variation in age-related expenditure or implicit debt (the second terms in both sides) is (approximately) constant over time. Equation (17) is exact in the steady state (e.g. after 2070), holding only as an approximation during transitory phases (i.e. for time-varying interest rate differentials). ([155])

([155]) Moreover, equations (17) and (18) imply that both the debt and the variation in age-related expenditure are constant over time in the steady state.

ANNEX A6

Estimating the potential impact of simulated bank losses on public finances based on the SYMBOL model

SYMBOL approximates the probability distributions of individual bank's losses using publicly available information from banks' financial statements. In particular, the model estimates an average implied default probability of the individual banks' asset/loan portfolios by inverting the Basel FIRB formula for capital requirements ([156]).

The main data source on banks' financial statements is Orbis Bank Focus, a commercial database of the private company Bureau van Dijk (part of Moody's analytics). For the reference year 2022, unconsolidated data for commercial, saving and cooperatives banks are included. The data as provided by Orbis Bank Focus occasionally lacks information on specific variables for some banks in the sample (e.g., capital, risk weighted assets, provisions, gross non-performing loans). In those cases, capital is imputed via a robust regression by using common equity, while risk weighted assets are approximated using the total regulatory capital ratio (at bank or country level). While gross loans are available for all banks, values for provisions and non-performing loans are available only for two thirds of the sample. Missing values for provisions have thus been estimated by country aggregates coming from the EBA dashboard ([157]), while missing values for non-performing loans have been imputed by applying a robust regression using provisions as explanatory variable. Information on the sample is presented in Table A6.1, and Table A6.2 report statistics at aggregated Member State level for non-performing loans (NPLs) and loans provisions, taken from the EBA dashboard, while recovery rates (country aggregates) are taken from the World Bank (2020). ([158]) The sample covers approximately 75% of all EU banking assets. When the sample, as illustrated in Table A6.1, either includes a small number of banks or covers a low share of total assets, results should be interpreted with caution, since a minor change to any bank's data or the addition of a new bank could have significant effects on results.

([156]) European Commission (2016) Section 5.2.2 and Annex A7 for more detail on the SYMBOL model.
([157]) EBA Risk Dashboard - data as of Q4 2022.
([158]) Due to issues in the data, the World Bank paused the 2021 Doing Business report to start a series of audits in the methodology. Thus, we use the recovery rates as of end 2020.

Table A6.1: **Descriptive statistics of samples used for SYMBOL simulations**

	Sample ratio *(Sample TA/ Population TA)*	Nbr.of banks	Total assets (TA)	Own funds (Total capital)	Risk weighted assets (RWA)	RWA/TA	Own funds (Total capital)/RWA
	%		EUR bn	EUR bn	EUR bn	%	%
BE	98.8%	24	1004.1	72.7	379.7	37.8%	19.1%
BG	92.2%	15	65.1	6.5	31.5	48.4%	20.7%
CZ	73.9%	17	253.4	21.3	96.4	38.1%	22.1%
DK	46.4%	48	530.5	49.3	201.8	38.0%	24.4%
DE	76.1%	1105	6645.8	497.6	2848.7	42.9%	17.5%
EE	101.2%	3	37.6	4.0	19.0	50.7%	21.2%
IE	31.0%	22	410.1	42.1	194.1	47.3%	21.7%
EL	96.8%	7	313.7	26.3	147.3	46.9%	17.8%
ES	88.7%	84	2535.5	208.5	1258.9	49.7%	16.6%
FR	78.2%	139	8468.4	471.1	2510.0	29.6%	18.8%
HR	106.0%	19	73.5	7.8	32.0	43.5%	24.5%
IT	73.5%	293	2752.0	228.3	1050.3	38.2%	21.7%
CY	83.9%	21	58.6	4.2	20.6	35.1%	20.7%
LV	110.4%	9	22.4	2.4	10.1	45.2%	23.8%
LT	80.4%	4	35.7	2.2	12.1	34.1%	18.4%
LU	36.4%	35	380.6	34.6	180.5	47.4%	19.2%
HU	63.3%	8	103.5	9.9	49.0	47.4%	20.2%
MT	67.5%	9	28.7	2.4	10.8	37.7%	22.3%
NL	72.9%	16	1842.4	139.4	660.3	35.8%	21.1%
AT	89.8%	405	888.9	85.2	398.7	44.9%	21.4%
PL	72.7%	122	408.2	36.0	192.1	47.1%	18.8%
PT	84.2%	90	345.4	28.9	149.3	43.2%	19.4%
RO	91.4%	14	113.8	11.5	50.8	44.7%	22.7%
SI	87.4%	9	43.2	4.7	23.5	54.5%	20.0%
SK	101.1%	8	94.2	7.8	49.4	52.5%	15.7%
FI	104.7%	114	665.6	44.1	209.2	31.4%	21.1%
SE	74.8%	79	989.9	95.9	338.6	34.2%	28.3%

(1) 2022 unconsolidated data.
Source: Commission services.

Table A6.2: **Descriptive statistics for Non-Performing Loans (NPL)**

	Gross loans	NPL Ratio Gross NPL/Gross loans	NPL/TA Gross NPL/TA	NPL/ Capital Gross NPL/Capital	Provisions	Recovery rate Baseline Scenario	NPL losses Baseline Scenario
	EUR bn	%	%	%	EUR bn	%	EUR bn
BE	560.3	0.9%	0.5%	6.6%	3.7	89.4%	0.46
BG	35.4	5.3%	2.9%	28.6%	1.4	37.7%	0.44
CZ	154.0	1.8%	1.1%	13.2%	2.5	67.5%	0.20
DK	209.5	2.3%	0.9%	9.9%	4.3	88.5%	0.04
DE	3599.8	2.2%	1.2%	15.7%	15.4	79.8%	36.04
EE	27.0	1.0%	0.8%	7.0%	0.2	36.1%	0.05
IE	122.3	3.8%	1.1%	11.0%	3.0	86.1%	0.27
EL	160.1	7.6%	3.9%	46.6%	6.1	32.0%	4.46
ES	1356.5	2.9%	1.5%	18.7%	24.9	77.5%	2.66
FR	2786.7	2.0%	0.7%	12.1%	27.5	74.8%	16.78
HR	41.0	4.5%	2.5%	23.7%	1.9	35.2%	0.09
IT	1743.7	2.9%	1.8%	22.0%	46.5	65.6%	5.60
CY	21.7	6.2%	2.3%	31.7%	0.5	73.8%	0.45
LV	12.2	3.0%	1.6%	15.1%	0.2	41.4%	0.15
LT	17.2	1.0%	0.5%	7.4%	0.1	41.4%	0.04
LU	154.5	1.8%	0.7%	7.8%	1.3	43.9%	1.00
HU	41.1	3.1%	1.2%	13.0%	1.2	44.2%	0.11
MT	13.7	4.0%	1.9%	22.7%	0.3	39.2%	0.15
NL	916.0	0.4%	0.2%	2.7%	3.5	90.1%	0.17
AT	497.6	4.7%	2.6%	27.3%	6.6	79.9%	9.27
PL	229.2	4.7%	2.6%	30.0%	9.3	60.9%	0.19
PT	192.3	2.8%	1.6%	18.7%	6.1	64.8%	0.01
RO	63.9	3.5%	2.0%	19.3%	3.0	34.4%	0.01
SI	23.6	1.7%	0.9%	8.4%	0.4	90.0%	0.00
SK	69.0	1.8%	1.4%	16.4%	1.4	46.1%	0.01
FI	267.7	1.6%	0.6%	9.7%	1.9	88.0%	0.66
SE	494.7	1.1%	0.5%	5.5%	4.9	78.1%	0.07

(1) 2022 unconsolidated data.
Source: Commission services.

1. The SYMBOL model at glance: A modelling framework for assessing public finances risks

The systemic model of banking-originated losses (SYMBOL) is a micro simulation model developed jointly by the European Commission’s JRC and DG FISMA to simulate banking crises and estimate the distribution of banking sector losses at country level, accounting for all the cushioning layers of the legal safety net available to absorb shocks (capital, bail-in, resolution funds). SYMBOL can be used to assess how losses originating in banks’ balance sheets potentially affect public finances due to government interventions to recapitalise banks. As input, it considers a rich dataset covering unconsolidated balance sheet data of banks in EU Member states. See for more information, the European Commission 2022 Debt Sustainability Monitor. Assessing risks for public finances with SYMBOL involves the following steps:

Overall, the SYMBOL results are estimated by calculating the Expected Shortfall of the more extreme realisations of the common factor, which might be considered as the general economic cycle. In practice, we select the simulations where the factor is above a threshold (three standard deviations) to compute the Expected Shortfall of the portfolio, namely the average value in the tail of the distribution, which represents the expected value of the portfolio losses in a crisis event. This calibration of the Expected Shortfall computation is in line with the crisis event defined in previous reports using the SYMBOL model.

1.1. Simulating banks' losses

Starting from the estimated average probability of default of the asset portfolio of each bank, SYMBOL generates realisations for each individual bank's credit losses using the Basel Foundation Internal Rating Based (FIRB) loss distribution function and assuming a correlation between simulated shocks hitting different banks in the system. ([159]) More formally, the output of the model is a matrix of losses, $L_{n,i}$:

$$L_{n,i} = LGD \cdot N\left[\sqrt{\frac{1}{1-R}}N^{-1}(IOPD_i) + \sqrt{\frac{R}{1-R}}N^{-1}\left(\alpha_{n,i}\right)\right]$$

where n denotes a simulation run, i indicates the bank, LGD is the Loss Given Default, $IOPD_i$ is the average implied obligors' probability of default, R_i is the coefficient of correlation among different obligators of $Bank_i$, and N is the normal distribution function, $N^{-1}(\alpha_{n,i})$ are correlated normal random shocks with correlation ρ.

The correlation structure among the simulated shocks across different financial institutions assumes that the different banks are hit in the national system, due to their common exposure to a common factor, i.e., the business cycle. That correlation is reinforced by including a '*fire sales* mechanism', which intensity is linked to size of the common shock underpinning the degree of asset correlation and eventually the asset value. This reflects that during a major crisis, many banks will be jointly engaged in asset selling activity to keep their liquidity positions, resulting in an overall deterioration of the asset values in all banks, that in turn would generate further losses and liquidity needs. Specifically, the correlated normal random shocks $\alpha_{n,i}$ includes a bank-specific element and a common factor across financial institutions, as follows:

$$N^{-1}\left(\alpha_{n,i}\right) = l \times Z_n + \sqrt{1-l^2} \times W_{n,i}$$

1.2. Determining banks' insolvency event and obtaining the aggregated distribution of losses

Based on the matrix of correlated losses, the failure of a bank is determined by comparing the size of simulated losses L_i and the regulatory capital available to absorb the shocks. A $bank_i$ is assumed insolvent and has excess losses $ExL_{n,i}$, when simulated losses ($L_{n,i}$) exhaust the sum of expected losses (EL_i) and total actual capital K_i, as follows:

$$\text{Failure} \equiv L_{n,i} - EL_{n,i} - K_i > 0$$

$$ExL_{n,i} = max(L_{n,i} - EL_{n,i} - K_i, 0)$$

In line with the Basel rules, recapitalisation needs (i.e. funds necessary to restore the bank's minimum level of capitalisation) up to 10.5% of risk weighted assets (RWA) are also factored in the losses in excess of capital. EU27 aggregate losses and recapitalisation needs are obtained by summing the individual losses in excess of capital plus recapitalisation needs of all distressed banks at country level (both failed and undercapitalised banks) in each simulation j:

$$ExLR_{n,i} = max(L_{n,i} - EL_{n,i} - K_i + 10.5\%\ RWA_i, 0)$$

([159]) The correlation is assumed to be 0.5 for all banks in the current simulation. All EU banks are simulated together.

1.3. Accounting for asset quality and non-performing loans

The SYMBOL model reflects risks that banks face in relation to asset quality in case of a banking crisis, taking into account how current stocks of non-performing loans (NPLs) would contribute to losses in national banking systems in each country. Namely, it assumed that non-collateralised NPLs would turn into loan losses for a Member States in case of systemic banking event, while the collateralised NPL are redeemable subject to a recovery rate. This mechanism generates extra losses, which might materialise even for banks not yet failed, and are added to those coming from the SYMBOL simulations before the intervention of any safety net tools. For the simulations based on the current situation, i.e., with impacts within a year time, extra loan losses from NPLs ($NPLLosses_i$) are added to those obtained from the SYMBOL simulation before the intervention of any safety net tools. Specifically, for each bank$_i$ and each country$_j$ potential loans losses from NPLs are as follows:

$$NPLLosses_i = (1 - CollShares_i) \times NPL_i + Collshares_i \times NPL_i \times (1 - RR_i) - Provisions_i$$

where RR_j is the recovery rate, *Collshares* ([160]) represents the proportion of total loans covered by collateral in country *j*. *Provisions* and *NPL* are respectively, the amount of provisions and gross non-performing loans declared by bank *i* in its balance sheet. We consider two different modelling assumption for the recovery rates. The first method uses a constant recovery rate per Member States calibrated on data provided by the World Bank. ([161])A second more sophisticated attempt builds on a result by Jarrow and Turnbull (2000), showing that the recovery rate is related to the state of economy. As many other authors (see Schlafer and Uhrig-Homburg 2014, Madan and Unal 1998, Gaspar and Slinko 2008), we therefore assume that the recovery rate distribution follows a beta distribution with two parameters. We calibrate the parameters so that the mean of the distribution equals the country recovery rate reported by the Word Bank and the standard deviation is equal to 10%. This second approach is used as a stress testing device, in conjunction with the introduction of a common factor to mimic a fire sale mechanism. ([162])

1.4. A “fire sale” mechanism for the severe stress scenario

During a crisis, banks will sell assets to keep their liquidity positions. In this case, as many banks jointly engage in such selling activity, asset value in all banks tends to deteriorate, generating further losses and liquidity needs. This has the effect of increasing the correlation among realised losses across different financial institutions in the presence of a bigger downturn. A new improvement of the model is the attempt to reflect this mechanism by reducing the value of assets in proportion to how strong is the common shock affecting all banks in the simulation. In other words, a larger common shock implies a more intense severe fire sales’ mechanism and a larger correlation between realised gross losses.

To mimic such mechanism, we make specific assumptions on the correlation of our normal random shocks. These shocks $\alpha_{n,i}$ can be decomposed into a bank-specific element and a factor that is common across institutions and represents the status of the economy (this can be seen as the first principal component of the economic cycle). ([163]) Formally, these shocks are defined as follows:

$$N^{-1}(\alpha_{n,i}) = l \times Z_n + \sqrt{1 - l^2} \times W_{n,i}$$

([160]) Based on ECB available here: www.sdw.ecb.europa.eu/browse.do?node=9689685.
([161]) Based on country data provided by the World Banks in its Flagship Report “Doing Business 2020” available here: https://www.doingbusiness.org/en/doingbusiness
([162]) From the beta distribution, we generate the recovery rate corresponding to the common factor, after mapping the values for the common factor from a normal into those of a uniform distribution.
([163]) The methodology is based on Andersen (2003).

where $W_{n,i}$ are the idiosyncratic (bank-specific) shocks, Z_n is the common factor and l refers to the correlation with the common factor (factor loadings). Depending on the intensity of Z_n, which represents the size of the economic crisis, we set the factor loading l, which is in turn equal to the correlation ρ in the original model, between 0.5 and 0.9: the worst the status of economy, the higher the correlation between assets in bank's portfolios is. Notably, we set the following:

$$Z_n \begin{cases} \leq 1.00 \rightarrow \rho = 0.50 \\ \leq 1.25 \rightarrow \rho = 0.58 \\ \leq 1.50 \rightarrow \rho = 0.62 \\ \leq 1.75 \rightarrow \rho = 0.66 \\ \leq 2.00 \rightarrow \rho = 0.70 \\ \leq 2.25 \rightarrow \rho = 0.74 \\ \leq 2.50 \rightarrow \rho = 0.78 \\ \leq 2.75 \rightarrow \rho = 0.82 \\ \leq 3.00 \rightarrow \rho = 0.86 \\ > 3.00 \rightarrow \rho = 0.90 \end{cases}$$

Despite the fact that the standard version of the model has been using a fixed value for the correlation (namely equal to 0.5), there have been other analyses where the (fixed) correlation value has been allowed to vary and its impact on resulting losses has been assessed. For example, Benczur et al. (2017) allows for different degrees of commonality by different shock correlation structure and Di Girolamo et al. (2017) describe an attempt to capture the correlation structure existing across banks using balance sheet data.

2. Regulatory framework and scenarios assumptions

Three pieces of legislation are considered: the Capital Requirement Regulation and Directive IV (CRR, CRDIV) ([164]), which improved the definitions of regulatory capital and risk-weighted assets, increased the level of regulatory capital by introducing the capital buffers, including extra capital buffers for European Global Systematically Important Institutions (G-SIIs) and Other Systemically Important Institutions (O-SII) ([165]); the Bank Recovery and Resolution Directive (BRRD) ([166]), which introduced bail-in ([167]) and national resolution funds ([168]), and the Single Resolution Mechanism Regulation (SRMR), ([169]) which established the Single Resolution Board and the Single Resolution Fund (SRF).

The scenario comprises:

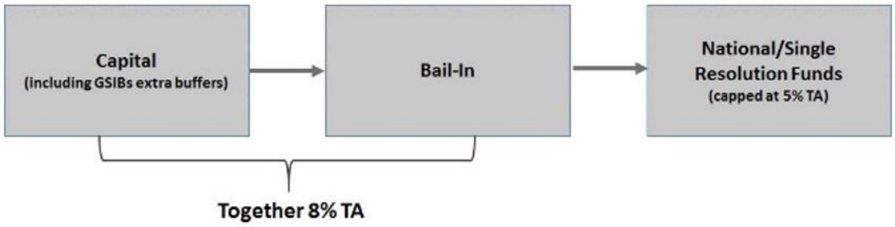
- Asset correlation is fixed to 50% (traditional SYMBOL assumption, compatible with default regulatory parameter);
- Bank total capital and initial risk-weighted assets (RWAs) taken directly from the banks' balance sheets.
- Current stocks of non-performing loans contribute to losses in the banking system of each country and their magnitude has been estimated as explained in the main text.
- Extra capital buffers for European Global Systematically Important Institutions (G-SIIs) prescribed by the Financial Stability Board (FSB) are considered.

([164]) See European Parliament and Council (2013).
([165]) Very few banks which are OSII are affected by extra buffer (not considered).
([166]) See European Parliament and Council (2014a).
([167]) A legal framework ensuring that part of the distressed banks' losses are absorbed by unsecured creditors. The bail-in tool entered into force on 01/01/2016.
([168]) Funds financed by banks to orderly resolve failing banks, avoiding contagion and other spill-overs.
([169]) See European Parliament and Council (2014b).

- Bail-in: modelled as a scenario whereby a Loss Absorbing Capacity (LAC) is built to represent, together with regulatory capital, 8% of TA.
- Resolution Funds - national (NRFs, for Member States not part of the Banking Union) and single (SRF, for Banking Union members) – completely phased-in and contributing to resolution absorbing losses up to 5% of the TA of the insolvent bank, provided that at least 8% LAC has already been called in. No backstop (other than public finances) nor ex-post contributions ([170]) are considered.
- No deposit guarantee scheme contribution or intervention is modelled.
- Extra losses generated by loans granted by the State are directly transferred to debt or deficit without passing through the safety net cascade.

Graph A6.1 illustrates the order of intervention of different tools. The first cushion assumed to absorb simulated losses is capital, the second tool is bail-in, and the last are RFs, as legally foreseen ([171]) .

Graph A6.1: **Implemented order of intervention of the safety net tools**



Source: Commission services.

3. Leftover financial needs after the safety net cascade

Throughout the cascade of safety net interventions, it can then be traced how much of each of these two types of financing needs are picked up by the different tools. If after depletion of capital, a bank is failing or left undercapitalised with respect to the minimum level established in the scenarios, the bail-in tool is applied at individual bank level up to 8% of its total liabilities and own funds (TLOF) (or total assets, TA). ([172]) If this is not enough, and a Resolution Fund (RF) is available, it is then assumed to intervene up to 5% of the total assets of each bank.[173] Given that the sample coverage in terms of the number and total assets of banks in the sample is not complete, the RF is assumed to have ex-ante funding equal to the appropriate percentage of covered deposits of the banks in the sample. Any leftover losses or recapitalisation needs not covered after all available tools have intervened are finally assumed to be covered by the government, taking into account the ratio between the total assets (TA) in the sample and the population of all banks.

([170]) Given the aim to portray worst-case fiscal consequences, ex-post contributions to the NRFs/SRF are not modelled, but these can actually go up to 3 times the ex-ante contributions, further reducing the impact on public finances.
([171]) Additional tools are available to absorb residual losses and recapitalisation needs, including additional bail-in liabilities, leftover resolution funds and the deposit guarantee scheme. See Benczur et al. (2015) for a discussion. In addition, by 2024 at the latest a common backstop to the SRF will be introduced.
([172]) The BRRD does not establish a harmonised level of liabilities eligible for bail-in, but Art. 44 sets out that the RF can kick in only after shareholders and holders of other eligible instruments have made a contribution to loss absorption and recapitalisation of at least 8% of total liabilities and own funds (TLOF). Since bank-level data on bail-inable liabilities is unavailable, the bail-in tool is modelled by imposing that individual banks hold a loss absorbing capacity of at least 8% of their TLOF. In practice banks with total capital under this threshold are assumed to meet the 8% minimum threshold via bail-inable liabilities. In the simulation, bail-in stops once the 8% of total assets limit has been reached. If a bank holds capital above 8% of TA, there would be no bail-in, but capital might be bearing losses above 8% of TLOF.
([173]) Art. 44 of the bank recovery and resolution directive sets out that the contribution of the resolution financing arrangement cannot exceed 5% of the total liabilities. In case of excess demand for SRF funds, funds are rationed in proportion to demand (i.e., proportionally to excess losses and recapitalisation needs after the minimum bail-in, capped at 5% of TA at bank level).

4. Calibrating the heat map for theoretical probability of public finances being hit by more than 3% of GDP, in the event of a severe crisis

The model allows estimating the probability distribution of the amount of public funds needed to cover losses after exhausting the protection provided by the financial safety net. To obtain the input for the heat map on government's implicit contingent liability risks, a minimum size of government's contingent liabilities is fixed, and the theoretical probability of the materialisation of the event is assessed.

Table A6.3 shows the heat map, which illustrates the relative riskiness of countries in terms of public finances being hit by at least a fixed share (3%, 5%, and 10%) of GDP, conditional on having (a) the banking sector in distress, (2) at least three countries with government's contingent liabilities. The colour coding reflects the relative magnitude of the theoretical probabilities of such event.

Table A6.3: **Model-based probabilities of public finances being hit by more than 3%, 5% or 10% of GDP, in the event of a severe crisis (i.e., involving excess losses and recapitalisation needs in at least three different EU Member States)**

	Stress (a)			Severe stress (b)		
	3% GDP	5% GDP	10% GDP	3% GDP	5% GDP	10% GDP
BE	0.02%	0.01%	0.00%	0.35%	0.13%	0.02%
BG	0.00%	0.00%	0.00%	0.04%	0.01%	0.00%
CZ	0.01%	0.00%	0.00%	0.12%	0.03%	0.00%
DK	0.08%	0.04%	0.01%	0.25%	0.13%	0.03%
DE	0.00%	0.00%	0.00%	0.09%	0.02%	0.00%
EE	0.01%	0.00%	0.00%	0.21%	0.06%	0.00%
IE	0.04%	0.01%	0.00%	0.53%	0.25%	0.06%
EL	0.07%	0.02%	0.00%	0.98%	0.43%	0.07%
ES	0.16%	0.05%	0.01%	1.32%	0.67%	0.16%
FR	0.03%	0.01%	0.00%	0.56%	0.28%	0.06%
HR	0.00%	0.00%	0.00%	0.04%	0.01%	0.00%
IT	0.02%	0.00%	0.00%	0.33%	0.10%	0.01%
CY	0.04%	0.01%	0.00%	0.57%	0.27%	0.06%
LV	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%
LT	0.00%	0.00%	0.00%	0.02%	0.00%	0.00%
LU	3.72%	1.75%	0.27%	11.88%	6.56%	2.03%
HU	0.03%	0.00%	0.00%	0.19%	0.04%	0.00%
MT	0.02%	0.01%	0.00%	0.23%	0.09%	0.02%
NL	0.05%	0.02%	0.00%	0.46%	0.24%	0.04%
AT	0.01%	0.00%	0.00%	0.15%	0.04%	0.00%
PL	0.00%	0.00%	0.00%	0.11%	0.02%	0.00%
PT	0.02%	0.01%	0.00%	0.37%	0.14%	0.02%
RO	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
SI	0.00%	0.00%	0.00%	0.08%	0.02%	0.00%
SK	0.01%	0.00%	0.00%	0.30%	0.05%	0.00%
FI	0.01%	0.01%	0.00%	0.16%	0.08%	0.02%
SE	0.01%	0.00%	0.00%	0.04%	0.01%	0.00%

(1) The scenarios for 2023 DSM and 2019 DSM estimate the potential excess losses and recapitalisation needs for 2024 and 2020 (in % of GDP 2022 and 2018) respectively. (2) In 2019 DSM, Greece was under enhanced surveillance and therefore was not included in the debt sustainability analysis. (3) The losses considered are the excess losses after the safety net (i.e., including bail-in and the resolution funds). (4) Green: low risk (model-based probability lower than 0.50%), Yellow: medium risk (model-based probability between 0.50% and 1%); Red: high risk (model-based probability higher than 1%). (5) We include the current results as well as the analysis from a pre-COVID period. The map is calibrated conditional on having (a) the banking sector in distress, and (b) at least three Member States with government's contingent liabilities. See the methodological annex for more details on the computation of the heatmap.
Source: Commission services.

Table A6.4: **Detailed scenarios description**

Components: / *Scenario:*	**Asset correlation**	**Total regulatory capital**	**RWAs**	**Bail-in**	**National/ Single RF**	**Recapitalization**	**Extra losses due to NPLs**	**Deposit Guarantee Scheme**	**Banks in resolution**
Stress scenario	50%	Total capital	RWA Adjusted	Yes Total capital plus bail-in 8% TA	Yes, 5% TA cap, after LAC of 8% has been called in full target No ex-post contributions	10.5% RWA Adjusted + Buffers	- Yes to all banks - NPL - Recovery rate as reported by World Bank	No	Random significant banks
Severe stress scenario	Depending on common factor	Total capital	RWA Adjusted	Yes Total capital plus bail-in 8% TA	Yes, 5% TA cap, after LAC of 8% has been called in full target No ex-post contributions	10.5% RWA Adjusted + Buffers	- Yes to all banks - NPL - Recovery rate follows a country specific	No	Random significant banks

(1) The size of the Single Resolution Fund was on Q2 2021 €52 billion (https://www.srb.europa.eu/en/content/single-resolution-fund#build-up) which is around 65% of its target size (i.e. 1% of deposits, around €80 billion)
Source: Commission services.

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ANNEX A7
Cross-country tables

A7.1. SHORT-TERM FISCAL SUSTAINABILITY RISKS

Table A7.1: **S0 and sub-indices heat map (2023)**

	Overall risk classi-fication	S0	Sub-indices	
			Fiscal	Financial-competitiv.
BE	LOW	0.27	0.57	0.12
BG	LOW	0.21	0.22	0.21
CZ	LOW	0.24	0.22	0.25
DK	LOW	0.27	0.11	0.36
DE	LOW	0.16	0.23	0.12
EE	LOW	0.30	0.18	0.36
IE	LOW	0.13	0.00	0.21
EL	LOW	0.31	0.24	0.35
ES	LOW	0.41	0.57	0.33
FR	LOW	0.38	0.57	0.28
HR	LOW	0.21	0.00	0.33
IT	LOW	0.35	0.69	0.18
CY	LOW	0.32	0.11	0.44
LV	LOW	0.31	0.22	0.37
LT	LOW	0.27	0.12	0.35
LU	LOW	0.19	0.18	0.20
HU	LOW	0.46	0.41	0.48
MT	LOW	0.17	0.22	0.14
NL	LOW	0.12	0.00	0.18
AT	LOW	0.09	0.15	0.06
PL	LOW	0.39	0.28	0.45
PT	LOW	0.32	0.31	0.33
RO	LOW	0.31	0.22	0.37
SI	LOW	0.20	0.29	0.14
SK	LOW	0.38	0.28	0.44
FI	LOW	0.20	0.15	0.23
SE	LOW	0.12	0.00	0.19
Thresholds		0.46	0.36	0.49

The thresholds have been derived using the signalling approach described in Chapter I.1 and Box I.1.1.
Source: Commission services.

Table A7.2: **Fiscal variables used in the S0 indicator (2023)**

	Headline balance (%GDP)	Primary balance (%GDP)	Cycl. adj. balance (%GDP)	Stabil. primary balance (%GDP)	Gross debt (%GDP)	Change gross debt (%GDP)	Short-term debt (%GDP)	Net debt (%GDP)	Gross financing needs (%GDP)	Interest-rate growth differential	Change in govt. expend. (%GDP)	Change in govt. consump. (%GDP)
BE	-4.9	-3.1	-4.9	-3.3	106.3	1.9	8.7	92.9	18.2	-3.4	1.8	0.5
BG	-3.0	-2.5	-3.3	-1.8	23.5	0.9	0.0	11.4	4.6	-8.7	-0.8	0.2
CZ	-3.8	-2.4	-2.9	-2.4	44.7	0.6	2.5	31.2	8.2	-5.8	1.0	0.2
DK	2.6	3.2	3.0	1.0	30.3	0.5	3.0	3.1	5.3	3.3	2.1	1.4
DE	-2.2	-1.4	-1.7	-2.9	64.8	-1.3	7.2	46.5	16.3	-4.6	-1.3	-0.5
EE	-2.9	-2.4	-0.7	-0.6	19.2	0.7	1.3	8.0	3.0	-3.4	3.0	2.0
IE	0.9	1.6	-0.2	-1.1	43.0	-1.4	5.3	35.5	2.7	-2.6	0.8	0.2
EL	-2.3	1.1	-2.5	-8.9	160.9	-11.7	11.5	:	14.5	-5.6	-2.4	-0.1
ES	-4.1	-1.6	-4.5	-5.6	107.5	-4.1	5.7	93.9	19.6	-5.4	-0.5	-0.3
FR	-4.8	-3.1	-4.8	-5.3	109.6	-2.2	9.3	99.6	21.3	-5.1	-1.8	-0.6
HR	-0.1	1.0	-1.1	-6.2	60.8	-7.4	3.0	49.8	9.0	-10.3	0.6	0.3
IT	-5.3	-1.4	-6.0	-3.7	139.8	-1.8	18.6	132.6	25.2	-2.8	-3.0	-0.6
CY	2.3	3.7	1.3	-5.1	78.4	-7.1	1.1	43.1	4.9	-6.4	1.3	0.9
LV	-3.2	-2.5	-2.7	-2.1	41.7	0.7	0.6	32.3	7.1	-5.5	0.4	0.3
LT	-1.6	-1.1	-0.6	-2.5	37.3	-0.8	0.0	32.4	4.5	-7.2	1.7	0.7
LU	-1.9	-1.7	-0.8	-0.8	26.8	2.0	0.5	-3.6	6.2	-3.3	2.6	0.9
HU	-5.8	-1.4	-4.7	-4.7	69.9	-4.0	7.4	61.8	12.0	-7.3	-0.8	-0.3
MT	-5.1	-4.0	-4.5	-3.3	53.3	1.0	7.6	49.2	11.7	-6.8	0.0	-0.3
NL	-0.5	0.2	-0.5	-2.9	47.1	-3.0	5.5	40.6	8.0	-6.3	-0.3	0.1
AT	-2.6	-1.3	-2.3	-3.9	76.3	-2.1	5.6	56.2	15.9	-5.3	-1.7	-0.4
PL	-5.8	-3.8	-5.2	-2.9	50.9	1.6	0.8	39.1	10.4	-6.4	3.4	0.3
PT	0.8	2.8	0.0	-7.4	103.4	-9.0	19.6	102.9	7.6	-7.2	-1.6	-0.3
RO	-6.3	-4.6	-5.6	-4.0	47.9	0.7	2.9	40.1	12.2	-9.5	-0.2	-0.3
SI	-3.7	-2.5	-4.5	-5.4	69.3	-3.0	2.4	52.9	6.9	-8.2	0.7	-0.1
SK	-5.7	-4.7	-5.6	-5.0	56.7	-1.1	0.4	48.8	9.7	-9.7	5.6	0.0
FI	-2.4	-1.6	-1.5	-2.6	74.3	1.0	8.8	34.1	13.5	-3.8	1.2	0.5
SE	-0.2	0.4	0.3	-1.3	30.4	-2.5	9.3	7.1	4.3	-4.2	1.3	0.5

Note: The upper thresholds used for each variable have been derived using a signalling approach (see Chapter I.1). The lower thresholds have been set at 80% of the original signalling thresholds.
Source: Commission services.

Table A7.3: **Financial-competitiveness variables used in the S0 indicator (2023)**

	Yield curve	Real GDP growth (t-1)	GDP per capita (PPP, USD, t-1)	NIIP (t-1)	HH net savings (%GDP, t-1)	Private debt (%GDP, t-1)	Private credit flow (%GDP, t-1)	Short debt NFC (%GDP, t-1)	Short debt HH (%GDP, t-1)	construc-tion (% value added, t-1)	Current account (%GDP, t-1)	Change in REER (t-1)	Change in nom. ULC (t-1)
BE	1.8	1.4	84.0	57.7	3.1	161.4	5.7	27.4	1.3	5.3	-0.7	-1.5	10.1
BG	:	2.0	44.0	-12.9	:	74.6	5.9	10.8	1.3	3.7	-0.8	11.4	23.6
CZ	-3.3	-0.4	62.1	-19.7	6.2	76.1	4.5	13.5	0.7	5.6	-2.3	-0.2	14.8
DK	1.2	1.2	95.9	58.2	3.2	188.0	13.1	40.9	4.2	5.3	10.0	4.8	7.2
DE	1.1	-0.3	79.9	70.2	6.4	118.4	6.7	18.2	1.4	5.7	6.3	-4.6	7.2
EE	2.6	-2.6	57.0	-20.2	-2.3	94.3	9.2	8.1	0.7	6.7	-1.7	1.7	19.0
IE	1.8	-0.9	157.3	-116.8	:	147.1	2.0	17.0	0.5	2.2	5.4	-15.8	-10.6
EL	4.0	2.4	48.0	-144.2	:	100.8	1.1	8.9	2.8	1.9	-7.7	9.9	3.5
ES	2.3	2.4	60.1	-60.2	1.7	123.5	0.3	7.3	2.6	5.4	0.7	-0.7	10.8
FR	1.7	1.0	70.4	-23.8	6.7	163.9	8.7	29.8	1.3	5.5	-1.2	0.9	11.1
HR	3.0	2.6	52.5	-25.4	0.6	79.3	6.0	4.4	2.1	5.5	-0.2	-8.3	11.0
IT	3.5	0.7	67.6	4.7	1.1	105.5	2.9	12.6	2.5	5.4	1.9	-5.5	4.9
CY	3.5	2.2	65.4	-96.2	0.2	213.4	-3.9	11.4	2.7	5.4	-8.7	-15.3	-1.2
LV	2.6	-0.2	50.1	-26.5	:	52.5	3.0	4.9	0.9	5.0	-2.7	3.1	16.7
LT	0.0	-0.4	60.6	-7.0	0.7	51.4	6.8	5.3	0.4	6.9	1.1	-4.9	27.7
LU	2.0	-0.6	174.7	47.0	:	325.5	-19.5	87.5	1.5	5.7	4.2	-5.0	13.2
HU	-4.3	-0.7	52.9	-50.8	4.6	78.8	9.2	12.6	1.6	6.3	-4.4	-6.5	23.1
MT	2.6	4.0	72.5	78.8	:	121.8	6.4	9.9	2.5	4.4	-0.8	-11.1	8.6
NL	1.4	0.6	89.8	75.2	6.2	210.1	6.9	33.5	1.3	4.7	5.6	2.1	9.8
AT	1.8	-0.5	85.5	17.6	5.2	121.9	5.0	11.0	1.8	7.3	1.3	-4.6	10.7
PL	-0.7	0.4	53.8	-33.4	-1.6	63.5	1.9	7.1	1.7	6.5	-0.7	0.8	16.9
PT	2.3	2.2	55.0	-83.6	-2.9	141.1	2.9	12.9	1.8	4.4	-1.0	-1.4	10.7
RO	1.1	2.2	54.3	-40.6	:	43.3	3.3	8.5	0.6	7.0	-7.2	0.8	10.4
SI	2.0	1.3	62.0	-1.5	:	66.0	5.2	8.3	1.7	6.8	3.6	-1.9	14.3
SK	2.3	1.3	47.5	-61.0	-1.5	92.7	9.3	11.6	1.2	6.7	-3.4	-2.3	13.3
FI	1.8	0.1	75.4	-1.7	-0.4	144.7	2.3	15.3	4.0	7.0	-0.9	2.0	8.6
SE	0.6	-0.5	82.0	34.8	6.7	207.3	10.6	41.7	14.2	6.6	5.6	-10.2	5.8

Notes: (1) Variable names preceded by ‘L.’ are in lagged value. (2) The upper thresholds used for each variable have been derived using a signalling approach (see Chapter I.1). (3) The lower thresholds have been set at 80% of the original signalling approach thresholds, for prudential reasons.
Source: Commission services.

Additional indicators

Table A7.4: **Risks related to the government debt structure (2022)**

	1. Short-term public debt (original maturity)	2. Public debt in foreign currency	3. Public debt held by non-residents
	Shares of total debt (%):		
BE	**8.3**	0.0	**55.4**
BG	0.0	**71.6**	47.7
CZ	5.7	11.3	31.6
DK	**10.1**	2.5	25.0
DE	**10.2**	1.6	20.3
EE	**7.0**	0.0	73.6
IE	**6.8**	0.0	**53.1**
EL	6.6	0.0	**78.2**
ES	5.1	0.0	40.8
FR	**8.3**	0.0	47.3
HR	4.4	*73.6*	32.4
IT	**13.1**	0.1	26.8
CY	1.3	0.0	**93.2**
LV	1.3	0.0	**64.0**
LT	0.0	0.0	**61.4**
LU	2.1	0.0	**52.1**
HU	**9.9**	28.5	34.1
MT	**10.3**	0.0	22.0
NL	**11.0**	0.0	39.7
AT	**7.1**	0.3	**61.4**
PL	1.8	24.2	35.7
PT	**17.5**	0.0	44.7
RO	6.1	**53.8**	49.6
SI	3.4	0.1	**54.8**
SK	0.7	0.0	48.0
FI	**12.1**	3.9	**49.4**
SE	**27.8**	11.1	14.9

(1) Upper and lower thresholds: (i) Share of short-term government debt: upper threshold 6.57%; lower threshold 5.3%; (ii) Share of government debt in foreign currency: upper threshold 31.58%; lower threshold 25%; (iii) Share of government debt held by non-residents: upper threshold 49%; lower threshold 40%.
(2) Share of short-term public debt is based on partially missing information for Netherlands.
(3) Foreign-held debt figures are shown against a double shading that blends the colour coding of volatility risks from non-resident tenure (left side of the shaded cells) with that of sovereign risk given by the average spread on 10-year government bonds vs. Germany (right side of the shaded cells).
Source: Eurostat, ECB.

Table A7.5: **Potential triggers for governments' contingent liabilities from the banking sector**

	Private sector credit flow (% GDP)	Bank loan-to-deposit ratio (%)	NPL ratio (% of total gross loans)	NPL ratio change (pps.)	NPL coverage ratio (%)	House price nominal index change (%)
BE	5.7	100.5	1.1	-0.2	47.4	5.6
BG	5.9	73.9	2.1	-1.4	64.8	**13.8**
CZ	4.5	81.2	1.1	-0.1	53.3	**16.9**
DK	**13.1**	**302.5**	1.3	-0.2	**28.9**	-0.5
DE	6.7	122.9	1.1	0.1	33.0	5.3
EE	9.2	100.8	0.6	-0.1	**31.3**	**22.2**
IE	2.0	70.5	1.8	-0.6	**30.7**	12.3
EL	1.1	59.6	**4.6**	-0.6	43.0	11.1
ES	0.3	101.8	**2.8**	0.0	42.8	7.4
FR	8.7	107.8	1.9	0.1	45.6	6.3
HR	6.0	64.5	2.1	-0.8	67.8	**14.9**
IT	2.9	92.8	**2.4**	-0.2	54.1	3.8
CY	-3.9	49.5	**2.8**	-0.7	34.2	2.7
LV	3.0	71.9	0.5	-0.1	36.8	**13.8**
LT	6.8	45.2	0.6	-0.4	40.4	**19.0**
LU	-19.5	**147.4**	1.4	0.1	40.6	9.6
HU	9.2	80.7	**3.1**	-0.6	57.7	**22.3**
MT	6.4	56.4	2.3	-0.3	**31.3**	6.7
NL	6.9	111.2	1.3	0.0	**25.9**	**13.4**
AT	5.0	98.8	1.8	0.0	47.8	11.4
PL	2.0	72.4	**4.4**	0.1	63.5	11.8
PT	2.9	73.3	**3.0**	-0.3	59.1	12.6
RO	3.3	61.3	**2.5**	-0.5	67.4	7.2
SI	5.2	66.4	1.6	-0.6	56.2	**14.8**
SK	9.3	112.7	1.6	0.1	56.8	**13.7**
FI	2.3	**173.3**	1.0	0.0	**28.7**	1.2
SE	10.3	**176.0**	0.2	0.0	34.8	3.6

The upper thresholds used for each variable were derived using a signalling approach, except for the NPL coverage ratio; the lower thresholds have been set at 80% of the upper thresholds, for prudential reasons (see Annex A2 and Chapter I.4).
Source: Eurostat (2022– for private sector credit flows and change in house price nominal index), EBA (June 2023 – for other variables reported).

Table A7.6: **10-y sovereign yield spreads vs. German bund (bps., Dec. 2023)**

BE	**60**
BG	**191**
CZ	**187**
DK	**18**
DE	**0**
EE	**111**
IE	**36**
EL	**118**
ES	**102**
FR	**55**
HR	**129**
IT	**172**
CY	**113**
LV	**139**
LT	**78**
LU	**43**
HU	**407**
MT	**121**
NL	**32**
AT	**58**
PL	**311**
PT	**76**
RO	**409**
SI	**116**
SK	**121**
FI	**58**
SE	**11**

(1) The upper thresholds used for each variable were derived using a signalling approach; the lower thresholds have been set at 80% of the original signalling approach thresholds, for prudential reasons (see Annex A4).
Source: ECB.

A7.2. MEDIUM-TERM FISCAL SUSTAINABILITY RISKS

Table A7.7: **Medium-term risk classification: DSA heat map**

	Heat map for medium-term risks in the EU countries - Debt sustainability analysis (DSA)																										
	BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE
Baseline (no-fiscal-policy-change scenario)	HIGH	LOW	MEDIUM	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	MEDIUM	HIGH	LOW	LOW	MEDIUM	LOW	MEDIUM	LOW	LOW	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	HIGH	HIGH	LOW
Debt level (2034)	122.8	45.4	47.2	7.7	64.0	22.8	30.8	116.4	118.4	130.1	61.1	164.4	38.1	55.2	52.8	36.6	62.2	59.3	53.4	80.7	77.1	83.0	92.3	74.4	115.2	94.6	13.2
Debt peak year	2034	2034	2034	2023	2023	2030	2023	2023	2034	2034	2034	2034	2023	2034	2034	2034	2024	2034	2034	2034	2034	2023	2034	2034	2034	2034	2023
Fiscal consolidation space (percentile rank of avg SPB 2024-2034)	100%	96%	26%	66%	79%	55%	57%	23%	75%	94%	51%	69%	20%	76%	43%	100%	47%	73%	94%	96%	77%	20%	78%	52%	96%	100%	65%
Stochastic projections	HIGH	MEDIUM	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	MEDIUM	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	LOW	HIGH	LOW
Probability of debt in 2028 > debt in 2023	64%	69%	47%	6%	33%	65%	30%	14%	51%	81%	39%	68%	9%	65%	65%	71%	40%	62%	48%	45%	95%	23%	85%	45%	99%	85%	5%
Difference between the 10th and 90th percentile in 2028 (p.p. of GDP)	28.5	50.6	25.4	16.8	16.2	28.7	36.4	58.0	31.1	19.5	28.9	33.3	44.6	37.3	30.2	22.4	40.3	38.2	16.4	29.3	19.5	46.7	42.3	29.4	27.4	23.5	10.0
'Historical SPB' scenario	HIGH	LOW	MEDIUM	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	MEDIUM	MEDIUM	HIGH	MEDIUM	LOW
Debt level (2034)	107.6	27.2	53.7	11.6	53.8	28.1	49.8	102.7	121.1	126.4	56.0	147.8	53.3	54.8	57.8	19.9	71.6	42.1	50.8	76.2	78.8	96.2	89.9	77.4	90.6	87.1	17.3
Debt peak year	2034	2029	2034	2023	2023	2034	2034	2023	2034	2034	2023	2034	2023	2034	2034	2026	2024	2025	2034	2023	2034	2023	2034	2034	2034	2034	2023
Fiscal consolidation space (percentile rank of avg SPB 2024-2034)	86%	84%	29%	72%	53%	64%	76%	21%	78%	91%	44%	52%	29%	74%	60%	81%	52%	56%	88%	91%	79%	43%	77%	63%	55%	96%	69%
'Adverse r-g' scenario	HIGH	LOW	MEDIUM	LOW	MEDIUM	LOW	LOW	HIGH	HIGH	HIGH	MEDIUM	HIGH	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	MEDIUM	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	HIGH	LOW
Debt level (2034)	131.7	48.3	51.1	9.2	69.4	24.5	33.3	126.0	128.0	140.4	66.1	178.8	42.0	59.4	56.4	39.3	67.8	63.6	57.4	87.1	82.8	90.3	98.6	79.4	122.3	101.2	14.7
Debt peak year	2034	2034	2034	2023	2034	2031	2023	2023	2034	2034	2034	2034	2023	2034	2034	2034	2024	2034	2034	2034	2034	2023	2034	2034	2034	2034	2023
Fiscal consolidation space (percentile rank of avg SPB 2024-2034)	100%	96%	26%	66%	79%	55%	57%	23%	75%	94%	51%	69%	20%	76%	43%	100%	47%	73%	94%	96%	77%	20%	78%	52%	96%	100%	65%
'Financial stress' scenario	HIGH	LOW	MEDIUM	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	MEDIUM	HIGH	LOW	LOW	MEDIUM	LOW	MEDIUM	LOW	LOW	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	HIGH	HIGH	LOW
Debt level (2034)	124.4	45.7	47.7	7.9	64.5	23.0	31.0	119.9	120.1	132.0	61.5	169.7	38.3	55.6	53.1	36.9	62.7	59.7	53.7	81.3	77.6	84.0	92.8	74.8	115.7	95.1	13.3
Debt peak year	2034	2034	2034	2023	2023	2030	2023	2023	2034	2034	2034	2034	2023	2034	2034	2034	2024	2034	2034	2034	2034	2023	2034	2034	2034	2034	2023
Fiscal consolidation space (percentile rank of avg SPB 2024-2034)	100%	96%	26%	66%	79%	55%	57%	23%	75%	94%	51%	69%	20%	76%	43%	100%	47%	73%	94%	96%	77%	20%	78%	52%	96%	100%	65%
'Lower SPB' scenario	HIGH	LOW	MEDIUM	LOW	MEDIUM	LOW	LOW	HIGH	HIGH	HIGH	MEDIUM	HIGH	LOW	LOW	MEDIUM	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	HIGH	HIGH	LOW
Debt level (2034)	124.8	46.0	55.0	13.7	67.3	23.9	32.2	120.8	124.0	133.1	67.6	171.8	42.1	56.7	55.2	36.7	69.5	62.8	56.9	82.9	84.5	83.8	98.1	81.3	118.0	96.2	16.2
Debt peak year	2034	2034	2034	2023	2034	2031	2023	2023	2034	2034	2034	2034	2023	2034	2034	2034	2024	2034	2034	2034	2034	2023	2034	2034	2034	2034	2023
Fiscal consolidation space (percentile rank of avg SPB 2024-2034)	100%	97%	29%	74%	87%	56%	59%	24%	84%	95%	54%	73%	22%	78%	46%	100%	50%	76%	100%	97%	90%	21%	84%	73%	100%	100%	67%
Overall MEDIUM-TERM risk category	HIGH	MEDIUM	MEDIUM	LOW	MEDIUM	LOW	LOW	HIGH	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	MEDIUM	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	HIGH	LOW

(1) All the thresholds and decision trees used to derive the DSA risk assessment are presented in Annex A1.

Source: Commission services.

Table A7.8: **Gross government debt projections (% of GDP) and underlying macro-fiscal assumptions (EU, baseline)**

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**83.1**	**82.7**	**82.6**	**82.5**	**82.8**	**83.3**	**84.0**	**84.9**	**86.0**	**87.3**	**88.8**	**90.4**
of which *Oustanding (non maturing) debt*	*65.0*	*65.1*	*64.8*	*65.0*	*65.0*	*65.3*	*65.7*	*66.3*	*67.0*	*67.8*	*68.8*	*70.0*
Rolled-over short-term debt	*8.0*	*8.0*	*7.9*	*7.9*	*7.8*	*7.8*	*7.8*	*7.8*	*7.9*	*7.9*	*8.0*	*8.2*
Rolled-over long-term debt	*6.5*	*6.5*	*6.5*	*6.6*	*6.6*	*6.7*	*6.7*	*6.8*	*6.9*	*7.0*	*7.2*	*7.3*
New short-term debt	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.4*	*0.4*	*0.4*	*0.4*	*0.5*
New long-term debt	*3.2*	*2.9*	*3.1*	*2.8*	*3.1*	*3.3*	*3.4*	*3.6*	*3.9*	*4.1*	*4.3*	*4.5*
Change in the debt ratio (-1+2+3)	**-1.8**	**-0.4**	**-0.1**	**0.0**	**0.3**	**0.5**	**0.7**	**0.9**	**1.1**	**1.3**	**1.5**	**1.6**
of which (1) Overall primary balance (1.1+1.2+1.3)	**-1.5**	**-1.0**	**-0.9**	**-0.9**	**-1.0**	**-1.1**	**-1.2**	**-1.3**	**-1.4**	**-1.5**	**-1.6**	**-1.7**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-1.4***	***-0.8***	***-0.9***	***-0.9***	***-1.0***	***-1.1***	***-1.2***	***-1.2***	***-1.3***	***-1.5***	***-1.5***	***-1.6***
(1.1.1) Structural primary balance (before CoA)	*-1.4*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*
(1.1.2) Cost of ageing			*0.1*	*0.1*	*0.3*	*0.4*	*0.4*	*0.5*	*0.6*	*0.8*	*0.9*	*1.0*
(1.1.3) Others (taxes and property incomes)			*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
(1.2) Cyclical component	***-0.1***	***-0.2***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (interest-growth rate differential) (2.1+2.2+2.3)	**-3.7**	**-1.8**	**-1.6**	**-1.0**	**-0.8**	**-0.7**	**-0.6**	**-0.5**	**-0.4**	**-0.3**	**-0.3**	**-0.2**
(2.1) Interest expenditure	*1.6*	*1.8*	*1.9*	*2.0*	*2.2*	*2.3*	*2.4*	*2.6*	*2.7*	*2.8*	*2.9*	*3.1*
(2.2) Growth effect (real)	*-0.5*	*-1.0*	*-1.4*	*-1.0*	*-0.9*	*-0.9*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.9*
(2.3) Inflation effect	*-4.9*	*-2.6*	*-2.0*	*-2.1*	*-2.1*	*-2.1*	*-2.2*	*-2.2*	*-2.3*	*-2.4*	*-2.4*	*-2.4*
(3) Stock-flow adjustment	**0.5**	**0.4**	**0.6**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.2**	**0.2**
PM : Structural balance	**-3.1**	**-2.6**	**-2.8**	**-3.0**	**-3.3**	**-3.5**	**-3.7**	**-3.9**	**-4.2**	**-4.4**	**-4.7**	**-4.9**
Key macroeconomic assumptions												
Actual GDP growth (real)	0.6	1.3	1.8	1.3	1.1	1.1	1.0	1.0	1.0	0.9	0.9	1.0
Potential GDP growth (real)	1.5	1.5	1.4	1.2	1.1	1.1	1.0	1.0	1.0	0.9	0.9	1.0
Inflation (GDP deflator)	6.2	3.2	2.6	2.6	2.6	2.7	2.7	2.8	2.8	2.8	2.9	2.8
Implicit interest rate (nominal)	2.1	2.2	2.4	2.6	2.7	2.9	3.0	3.2	3.3	3.4	3.5	3.6

Note: Given that the drivers of the change in the government debt ratio for the EU as a whole are calculated as GDP-weighted averages of country-specific debt projections, small differences may exist between the total change in the government debt ratio and the sum of its drivers.
Source: Commission services.

Table A7.9: **Gross government debt projections (% of GDP) and underlying macro-fiscal assumptions (euro area, baseline)**

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**90.4**	**89.7**	**89.5**	**89.5**	**89.9**	**90.5**	**91.3**	**92.2**	**93.4**	**94.9**	**96.5**	**98.2**
of which *Oustanding (non maturing) debt*	*70.6*	*70.5*	*70.1*	*70.2*	*70.3*	*70.5*	*71.0*	*71.6*	*72.3*	*73.2*	*74.3*	*75.6*
Rolled-over short-term debt	*9.0*	*9.0*	*8.9*	*8.9*	*8.9*	*9.0*	*9.0*	*9.1*	*9.2*	*9.3*	*9.4*	*9.6*
Rolled-over long-term debt	*7.3*	*7.2*	*7.2*	*7.3*	*7.2*	*7.3*	*7.4*	*7.4*	*7.6*	*7.7*	*7.8*	*7.9*
New short-term debt	*0.4*	*0.3*	*0.3*	*0.3*	*0.3*	*0.4*	*0.4*	*0.4*	*0.4*	*0.5*	*0.5*	*0.5*
New long-term debt	*3.2*	*2.7*	*3.0*	*2.8*	*3.1*	*3.3*	*3.5*	*3.7*	*3.9*	*4.2*	*4.4*	*4.6*
Change in the debt ratio (-1+2+3)	**-2.1**	**-0.7**	**-0.2**	**0.0**	**0.4**	**0.6**	**0.8**	**1.0**	**1.2**	**1.4**	**1.6**	**1.7**
of which (1) Overall primary balance (1.1+1.2+1.3)	**-1.5**	**-1.0**	**-0.8**	**-0.9**	**-1.1**	**-1.2**	**-1.3**	**-1.3**	**-1.5**	**-1.6**	**-1.7**	**-1.8**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-1.5***	***-0.9***	***-0.9***	***-1.0***	***-1.1***	***-1.2***	***-1.2***	***-1.3***	***-1.4***	***-1.6***	***-1.7***	***-1.8***
(1.1.1) Structural primary balance (before CoA)	*-1.5*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*
(1.1.2) Cost of ageing			*0.1*	*0.1*	*0.3*	*0.3*	*0.4*	*0.5*	*0.7*	*0.8*	*0.9*	*1.0*
(1.1.3) Others (taxes and property incomes)			*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
(1.2) Cyclical component	***0.0***	***-0.1***	***0.1***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (interest-growth rate differential) (2.1+2.2+2.3)	**-4.1**	**-2.0**	**-1.7**	**-1.1**	**-0.9**	**-0.8**	**-0.7**	**-0.6**	**-0.4**	**-0.3**	**-0.3**	**-0.3**
(2.1) Interest expenditure	*1.6*	*1.7*	*1.8*	*2.0*	*2.1*	*2.3*	*2.4*	*2.6*	*2.7*	*2.8*	*3.0*	*3.1*
(2.2) Growth effect (real)	*-0.5*	*-1.0*	*-1.4*	*-0.9*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.7*	*-0.7*	*-0.7*	*-0.8*
(2.3) Inflation effect	*-5.1*	*-2.6*	*-2.1*	*-2.2*	*-2.2*	*-2.2*	*-2.3*	*-2.4*	*-2.4*	*-2.5*	*-2.6*	*-2.6*
(3) Stock-flow adjustment	**0.4**	**0.3**	**0.6**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**
PM : Structural balance	**-3.2**	**-2.8**	**-2.9**	**-3.2**	**-3.4**	**-3.6**	**-3.8**	**-4.1**	**-4.3**	**-4.6**	**-4.9**	**-5.1**
Key macroeconomic assumptions												
Actual GDP growth (real)	0.6	1.2	1.6	1.1	0.9	0.9	0.9	0.9	0.8	0.8	0.7	0.9
Potential GDP growth (real)	1.4	1.4	1.3	1.1	1.0	1.0	0.9	0.9	0.8	0.8	0.7	0.9
Inflation (GDP deflator)	5.9	3.0	2.4	2.5	2.5	2.6	2.6	2.7	2.7	2.8	2.8	2.8
Implicit interest rate (nominal)	1.8	2.0	2.1	2.3	2.5	2.6	2.8	2.9	3.0	3.2	3.3	3.4

Note: Given that the drivers of the change in the government debt ratio for the euro area as a whole are calculated as GDP-weighted averages of country-specific debt projections, small differences may exist between the total change in the government debt ratio and the sum of its drivers.
Source: Commission services.

Table A7.10: **Gross government debt projections and underlying fiscal assumptions (% of GDP) under the baseline**

	Baseline				
	Debt			SPB	
	2024	2034	Peak year	Avg. 2024-34	Perc. rank
BE	106.4	122.8	2034	-2.4	100%
BG	24.3	45.4	2034	-2.7	96%
CZ	45.5	47.2	2034	-0.1	26%
DK	28.4	7.7	2023	2.9	66%
DE	63.6	64.0	2023	-0.2	79%
EE	20.5	22.8	2030	0.0	55%
IE	41.4	30.8	2023	0.8	57%
EL	151.9	116.4	2023	2.0	23%
ES	106.5	118.4	2034	-1.0	75%
FR	109.5	130.1	2034	-2.4	94%
HR	58.8	61.1	2034	-1.2	51%
IT	140.6	164.4	2034	-0.9	69%
CY	71.5	38.1	2023	3.4	20%
LV	42.3	55.2	2034	-1.7	76%
LT	38.3	52.8	2034	-0.5	43%
LU	28.7	36.6	2034	-0.6	100%
HU	71.7	62.2	2024	1.0	47%
MT	55.8	59.3	2034	-2.7	73%
NL	46.6	53.4	2034	-0.5	94%
AT	75.6	80.7	2034	-0.7	96%
PL	54.4	77.1	2034	-1.8	77%
PT	100.3	83.0	2023	2.1	20%
RO	48.9	92.3	2034	-3.0	78%
SI	68.4	74.4	2034	-1.1	52%
SK	59.9	115.2	2034	-5.1	96%
FI	76.9	94.6	2034	-1.0	100%
SE	30.1	13.2	2023	1.5	65%
EU	82.7	90.4	2034	-0.8	86%
EA	89.7	98.2	2034	-0.9	83%

Source: Commission services.

Table A7.11: **Gross government debt projections and underlying fiscal assumptions (% of GDP) under the 'historical SPB' scenario**

	Historical SPB scenario						
	Debt			SPB			
	2024	2034	Peak year	Avg. 2024-34	Perc. rank	Diff. with baseline	Avg. 2008-22
BE	106.4	107.6	2034	-0.9	86%	1.5	-0.4
BG	24.3	27.2	2029	-1.0	84%	1.7	-0.5
CZ	45.5	53.7	2034	-0.7	29%	-0.6	-0.9
DK	28.4	11.6	2023	2.5	72%	-0.3	2.4
DE	63.6	53.8	2023	0.8	53%	1.0	1.1
EE	20.5	28.1	2034	-0.4	64%	-0.4	-0.5
IE	41.4	49.8	2034	-1.2	76%	-2.0	-1.8
EL	151.9	102.7	2023	3.3	21%	1.2	3.6
ES	106.5	121.1	2034	-1.3	78%	-0.3	-1.3
FR	109.5	126.4	2034	-2.1	91%	0.3	-2.0
HR	58.8	56.0	2023	-0.7	44%	0.5	-0.6
IT	140.6	147.8	2034	0.6	52%	1.5	1.0
CY	71.5	53.3	2023	1.9	29%	-1.5	1.4
LV	42.3	54.8	2034	-1.7	74%	0.0	-1.6
LT	38.3	57.8	2034	-1.0	60%	-0.4	-1.1
LU	28.7	19.9	2026	1.2	81%	1.8	1.7
HU	71.7	71.6	2024	0.1	52%	-0.9	-0.1
MT	55.8	42.1	2025	-0.8	56%	1.9	-0.3
NL	46.6	50.8	2034	-0.2	88%	0.3	-0.1
AT	75.6	76.2	2023	-0.2	91%	0.5	-0.1
PL	54.4	78.8	2034	-1.9	79%	-0.2	-2.0
PT	100.3	96.2	2023	0.8	43%	-1.3	0.4
RO	48.9	89.9	2034	-2.8	77%	0.2	-2.7
SI	68.4	77.4	2034	-1.4	63%	-0.3	-1.5
SK	59.9	90.6	2034	-2.7	55%	2.4	-2.0
FI	76.9	87.1	2034	-0.2	96%	0.8	0.1
SE	30.1	17.3	2023	1.2	69%	-0.3	1.1
EU	82.7	85.7	2034	-0.3	81%	0.5	-0.2
EA	89.7	92.1	2034	-0.3	75%	0.6	-0.1

Source: Commission services.

Table A7.12: **Gross government debt projections and underlying fiscal assumptions (% of GDP) under the 'lower SPB' scenario**

	Lower SPB scenario					
	Debt			SPB		
	2024	2034	Peak year	Avg. 2024-34	Perc. rank	Diff. with baseline in 2025
BE	106.4	124.8	2034	-2.6	100%	-0.2
BG	24.3	46.0	2034	-2.7	97%	-0.1
CZ	45.5	55.0	2034	-0.9	29%	-0.7
DK	28.4	13.7	2023	2.3	74%	-0.6
DE	63.6	67.3	2034	-0.6	87%	-0.3
EE	20.5	23.9	2031	-0.1	56%	-0.1
IE	41.4	32.2	2023	0.6	59%	-0.2
EL	151.9	120.8	2023	1.6	24%	-0.4
ES	106.5	124.0	2034	-1.5	84%	-0.5
FR	109.5	133.1	2034	-2.7	95%	-0.3
HR	58.8	67.6	2034	-1.8	54%	-0.6
IT	140.6	171.8	2034	-1.6	73%	-0.7
CY	71.5	42.1	2023	3.0	22%	-0.4
LV	42.3	56.7	2034	-1.8	78%	-0.1
LT	38.3	55.2	2034	-0.8	46%	-0.2
LU	28.7	36.7	2034	-0.6	100%	0.0
HU	71.7	69.5	2024	0.3	50%	-0.7
MT	55.8	62.8	2034	-3.1	76%	-0.4
NL	46.6	56.9	2034	-0.9	100%	-0.3
AT	75.6	82.9	2034	-0.9	97%	-0.2
PL	54.4	84.5	2034	-2.5	90%	-0.7
PT	100.3	83.8	2023	2.1	21%	-0.1
RO	48.9	98.1	2034	-3.5	84%	-0.5
SI	68.4	81.3	2034	-1.8	73%	-0.7
SK	59.9	118.0	2034	-5.4	100%	-0.3
FI	76.9	96.2	2034	-1.1	100%	-0.1
SE	30.1	16.2	2023	1.2	67%	-0.3
EU	82.7	94.6	2034	-1.2	92%	-0.4
EA	89.7	102.1	2034	-1.3	92%	-0.4

Source: Commission services.

Table A7.13: **Gross government debt projections (% of GDP) and underlying macro-financial assumptions under the 'adverse interest-growth rate differential (r-g)' scenario**

	Adverse 'r-g' scenario				
	Debt			r-g in 2034	
	2024	2034	Peak year	Baseline	Adverse 'r-g' scenario
BE	106.4	131.7	2034	-0.6	0.2
BG	24.3	48.3	2034	-0.2	0.7
CZ	45.5	51.1	2034	0.2	1.1
DK	28.4	9.2	2023	-1.7	-0.9
DE	63.6	69.4	2034	-0.9	0.1
EE	20.5	24.5	2031	-0.7	0.1
IE	41.4	33.3	2023	-1.7	-0.9
EL	151.9	126.0	2023	0.4	1.1
ES	106.5	128.0	2034	0.1	1.0
FR	109.5	140.4	2034	-0.1	0.8
HR	58.8	66.1	2034	-0.5	0.4
IT	140.6	178.8	2034	1.3	2.3
CY	71.5	42.0	2023	-1.1	-0.3
LV	42.3	59.4	2034	-0.6	0.3
LT	38.3	56.4	2034	-0.4	0.5
LU	28.7	39.3	2034	-1.5	-0.5
HU	71.7	67.8	2024	0.8	1.7
MT	55.8	63.6	2034	-2.5	-1.6
NL	46.6	57.4	2034	-1.0	-0.1
AT	75.6	87.1	2034	-0.7	0.2
PL	54.4	82.8	2034	0.3	1.2
PT	100.3	90.3	2023	-0.2	0.7
RO	48.9	98.6	2034	0.9	1.9
SI	68.4	79.4	2034	-1.3	-0.5
SK	59.9	122.3	2034	-0.5	0.4
FI	76.9	101.2	2034	-1.0	-0.2
SE	30.1	14.7	2023	-1.8	-1.3
EU	82.7	97.8	2034	-0.3	0.6
EA	89.7	106.3	2034	-0.3	0.6

Source: Commission services.

Table A7.14: **Gross government debt projections (% of GDP) and underlying financial assumptions under the 'financial stress' scenario**

	Financial stress scenario			
	Debt			Market interest rates: diff. with baseline in 2024
	2024	2034	Peak year	
BE	106.4	124.4	2034	2.0
BG	24.3	45.7	2034	1.0
CZ	45.5	47.7	2034	1.0
DK	28.4	7.9	2023	1.0
DE	63.6	64.5	2023	1.0
EE	20.5	23.0	2030	1.0
IE	41.4	31.0	2023	1.0
EL	151.9	119.9	2023	5.3
ES	106.5	120.1	2034	2.1
FR	109.5	132.0	2034	2.2
HR	58.8	61.5	2034	1.0
IT	140.6	169.7	2034	4.0
CY	71.5	38.3	2023	1.0
LV	42.3	55.6	2034	1.0
LT	38.3	53.1	2034	1.0
LU	28.7	36.9	2034	1.0
HU	71.7	62.7	2024	1.0
MT	55.8	59.7	2034	1.0
NL	46.6	53.7	2034	1.0
AT	75.6	81.3	2034	1.0
PL	54.4	77.6	2034	1.0
PT	100.3	84.0	2023	1.8
RO	48.9	92.8	2034	1.0
SI	68.4	74.8	2034	1.0
SK	59.9	115.7	2034	1.0
FI	76.9	95.1	2034	1.0
SE	30.1	13.3	2023	1.0
EU	82.7	91.8	2034	1.7
EA	89.7	99.9	2034	1.9

Source: Commission services.

A7.3. LONG-TERM FISCAL SUSTAINABILITY RISKS

Table A7.15: **S2 baseline and alternative scenarios (by country in pps. of GDP)**

	Baseline	Non-demographic risk*	Lower productivity*	Historical SPB	Adverse 'r-g'
BE	6.7	9.0	7.3	4.8	6.7
BG	2.4	4.9	2.6	0.2	2.5
CZ	4.8	6.9	4.9	5.7	4.6
DK	-1.7	-0.6	-1.5	-1.3	-1.6
DE	2.0	3.6	2.1	0.7	2.3
EE	-0.4	5.0	-0.2	0.1	-0.1
IE	4.0	5.3	3.9	6.7	3.6
EL	-1.7	1.6	-0.8	0.0	-0.3
ES	5.9	8.6	6.6	6.4	6.2
FR	3.1	5.5	3.8	2.7	3.9
HR	0.7	2.7	1.0	0.2	1.2
IT	0.9	2.3	1.8	-1.0	2.7
CY	0.7	4.5	1.1	2.8	0.8
LV	1.3	4.0	1.6	1.3	1.8
LT	4.4	10.5	4.6	5.2	4.4
LU	8.6	10.1	8.5	6.4	7.2
HU	4.3	7.5	4.6	5.6	4.1
MT	9.4	12.5	9.2	7.2	8.0
NL	4.5	6.6	4.3	4.1	4.4
AT	3.3	5.3	3.5	2.8	3.6
PL	3.8	7.1	4.1	4.2	4.1
PT	-1.4	5.9	-0.4	0.3	-0.1
RO	3.7	6.8	4.3	3.6	4.6
SI	6.2	9.1	6.3	6.7	6.1
SK	9.9	13.6	10.2	7.0	9.9
FI	3.3	5.6	3.6	2.3	3.4
SE	-0.6	1.9	-0.7	-0.2	-0.6

(1) The lower and upper thresholds for S2 are 2 and 6 (see Chapter I.3).
Source: Commission services.

Table A7.16: **S1 indicator, baseline and alternative scenarios, by country (pps. of GDP)**

	Baseline	Non-demographic risk*	Lower productivity*	Historical SPB	Adverse 'r-g'
BE	5.3	6.5	5.7	3.7	5.8
BG	1.6	3.0	1.8	-0.5	2.0
CZ	3.0	4.2	3.2	4.1	3.2
DK	-2.7	-2.0	-2.6	-2.5	-2.3
DE	1.2	2.2	1.4	0.0	1.7
EE	-0.9	1.5	-0.7	-0.4	-0.5
IE	1.7	2.6	1.8	4.5	1.9
EL	0.3	1.5	0.8	-1.4	1.2
ES	5.4	6.8	5.8	6.3	5.9
FR	3.5	4.8	3.9	3.4	4.2
HR	0.5	1.7	0.7	-0.1	1.0
IT	3.4	4.2	3.9	1.8	4.5
CY	-0.4	1.0	-0.2	1.6	-0.1
LV	1.3	2.8	1.5	1.3	1.7
LT	3.3	6.2	3.4	4.2	3.5
LU	3.5	4.3	3.7	1.4	3.5
HU	2.5	4.0	2.7	3.9	2.8
MT	4.4	5.8	4.6	2.3	4.5
NL	2.8	4.0	2.8	2.6	3.1
AT	2.5	3.7	2.7	2.1	3.0
PL	3.2	4.9	3.5	3.9	3.7
PT	0.6	3.6	1.1	2.4	1.3
RO	4.7	6.3	5.0	5.0	5.2
SI	4.7	6.5	4.8	5.5	4.9
SK	8.7	10.6	8.9	6.3	8.9
FI	2.0	3.3	2.3	1.1	2.5
SE	-2.2	-1.0	-2.2	-1.9	-1.9

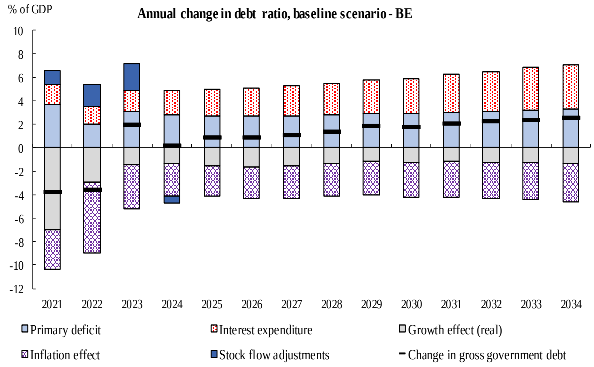
(1) The lower and upper thresholds for S1 are 2 and 6 pps. of GDP (see Chapter I.3).
Source: Commission services.

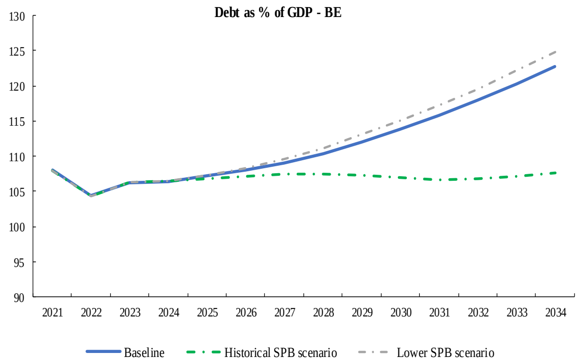
ANNEX A8
Country fiches tables and graphs

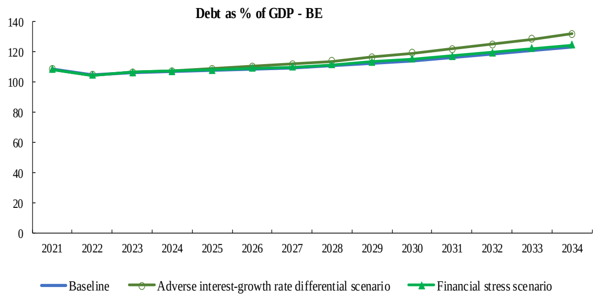
Belgium

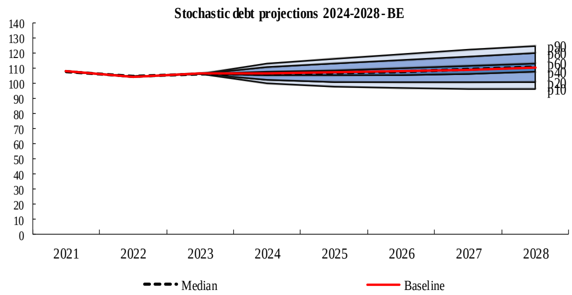
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

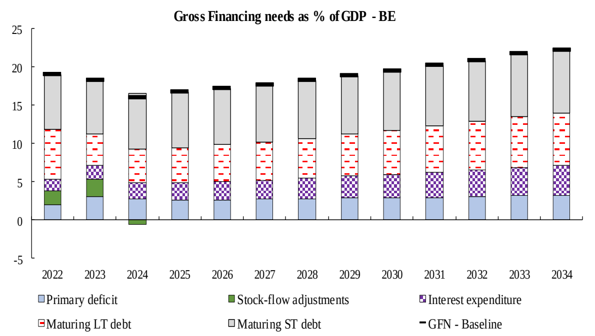
Belgium - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**108.0**	**104.3**	**106.3**	**106.4**	**107.2**	**108.0**	**109.0**	**110.3**	**112.1**	**113.8**	**115.8**	**118.0**	**120.3**	**122.8**
Changes in the ratio (-1+2+3)	*-3.8*	*-3.6*	*1.9*	*0.2*	*0.8*	*0.8*	*1.0*	*1.3*	*1.8*	*1.7*	*2.0*	*2.2*	*2.3*	*2.5*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-3.7**	**-2.0**	**-3.1**	**-2.8**	**-2.7**	**-2.7**	**-2.7**	**-2.8**	**-2.9**	**-2.9**	**-3.0**	**-3.1**	**-3.2**	**-3.2**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-3.1***	***-2.3***	***-2.8***	***-2.4***	***-2.4***	***-2.5***	***-2.7***	***-2.8***	***-2.9***	***-2.9***	***-3.0***	***-3.1***	***-3.2***	***-3.2***
(1.1.1) Structural primary balance (bef. CoA)	*-3.1*	*-2.3*	*-2.8*	*-2.4*	*-2.4*	*-2.4*	*-2.4*	*-2.4*	*-2.4*	*-2.4*	*-2.4*	*-2.4*	*-2.4*	*-2.4*
(1.1.2) Cost of ageing					*-0.1*	*0.1*	*0.3*	*0.4*	*0.6*	*0.5*	*0.7*	*0.8*	*0.9*	*0.9*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
(1.2) Cyclical component	***-0.4***	***0.3***	***0.0***	***-0.3***	***-0.3***	***-0.2***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-0.2***	***0.0***	***-0.2***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-8.7**	**-7.4**	**-3.3**	**-2.1**	**-1.9**	**-1.9**	**-1.7**	**-1.5**	**-1.2**	**-1.1**	**-1.0**	**-0.9**	**-0.8**	**-0.8**
(2.1) Interest expenditure	*1.7*	*1.5*	*1.9*	*2.1*	*2.2*	*2.4*	*2.5*	*2.7*	*2.9*	*3.0*	*3.2*	*3.4*	*3.6*	*3.8*
(2.2) Growth effect	*-6.9*	*-3.0*	*-1.4*	*-1.4*	*-1.6*	*-1.6*	*-1.6*	*-1.4*	*-1.2*	*-1.2*	*-1.2*	*-1.2*	*-1.2*	*-1.3*
(2.3) Inflation effect	*-3.4*	*-6.0*	*-3.8*	*-2.8*	*-2.6*	*-2.7*	*-2.7*	*-2.8*	*-2.9*	*-2.9*	*-3.0*	*-3.1*	*-3.2*	*-3.3*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**1.2**	**1.8**	**2.2**	**-0.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*1.2*	*1.8*	*2.2*	*-0.6*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-4.8	-3.8	-4.7	-4.5	-4.6	-4.9	-5.2	-5.5	-5.8	-5.9	-6.2	-6.5	-6.8	-7.1
Gross financing needs	18.5	18.9	18.2	15.9	16.7	17.1	17.6	18.2	18.9	19.4	20.1	20.8	21.6	22.2

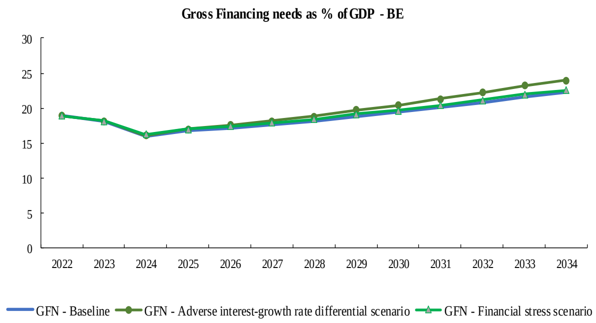












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios: Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	HIGH	Overall	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	MEDIUM	HIGH
		Debt level (2034), % GDP	122.8	107.6	124.8	131.7	124.4				
		Debt peak year	2034	2034	2034	2034	2034				
		Fiscal consolidation space	100%	86%	100%	100%	100%				
		Probability of debt ratio exceeding in 2028 its 2023 level						64%			
		Difference between 90th and 10th percentiles (pps. GDP)						28.5			

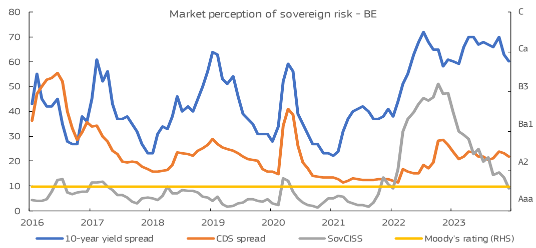
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.48**	**0.27**
Fiscal sub-index	0.36	0.88	0.57
Financial competitiveness sub-index	0.49	0.27	0.12

S2 indicator	DSM 2022	DSM 2023: Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)	**6.7**	**6.7**	**7.3**	**9.0**
of which				
Initial budgetary position	3.0	3.1	3.2	3.1
Ageing costs	3.7	3.6	4.1	5.9
of which *Pensions*	1.6	2.2	2.8	2.2
Health care	0.5	0.5	0.5	1.1
Long-term care	1.9	1.5	1.4	3.2
Others	-0.2	-0.7	-0.7	-0.7
Required structural primary balance related to S2	**4.0**	**4.3**	**4.9**	**6.6**

S1 indicator	DSM 2022	DSM 2023: Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)	**5.9**	**5.3**	**5.7**	**6.5**
of which				
Initial budgetary position	2.1	2.2	2.4	2.2
Debt requirement	1.1	1.0	0.9	1.0
Ageing costs	2.7	2.1	2.4	3.4
of which *Pensions*	1.4	1.3	1.7	1.3
Health care	0.4	0.4	0.3	0.8
Long-term care	1.1	1.0	0.9	1.8
Others	-0.2	-0.6	-0.5	-0.6
Required structural primary balance related to S1	**3.2**	**2.9**	**3.3**	**4.1**

3. Financial information



Financial market information BE - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	60.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - BE (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	8.3	0.0	55.4

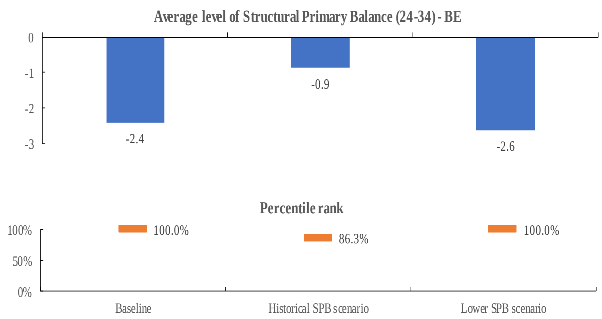
Net International Investment Position (IIP) - BE (2022)	Net IIP (% GDP):
	57.7

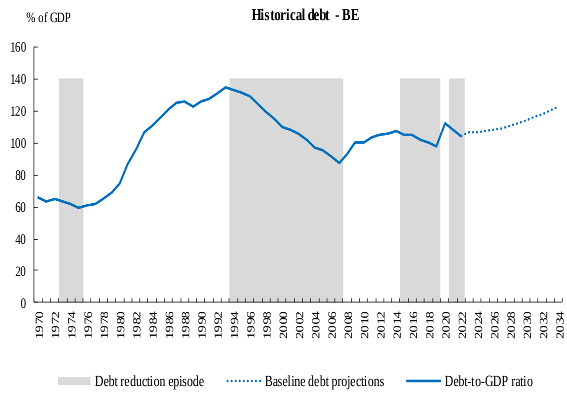
5. Risks related to government's contingent liabilities

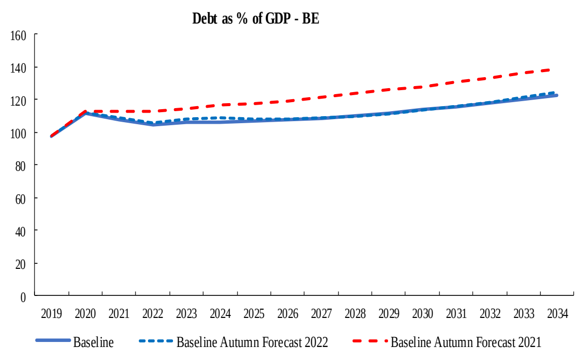
General government contingent liabilities		BE							EU
		2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)		10.5	9.7	9.2	8.3	9.5	8.5	5.5	7.1
of which	*One-off guarantees*	*10.1*	*9.3*	*8.8*	*7.9*	*9.0*	*7.9*	*5.1*	*5.6*
	Standardised guarantees	*0.4*	*0.4*	*0.4*	*0.4*	*0.5*	*0.6*	*0.5*	*1.5*
Public-private partnerships (PPPs) (% GDP)		*0.3*	*0.3*	*0.3*	*0.4*	*0.4*	*0.4*	*0.0*	*0.0*
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	8.5	7.8	7.3	6.5	6.2	4.9	3.5	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	8.5	7.8	7.3	6.5	6.2	4.9	3.5	0.9

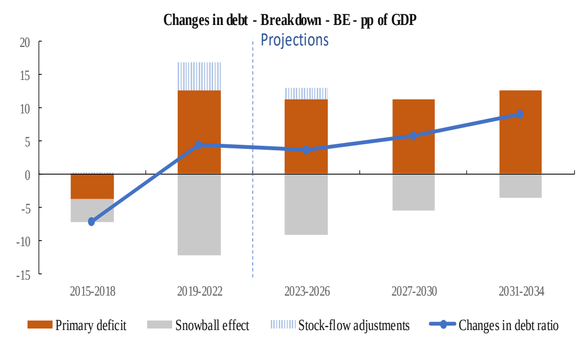
Government's contingent liability risks from banking sector - BE (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	5.7	5.6	100.5	1.1	-0.2	47.4	0.02%	0.35%

6. Realism of baseline assumptions









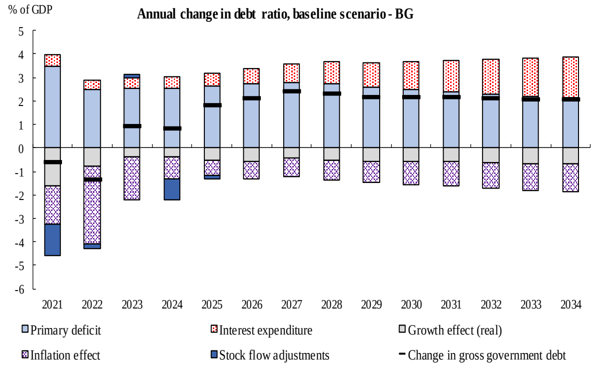
7. Underlying macro-fiscal assumptions

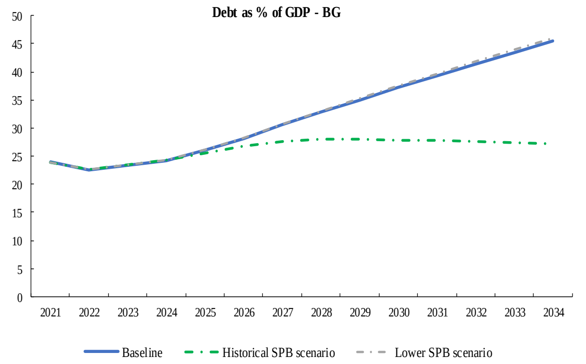
Macro-fiscal assumptions, Belgium	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	106.3	106.4	107.2	113.8	118.0	122.8	106.6	114.5	112.5
Primary balance	-3.1	-2.8	-2.7	-2.9	-3.1	-3.2	-2.9	-2.9	-2.9
Structural primary balance (before CoA)	-2.8	-2.4	-2.4	-2.4	-2.4	-2.4	-2.5	-2.4	-2.4
Real GDP growth	1.4	1.4	1.5	1.1	1.1	1.2	1.4	1.2	1.3
Potential GDP growth	1.9	1.7	1.6	1.1	1.1	1.2	1.8	1.2	1.3
Inflation rate	3.8	2.7	2.5	2.7	2.8	2.8	3.0	2.7	2.8
Implicit interest rate (nominal)	1.9	2.0	2.2	2.8	3.1	3.3	2.0	2.8	2.6
Gross financing needs	18.2	15.9	16.7	19.4	20.8	22.2	16.9	19.5	18.9
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	106.3	106.4	106.7	106.9	106.8	107.6	106.5	107.2	107.0
Primary balance	-3.1	-2.8	-2.2	-1.1	-1.1	-1.3	-2.7	-1.3	-1.7
Structural primary balance (before CoA)	-2.8	-2.4	-1.9	-0.4	-0.4	-0.4	-2.4	-0.6	-1.0
Real GDP growth	1.4	1.4	1.5	1.5	1.1	1.2	1.4	1.2	1.3
Gross financing needs	18.2	15.9	16.2	16.8	17.4	18.0	16.8	17.0	16.9
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	106.3	106.8	107.7	115.1	119.4	124.4	106.9	115.7	113.5
Implicit interest rate (nominal)	1.9	2.4	2.4	2.9	3.2	3.4	2.2	2.9	2.8
Gross financing needs	18.2	16.2	17.0	19.7	21.2	22.5	17.1	19.8	19.2
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	106.3	106.4	107.4	115.0	119.6	124.8	106.7	115.7	113.4
Primary balance	-3.1	-2.9	-2.8	-3.1	-3.3	-3.5	-2.9	-3.1	-3.1
Structural primary balance (before CoA)	-2.8	-2.6	-2.6	-2.6	-2.6	-2.6	-2.7	-2.6	-2.6
Real GDP growth	1.4	1.5	1.5	1.1	1.1	1.2	1.5	1.2	1.3
Gross financing needs	18.2	16.0	16.9	19.7	21.3	22.7	17.0	19.9	19.2
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	106.3	107.0	108.5	118.8	124.8	131.7	107.3	119.6	116.5
Implicit interest rate (nominal)	1.9	2.1	2.3	3.1	3.4	3.7	2.1	3.1	2.8
Real GDP growth	1.4	0.9	1.0	0.6	0.6	0.7	1.1	0.7	0.8
Gross financing needs	18.2	16.0	17.0	20.4	22.2	24.0	17.1	20.6	19.7
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	106.3	106.4	107.2	113.8	118.0	122.8	106.6	114.5	112.5
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	18.2	15.9	16.7	19.4	20.8	22.2	16.9	19.5	18.9

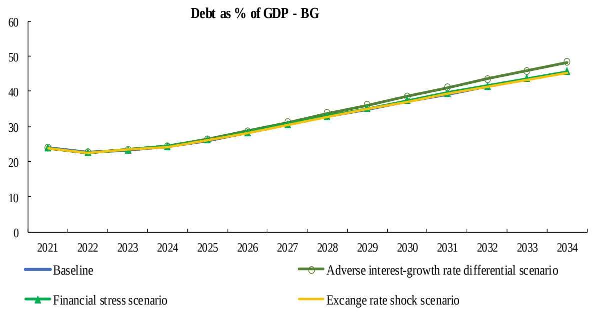
Bulgaria

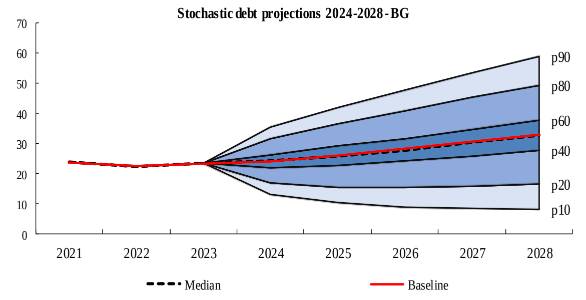
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

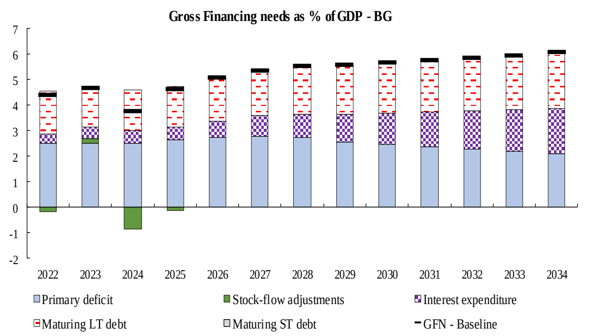
Bulgaria - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**23.9**	**22.6**	**23.5**	**24.3**	**26.1**	**28.2**	**30.5**	**32.9**	**35.0**	**37.1**	**39.3**	**41.3**	**43.4**	**45.4**
Changes in the ratio (-1+2+3)	*-0.6*	*-1.4*	*0.9*	*0.8*	*1.8*	*2.1*	*2.4*	*2.3*	*2.2*	*2.1*	*2.1*	*2.1*	*2.0*	*2.0*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-3.5**	**-2.5**	**-2.5**	**-2.5**	**-2.6**	**-2.7**	**-2.8**	**-2.7**	**-2.6**	**-2.5**	**-2.4**	**-2.3**	**-2.2**	**-2.1**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-3.5***	***-2.9***	***-2.8***	***-2.7***	***-2.9***	***-2.9***	***-2.9***	***-2.7***	***-2.6***	***-2.5***	***-2.4***	***-2.3***	***-2.2***	***-2.1***
(1.1.1) Structural primary balance (bef. CoA)	*-3.5*	*-2.9*	*-2.8*	*-2.7*	*-2.7*	*-2.7*	*-2.7*	*-2.7*	*-2.7*	*-2.7*	*-2.7*	*-2.7*	*-2.7*	*-2.7*
(1.1.2) Cost of ageing					*0.2*	*0.2*	*0.2*	*0.1*	*-0.1*	*-0.2*	*-0.3*	*-0.4*	*-0.5*	*-0.6*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.2) Cyclical component	***0.0***	***0.4***	***0.3***	***0.2***	***0.3***	***0.2***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-2.8**	**-3.7**	**-1.8**	**-0.8**	**-0.7**	**-0.7**	**-0.4**	**-0.4**	**-0.4**	**-0.3**	**-0.3**	**-0.2**	**-0.2**	**-0.1**
(2.1) Interest expenditure	*0.5*	*0.4*	*0.5*	*0.5*	*0.5*	*0.6*	*0.8*	*0.9*	*1.1*	*1.2*	*1.3*	*1.5*	*1.6*	*1.8*
(2.2) Growth effect	*-1.6*	*-0.8*	*-0.4*	*-0.4*	*-0.5*	*-0.6*	*-0.4*	*-0.5*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.7*	*-0.7*
(2.3) Inflation effect	*-1.6*	*-3.3*	*-1.8*	*-0.9*	*-0.7*	*-0.7*	*-0.8*	*-0.8*	*-0.9*	*-1.0*	*-1.0*	*-1.1*	*-1.1*	*-1.2*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**-1.3**	**-0.2**	**0.2**	**-0.9**	**-0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-1.3*	*-0.2*	*0.2*	*-0.9*	*-0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-4.0	-3.3	-3.2	-3.2	-3.4	-3.6	-3.6	-3.7	-3.6	-3.7	-3.7	-3.8	-3.8	-3.9
Gross financing needs	3.2	4.4	4.6	3.7	4.6	5.0	5.3	5.5	5.6	5.7	5.8	5.8	5.9	6.1

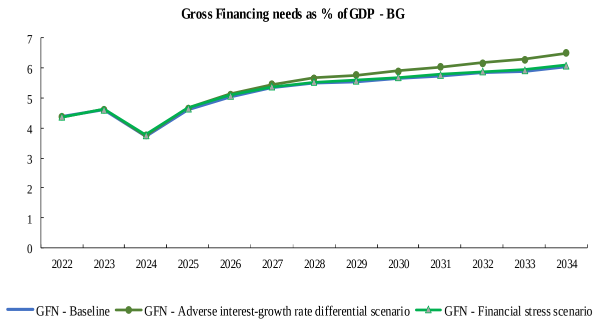












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios: Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	MEDIUM	Overall	LOW	LOW	LOW	LOW	LOW	MEDIUM	MEDIUM	LOW	MEDIUM
		Debt level (2034), % GDP	45.4	27.2	46.0	48.3	45.7				
		Debt peak year	2034	2029	2034	2034	2034				
		Fiscal consolidation space	96%	84%	97%	96%	96%				
		Probability of debt ratio exceeding in 2028 its 2023 level						69%			
		Difference between 90th and 10th percentiles (pps. GDP)						50.6			

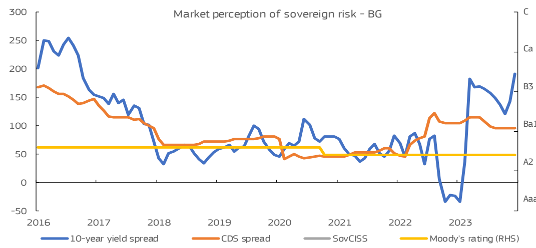
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.65**	**0.21**
Fiscal sub-index	0.36	0.33	0.22
Financial competitiveness sub-index	0.49	0.82	0.21

S2 indicator		DSM 2022	DSM 2023: Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**3.9**	**2.4**	**2.6**	**4.9**
of which					
Initial budgetary position		2.5	2.9	2.9	2.9
Ageing costs		1.4	-0.5	-0.3	2.1
of which	*Pensions*	0.8	-1.0	-0.8	-1.0
	Health care	0.2	0.3	0.3	1.1
	Long-term care	0.1	0.2	0.2	1.9
	Others	0.3	0.0	0.0	0.0
Required structural primary balance related to S2		**1.6**	**-0.3**	**-0.1**	**2.3**

S1 indicator		DSM 2022	DSM 2023: Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**2.5**	**1.6**	**1.8**	**3.0**
of which					
Initial budgetary position		2.3	2.7	2.8	2.7
Debt requirement		-0.7	-0.7	-0.6	-0.7
Ageing costs		1.0	-0.4	-0.3	1.0
of which	*Pensions*	0.5	-0.9	-0.8	-0.9
	Health care	0.2	0.3	0.3	1.0
	Long-term care	0.1	0.1	0.1	0.9
	Others	0.2	0.0	0.0	0.0
Required structural primary balance related to S1		**0.2**	**-1.0**	**-0.9**	**0.3**

3. Financial information



Financial market information BG - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	191.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - BG (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	0.0	71.6	47.7

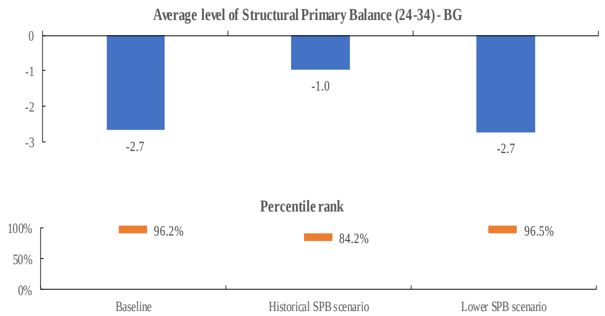
Net International Investment Position (IIP) - BG (2022)	Net IIP (% GDP):
	-12.9

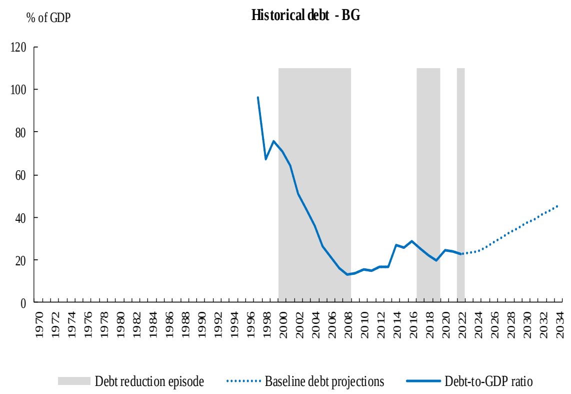
5. Risks related to government's contingent liabilities

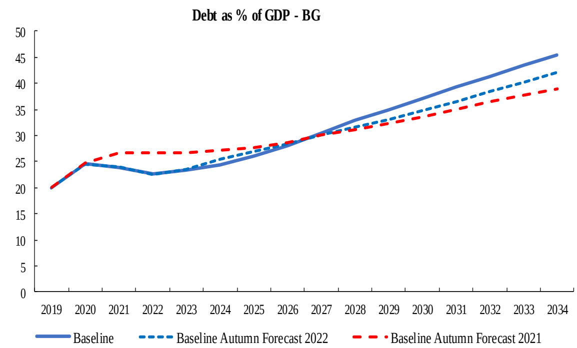
General government contingent liabilities		BG							EU
		2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)		0.4	0.3	0.2	0.1	0.2	0.4	0.4	7.1
of which	*One-off guarantees*	*0.3*	*0.2*	*0.1*	*0.1*	*0.2*	*0.4*	*0.3*	*5.6*
	Standardised guarantees	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.0*	*1.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9

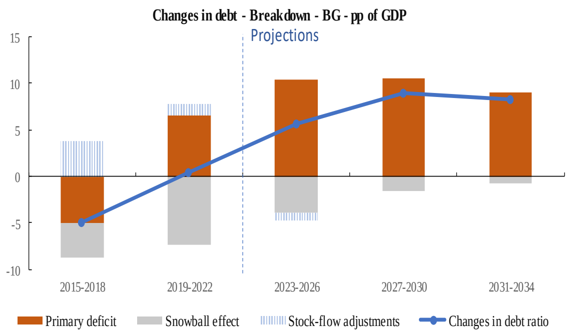
Government's contingent liability risks from banking sector - BG (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	5.9	13.8	73.9	2.1	-1.4	64.8	0.00%	0.04%

6. Realism of baseline assumptions









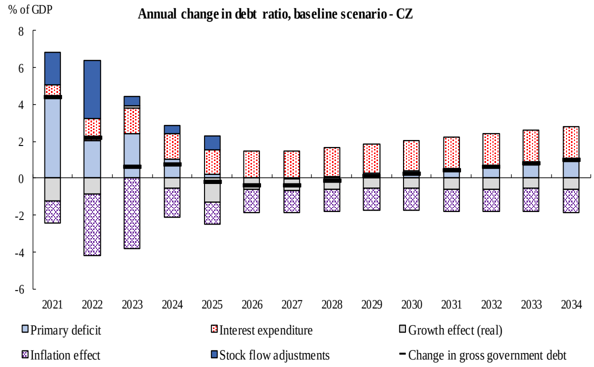
7. Underlying macro-fiscal assumptions

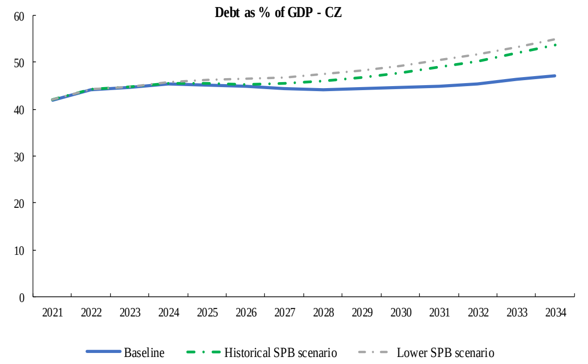
Macro-fiscal assumptions, Bulgaria	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	23.5	24.3	26.1	37.1	41.3	45.4	24.6	37.0	33.9
Primary balance	-2.5	-2.5	-2.6	-2.5	-2.3	-2.1	-2.6	-2.5	-2.5
Structural primary balance (before CoA)	-2.8	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7
Real GDP growth	2.0	1.8	2.3	1.8	1.7	1.6	2.0	1.8	1.8
Potential GDP growth	2.4	2.1	1.9	1.8	1.7	1.6	2.1	1.9	1.9
Inflation rate	8.8	4.1	2.8	2.8	2.8	2.8	5.3	2.8	3.4
Implicit interest rate (nominal)	2.2	2.2	2.2	3.6	4.0	4.2	2.2	3.5	3.2
Gross financing needs	4.6	3.7	4.6	5.7	5.8	6.1	4.3	5.6	5.3
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	23.5	24.3	25.5	27.9	27.6	27.2	24.4	27.6	26.8
Primary balance	-2.5	-2.5	-2.1	-0.3	-0.1	0.1	-2.4	-0.5	-1.0
Structural primary balance (before CoA)	-2.8	-2.7	-2.1	-0.5	-0.5	-0.5	-2.5	-0.7	-1.1
Real GDP growth	2.0	1.8	2.3	2.0	1.7	1.6	2.0	1.8	1.8
Gross financing needs	4.6	3.7	4.1	2.8	2.5	2.3	4.1	2.9	3.2
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	23.5	24.3	26.2	37.4	41.6	45.7	24.7	37.2	34.1
Implicit interest rate (nominal)	2.2	2.4	2.4	3.7	4.0	4.3	2.4	3.6	3.3
Gross financing needs	4.6	3.8	4.7	5.7	5.9	6.1	4.3	5.7	5.3
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	23.5	24.3	26.2	37.5	41.8	46.0	24.7	37.3	34.2
Primary balance	-2.5	-2.6	-2.7	-2.5	-2.4	-2.2	-2.6	-2.5	-2.5
Structural primary balance (before CoA)	-2.8	-2.7	-2.7	-2.7	-2.7	-2.7	-2.8	-2.7	-2.7
Real GDP growth	2.0	1.8	2.3	1.8	1.7	1.6	2.0	1.8	1.8
Gross financing needs	4.6	3.8	4.7	5.7	5.9	6.2	4.4	5.7	5.4
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	23.5	24.4	26.4	38.6	43.5	48.3	24.8	38.6	35.1
Implicit interest rate (nominal)	2.2	2.3	2.4	4.0	4.4	4.7	2.3	3.9	3.5
Real GDP growth	2.0	1.3	1.8	1.3	1.2	1.1	1.7	1.3	1.4
Gross financing needs	4.6	3.8	4.7	5.9	6.2	6.5	4.4	5.9	5.5
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	23.5	24.3	26.1	37.2	41.4	45.4	24.6	37.0	33.9
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	4.6	3.7	4.6	5.7	5.8	6.1	4.3	5.6	5.3

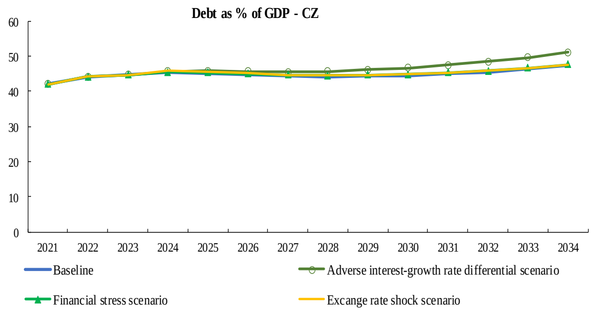
Czechia

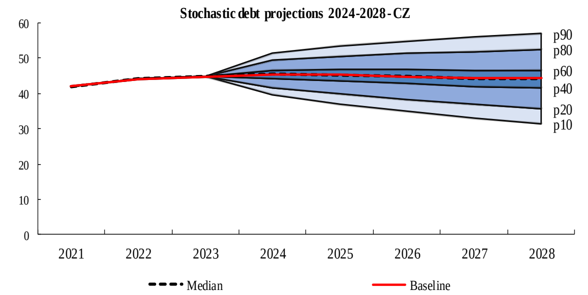
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

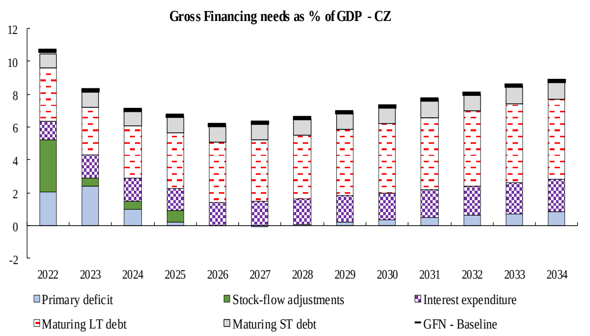
Czechia - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**42.0**	**44.2**	**44.7**	**45.5**	**45.2**	**44.8**	**44.4**	**44.2**	**44.3**	**44.5**	**44.9**	**45.5**	**46.3**	**47.2**
Changes in the ratio (-1+2+3)	*4.4*	*2.2*	*0.6*	*0.7*	*-0.3*	*-0.4*	*-0.4*	*-0.2*	*0.1*	*0.2*	*0.4*	*0.6*	*0.8*	*1.0*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-4.3**	**-2.1**	**-2.4**	**-1.0**	**-0.2**	**0.0**	**0.0**	**-0.1**	**-0.2**	**-0.4**	**-0.5**	**-0.6**	**-0.7**	**-0.9**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-4.0***	***-1.9***	***-1.6***	***-0.1***	***0.1***	***0.2***	***0.1***	***-0.1***	***-0.2***	***-0.4***	***-0.5***	***-0.6***	***-0.7***	***-0.9***
(1.1.1) Structural primary balance (bef. CoA)	*-4.0*	*-1.9*	*-1.6*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*
(1.1.2) Cost of ageing					*-0.2*	*-0.4*	*-0.3*	*-0.1*	*0.0*	*0.2*	*0.3*	*0.4*	*0.5*	*0.6*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*
(1.2) Cyclical component	***-0.3***	***-0.1***	***-0.8***	***-0.9***	***-0.3***	***-0.2***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-1.7**	**-3.0**	**-2.4**	**-0.8**	**-1.2**	**-0.4**	**-0.4**	**-0.3**	**-0.2**	**-0.1**	**-0.1**	**0.0**	**0.0**	**0.1**
(2.1) Interest expenditure	*0.8*	*1.1*	*1.3*	*1.4*	*1.3*	*1.4*	*1.5*	*1.5*	*1.6*	*1.6*	*1.7*	*1.8*	*1.9*	*1.9*
(2.2) Growth effect	*-1.3*	*-0.9*	*0.1*	*-0.6*	*-1.3*	*-0.6*	*-0.7*	*-0.6*	*-0.5*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*
(2.3) Inflation effect	*-1.2*	*-3.3*	*-3.8*	*-1.6*	*-1.2*	*-1.2*	*-1.2*	*-1.2*	*-1.2*	*-1.2*	*-1.2*	*-1.2*	*-1.2*	*-1.3*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**1.7**	**3.1**	**0.5**	**0.5**	**0.7**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*1.8*	*3.3*	*0.6*	*0.4*	*0.7*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*-0.1*	*-0.2*	*-0.1*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-4.8	-3.1	-2.9	-1.5	-1.2	-1.2	-1.4	-1.6	-1.8	-2.0	-2.2	-2.4	-2.6	-2.8
Gross financing needs	10.9	10.6	8.2	7.0	6.7	6.1	6.2	6.5	6.9	7.2	7.6	8.0	8.5	8.8

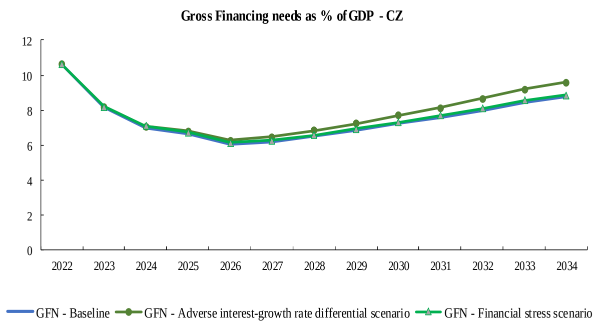












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)									Long term		
			Deterministic scenarios									
Overall (S0)	Overall		Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections		S2	S1	Overall (S1 + S2)
LOW	MEDIUM	Overall	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW		MEDIUM	MEDIUM	MEDIUM
		Debt level (2034), % GDP	47.2	53.7	55.0	51.1	47.7					
		Debt peak year	2034	2034	2034	2034	2034					
		Fiscal consolidation space	26%	29%	29%	26%	26%					
		Probability of debt ratio exceeding in 2028 its 2023 level						47%				
		Difference between 90th and 10th percentiles (pps. GDP)						25.4				

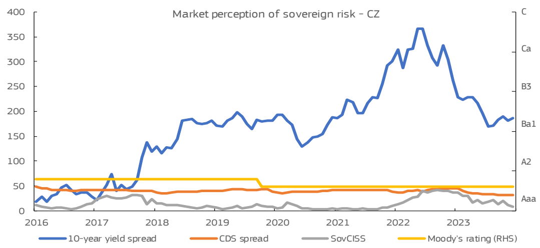
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.34**	**0.24**
Fiscal sub-index	0.36	0.42	0.22
Financial competitiveness sub-index	0.49	0.31	0.25

S2 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**5.5**	**4.8**	**4.9**	**6.9**
of which					
Initial budgetary position		1.1	0.8	0.9	0.8
Ageing costs		4.4	4.0	4.0	6.1
of which	*Pensions*	1.9	2.0	2.2	2.0
	Health care	0.7	0.6	0.6	1.5
	Long-term care	1.3	1.2	1.1	2.4
	Others	0.4	0.1	0.1	0.1
Required structural primary balance related to S2		**4.6**	**4.6**	**4.8**	**6.8**

S1 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**3.9**	**3.0**	**3.2**	**4.2**
of which					
Initial budgetary position		0.9	0.4	0.5	0.4
Debt requirement		-0.3	-0.3	-0.3	-0.3
Ageing costs		3.3	2.9	3.0	4.1
of which	*Pensions*	1.6	1.6	1.7	1.6
	Health care	0.6	0.5	0.5	1.2
	Long-term care	0.8	0.7	0.7	1.3
	Others	0.3	0.1	0.1	0.1
Required structural primary balance related to S1		**3.0**	**2.9**	**3.0**	**4.1**

3. Financial information



Financial market information CZ - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	187.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - CZ (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	5.7	11.3	31.6

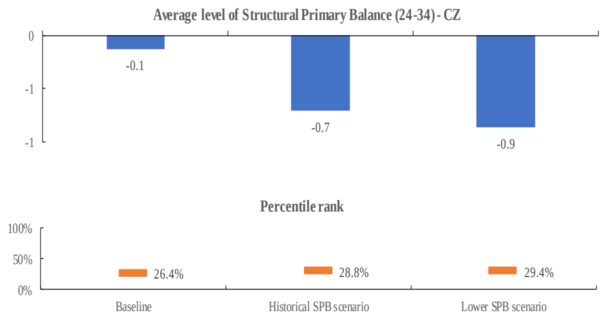
Net International Investment Position (IIP) - CZ (2022)	Net IIP (% GDP):
	-19.7

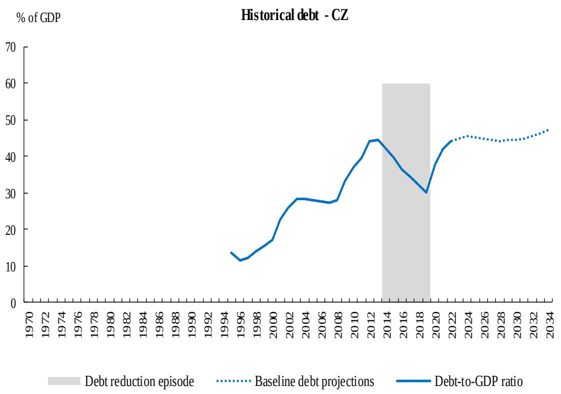
5. Risks related to government's contingent liabilities

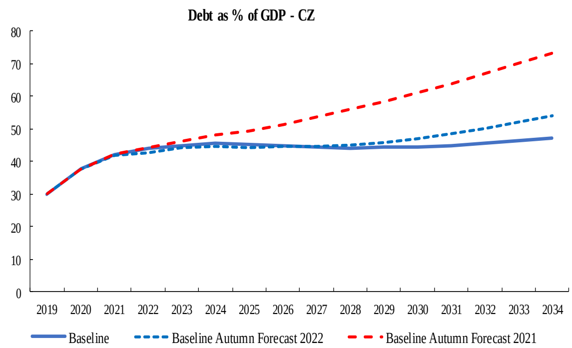
General government contingent liabilities		CZ							EU
		2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)		0.3	0.2	0.2	0.2	0.7	0.9	0.8	7.1
of which	*One-off guarantees*	*0.3*	*0.2*	*0.2*	*0.2*	*0.7*	*0.9*	*0.8*	*5.6*
	Standardised guarantees	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*1.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.2*	*0.0*	*0.0*
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9

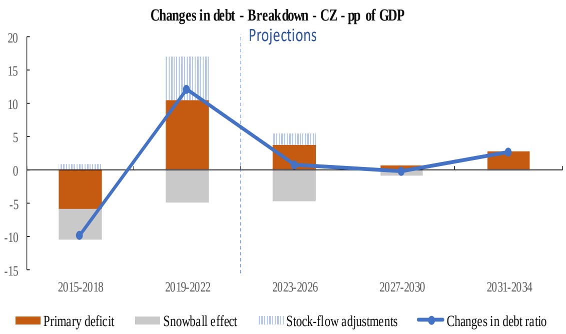
Government's contingent liability risks from banking sector - CZ (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	4.5	16.9	81.2	1.1	-0.1	53.3	0.01%	0.12%

6. Realism of baseline assumptions









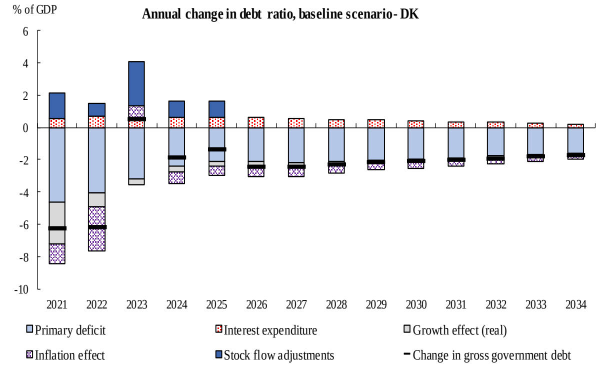
7. Underlying macro-fiscal assumptions

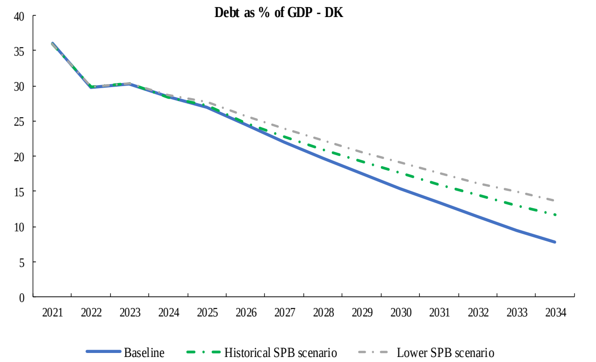
Macro-fiscal assumptions, Czechia	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	44.7	45.5	45.2	44.5	45.5	47.2	45.2	45.1	45.2
Primary balance	-2.4	-1.0	-0.2	-0.4	-0.6	-0.9	-1.2	-0.4	-0.6
Structural primary balance (before CoA)	-1.6	-0.1	-0.1	-0.1	-0.1	-0.1	-0.6	-0.1	-0.3
Real GDP growth	-0.4	1.4	3.0	1.3	1.3	1.4	1.3	1.4	1.4
Potential GDP growth	1.5	1.5	1.6	1.3	1.3	1.4	1.5	1.3	1.4
Inflation rate	9.5	3.6	2.7	2.8	2.8	2.8	5.3	2.8	3.4
Implicit interest rate (nominal)	3.3	3.2	3.1	3.9	4.1	4.3	3.2	3.8	3.7
Gross financing needs	8.2	7.0	6.7	7.2	8.0	8.8	7.3	7.3	7.3
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	44.7	45.5	45.4	47.8	50.4	53.7	45.2	48.5	47.7
Primary balance	-2.4	-1.0	-0.4	-1.1	-1.4	-1.6	-1.3	-1.1	-1.1
Structural primary balance (before CoA)	-1.6	-0.1	-0.3	-0.9	-0.9	-0.9	-0.7	-0.8	-0.8
Real GDP growth	-0.4	1.4	3.0	1.3	1.3	1.4	1.3	1.4	1.4
Gross financing needs	8.2	7.0	6.9	8.4	9.5	10.5	7.4	8.4	8.2
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	44.7	45.6	45.4	44.9	45.9	47.7	45.2	45.5	45.4
Implicit interest rate (nominal)	3.3	3.4	3.2	3.9	4.2	4.4	3.3	3.9	3.8
Gross financing needs	8.2	7.1	6.7	7.3	8.1	8.9	7.3	7.4	7.4
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	44.7	45.8	46.2	49.2	51.7	55.0	45.6	49.8	48.8
Primary balance	-2.4	-1.5	-0.8	-1.1	-1.3	-1.6	-1.6	-1.1	-1.2
Structural primary balance (before CoA)	-1.6	-0.9	-0.9	-0.9	-0.9	-0.9	-1.1	-0.9	-0.9
Real GDP growth	-0.4	1.9	2.8	1.3	1.3	1.4	1.5	1.4	1.4
Gross financing needs	8.2	7.5	7.3	8.6	9.7	10.7	7.7	8.7	8.4
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	44.7	45.7	45.8	46.7	48.5	51.1	45.4	47.4	46.9
Implicit interest rate (nominal)	3.3	3.3	3.2	4.2	4.5	4.8	3.3	4.2	3.9
Real GDP growth	-0.4	0.9	2.5	0.8	0.8	0.9	1.0	0.9	0.9
Gross financing needs	8.2	7.1	6.8	7.7	8.6	9.6	7.4	7.8	7.7
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	44.7	45.8	45.6	44.9	45.9	47.6	45.4	45.5	45.5
Exchange rate depreciation	0.0%	6.0%	0.0%	0.0%	0.0%	0.0%	2.0%	0.0%	0.5%
Gross financing needs	8.2	7.0	6.7	7.3	8.1	8.8	7.3	7.3	7.3

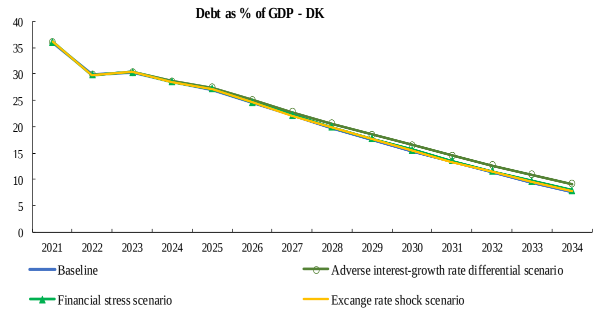
Denmark

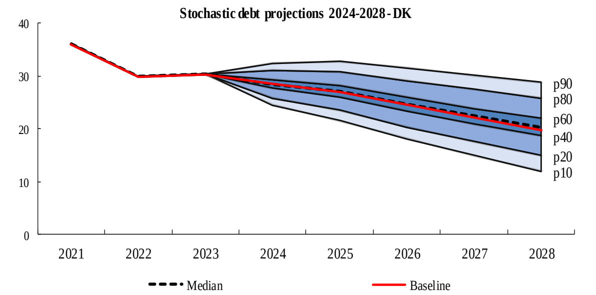
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

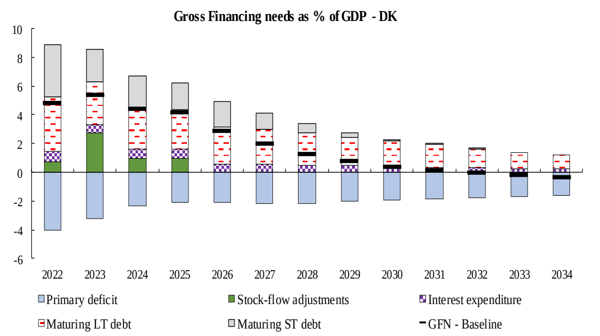
Denmark - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**36.0**	**29.8**	**30.3**	**28.4**	**27.0**	**24.5**	**22.1**	**19.7**	**17.5**	**15.4**	**13.3**	**11.4**	**9.5**	**7.7**
Changes in the ratio (-1+2+3)	*-6.3*	*-6.2*	*0.5*	*-1.9*	*-1.4*	*-2.5*	*-2.5*	*-2.3*	*-2.2*	*-2.1*	*-2.1*	*-2.0*	*-1.9*	*-1.8*
of which														
(1) Primary balance (1.1+1.2+1.3)	**4.6**	**4.1**	**3.2**	**2.4**	**2.1**	**2.1**	**2.2**	**2.1**	**2.0**	**2.0**	**1.9**	**1.8**	**1.7**	**1.6**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***4.9***	***4.1***	***4.1***	***2.9***	***2.8***	***2.6***	***2.3***	***2.1***	***2.0***	***2.0***	***1.9***	***1.8***	***1.7***	***1.6***
(1.1.1) Structural primary balance (bef. CoA)	*4.9*	*4.1*	*4.1*	*2.9*	*2.9*	*2.9*	*2.9*	*2.9*	*2.9*	*2.9*	*2.9*	*2.9*	*2.9*	*2.9*
(1.1.2) Cost of ageing					*0.1*	*0.4*	*0.7*	*1.0*	*1.2*	*1.3*	*1.4*	*1.5*	*1.6*	*1.7*
(1.1.3) Others (taxes and property incomes)					*0.1*	*0.1*	*0.2*	*0.2*	*0.3*	*0.3*	*0.3*	*0.4*	*0.4*	*0.4*
(1.2) Cyclical component	***-0.3***	***0.0***	***-0.4***	***-0.5***	***-0.7***	***-0.5***	***-0.2***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***-0.5***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-3.3**	**-2.9**	**1.0**	**-0.5**	**-0.3**	**-0.4**	**-0.3**	**-0.2**	**-0.2**	**-0.2**	**-0.2**	**-0.2**	**-0.2**	**-0.2**
(2.1) Interest expenditure	*0.6*	*0.7*	*0.6*	*0.6*	*0.6*	*0.6*	*0.5*	*0.5*	*0.4*	*0.4*	*0.4*	*0.3*	*0.3*	*0.2*
(2.2) Growth effect	*-2.6*	*-0.9*	*-0.3*	*-0.4*	*-0.3*	*-0.3*	*-0.3*	*-0.2*	*-0.1*	*-0.1*	*-0.2*	*-0.2*	*-0.1*	*-0.1*
(2.3) Inflation effect	*-1.2*	*-2.7*	*0.8*	*-0.7*	*-0.6*	*-0.6*	*-0.6*	*-0.5*	*-0.5*	*-0.4*	*-0.4*	*-0.4*	*-0.3*	*-0.3*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**1.6**	**0.7**	**2.7**	**1.0**	**1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*1.6*	*0.7*	*2.7*	*1.0*	*1.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	4.4	3.4	3.5	2.3	2.2	2.0	1.8	1.6	1.6	1.6	1.5	1.5	1.4	1.4
Gross financing needs	7.7	4.8	5.3	4.3	4.1	2.8	1.9	1.2	0.7	0.3	0.1	-0.1	-0.3	-0.4

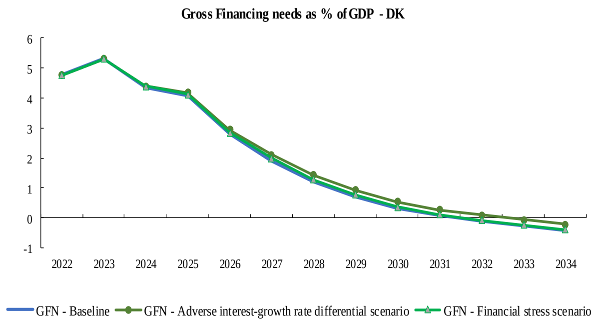












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios: Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	LOW	Overall	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
		Debt level (2034), % GDP	7.7	11.6	13.7	9.2	7.9				
		Debt peak year	2023	2023	2023	2023	2023				
		Fiscal consolidation space	66%	72%	74%	66%	66%				
		Probability of debt ratio exceeding in 2028 its 2023 level						6%			
		Difference between 90th and 10th percentiles (pps. GDP)						16.8			

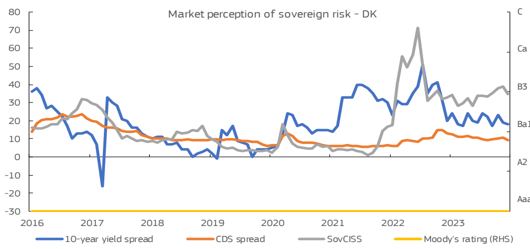
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.42**	**0.27**
Fiscal sub-index	0.36	0.28	0.11
Financial competitiveness sub-index	0.49	0.50	0.36

S2 indicator	DSM 2022	DSM 2023: Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)	**-0.1**	**-1.7**	**-1.5**	**-0.6**
of which				
Initial budgetary position	-1.7	-2.5	-2.5	-2.5
Ageing costs	1.6	0.8	1.0	1.9
of which *Pensions*	-1.5	-2.1	-1.7	-2.0
Health care	0.6	0.7	0.6	1.4
Long-term care	2.8	2.8	2.7	3.1
Others	-0.3	-0.6	-0.6	-0.6
Required structural primary balance related to S2	**1.6**	**1.2**	**1.4**	**2.3**

S1 indicator	DSM 2022	DSM 2023: Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)	**-1.7**	**-2.7**	**-2.6**	**-2.0**
of which				
Initial budgetary position	-2.3	-2.9	-2.8	-2.9
Debt requirement	-0.7	-0.7	-0.6	-0.7
Ageing costs	1.2	0.8	0.9	1.5
of which *Pensions*	-1.1	-1.2	-1.0	-1.2
Health care	0.5	0.4	0.4	1.0
Long-term care	2.0	1.9	1.9	2.1
Others	-0.2	-0.4	-0.4	-0.4
Required structural primary balance related to S1	**0.0**	**0.2**	**0.3**	**0.9**

3. Financial information



Financial market information DK - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	18.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - DK (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	10.1	2.5	25.0

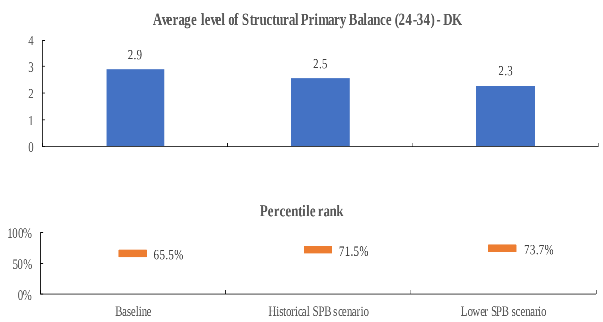
Net International Investment Position (IIP) - DK (2022)	Net IIP (% GDP):
	58.2

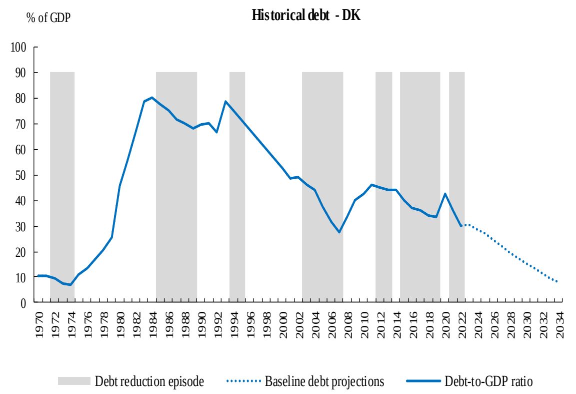
5. Risks related to government's contingent liabilities

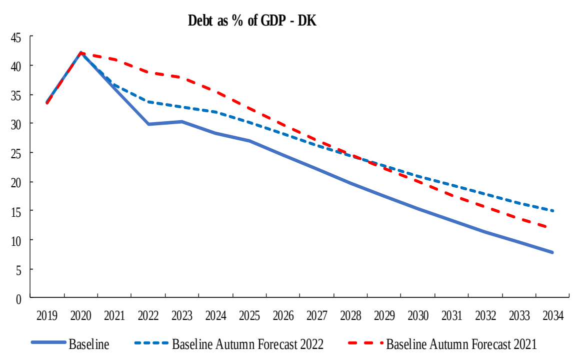
General government contingent liabilities		DK							EU
		2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)		12.2	11.6	11.8	11.4	11.6	11.0	10.5	7.1
of which	*One-off guarantees*	*12.2*	*11.6*	*11.8*	*11.4*	*11.5*	*10.9*	*10.4*	*5.6*
	Standardised guarantees	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*1.5*
Public-private partnerships (PPPs) (% GDP)		*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.0*	*0.0*
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9

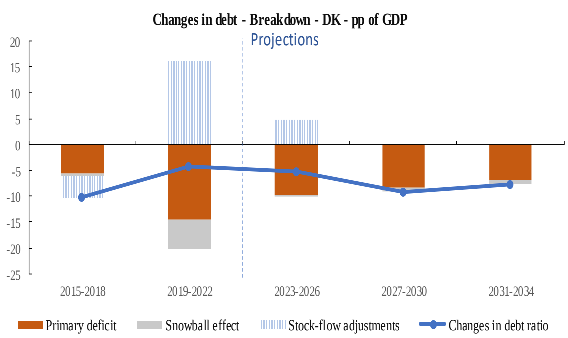
Government's contingent liability risks from banking sector - DK (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	13.1	-0.5	302.5	1.3	-0.2	28.9	0.08%	0.25%

6. Realism of baseline assumptions









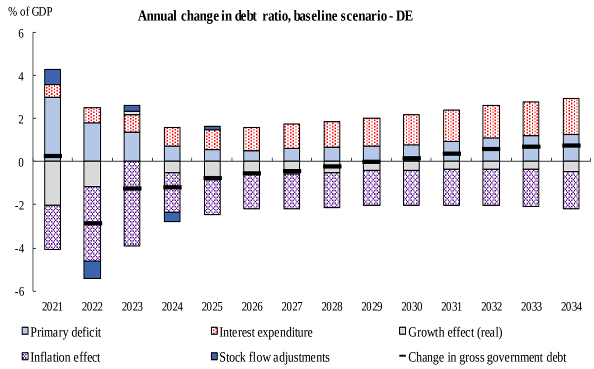
7. Underlying macro-fiscal assumptions

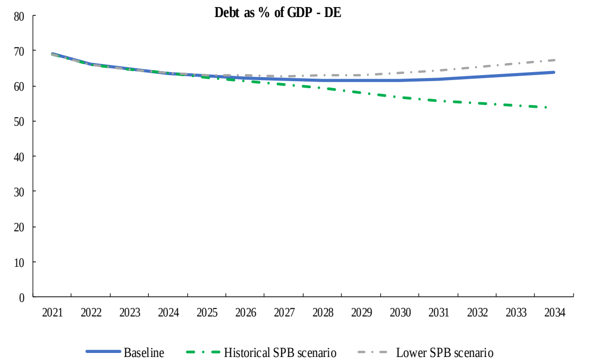
Macro-fiscal assumptions, Denmark	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	30.3	28.4	27.0	15.4	11.4	7.7	28.6	15.7	18.9
Primary balance	3.2	2.4	2.1	2.0	1.8	1.6	2.6	1.9	2.1
Structural primary balance (before CoA)	4.1	2.9	2.9	2.9	2.9	2.9	3.3	2.9	3.0
Real GDP growth	1.2	1.4	1.1	0.8	1.2	1.3	1.2	1.1	1.1
Potential GDP growth	1.8	1.6	1.4	0.8	1.2	1.3	1.6	0.9	1.1
Inflation rate	-2.5	2.3	2.2	2.6	2.7	2.8	0.7	2.6	2.1
Implicit interest rate (nominal)	2.0	2.1	2.2	2.4	2.4	2.4	2.1	2.3	2.3
Gross financing needs	5.3	4.3	4.1	0.3	-0.1	-0.4	4.6	0.7	1.7
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	30.3	28.4	27.1	17.6	14.4	11.6	28.6	17.8	20.5
Primary balance	3.2	2.4	2.0	1.5	1.3	1.2	2.5	1.5	1.8
Structural primary balance (before CoA)	4.1	2.9	2.8	2.4	2.4	2.4	3.3	2.5	2.7
Real GDP growth	1.2	1.4	1.1	0.9	1.2	1.3	1.2	1.1	1.1
Gross financing needs	5.3	4.3	4.2	1.2	0.7	0.5	4.6	1.4	2.2
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	30.3	28.5	27.1	15.6	11.5	7.9	28.6	15.8	19.0
Implicit interest rate (nominal)	2.0	2.3	2.3	2.4	2.5	2.5	2.2	2.4	2.4
Gross financing needs	5.3	4.4	4.1	0.4	-0.1	-0.4	4.6	0.7	1.7
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	30.3	28.7	27.7	19.1	16.2	13.7	28.9	19.3	21.7
Primary balance	3.2	2.0	1.7	1.4	1.2	1.0	2.3	1.3	1.6
Structural primary balance (before CoA)	4.1	2.3	2.3	2.3	2.3	2.3	2.9	2.3	2.4
Real GDP growth	1.2	1.8	0.9	0.8	1.2	1.3	1.3	1.0	1.1
Gross financing needs	5.3	4.6	4.6	1.8	1.3	1.0	4.9	2.0	2.7
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	30.3	28.6	27.4	16.5	12.7	9.2	28.8	16.7	19.7
Implicit interest rate (nominal)	2.0	2.2	2.3	2.6	2.6	2.6	2.1	2.6	2.5
Real GDP growth	1.2	0.9	0.6	0.3	0.7	0.8	0.9	0.6	0.6
Gross financing needs	5.3	4.4	4.2	0.5	0.1	-0.2	4.6	0.9	1.8
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	30.3	28.5	27.1	15.4	11.4	7.8	28.6	15.7	18.9
Exchange rate depreciation	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Gross financing needs	5.3	4.4	4.1	0.3	-0.1	-0.4	4.6	0.7	1.7

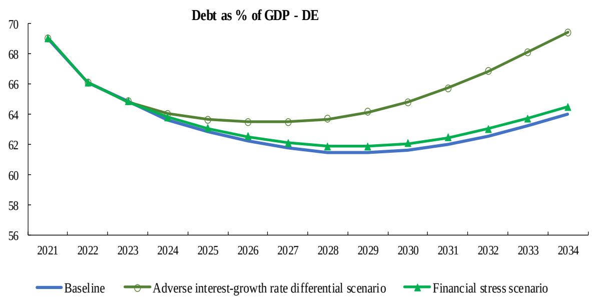
Germany

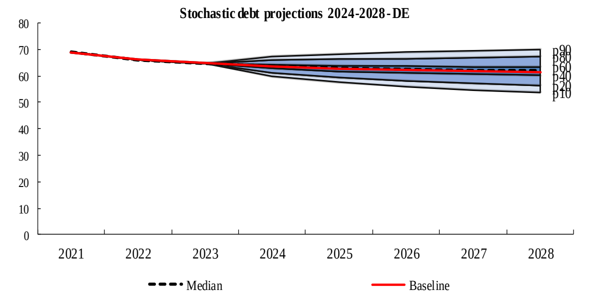
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

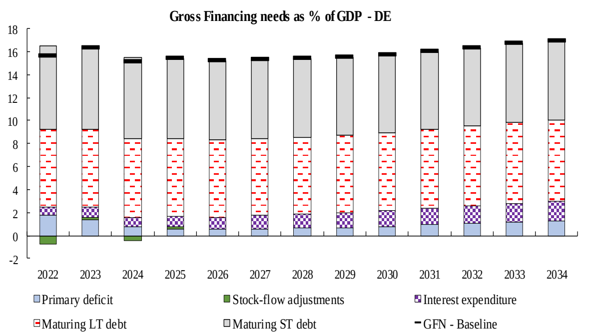
Germany - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	69.0	66.1	64.8	63.6	62.8	62.2	61.7	61.5	61.4	61.6	62.0	62.5	63.2	64.0
Changes in the ratio (-1+2+3)	*0.2*	*-2.9*	*-1.3*	*-1.2*	*-0.8*	*-0.6*	*-0.5*	*-0.3*	*0.0*	*0.2*	*0.4*	*0.6*	*0.7*	*0.7*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-3.0**	**-1.8**	**-1.4**	**-0.7**	**-0.5**	**-0.5**	**-0.6**	**-0.6**	**-0.7**	**-0.8**	**-0.9**	**-1.1**	**-1.2**	**-1.3**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-2.4***	***-1.7***	***-0.9***	***-0.2***	***-0.3***	***-0.4***	***-0.5***	***-0.6***	***-0.7***	***-0.8***	***-0.9***	***-1.1***	***-1.2***	***-1.3***
(1.1.1) Structural primary balance (bef. CoA)	*-2.4*	*-1.7*	*-0.9*	*-0.2*	*-0.2*	*-0.2*	*-0.2*	*-0.2*	*-0.2*	*-0.2*	*-0.2*	*-0.2*	*-0.2*	*-0.2*
(1.1.2) Cost of ageing					*0.2*	*0.2*	*0.4*	*0.6*	*0.6*	*0.8*	*0.9*	*1.1*	*1.2*	*1.3*
(1.1.3) Others (taxes and property incomes)					*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*
(1.2) Cyclical component	***-0.5***	***0.1***	***-0.5***	***-0.5***	***-0.2***	***-0.2***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-0.1***	***-0.2***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-3.5**	**-3.9**	**-2.9**	**-1.5**	**-1.5**	**-1.1**	**-1.1**	**-0.9**	**-0.7**	**-0.7**	**-0.6**	**-0.5**	**-0.5**	**-0.5**
(2.1) Interest expenditure	*0.6*	*0.7*	*0.8*	*0.9*	*0.9*	*1.0*	*1.1*	*1.2*	*1.3*	*1.4*	*1.5*	*1.5*	*1.6*	*1.7*
(2.2) Growth effect	*-2.0*	*-1.2*	*0.2*	*-0.5*	*-0.8*	*-0.6*	*-0.6*	*-0.5*	*-0.4*	*-0.4*	*-0.4*	*-0.4*	*-0.4*	*-0.5*
(2.3) Inflation effect	*-2.0*	*-3.5*	*-3.9*	*-1.9*	*-1.6*	*-1.6*	*-1.6*	*-1.6*	*-1.6*	*-1.6*	*-1.7*	*-1.7*	*-1.7*	*-1.7*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**0.7**	**-0.8**	**0.2**	**-0.4**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*0.8*	*-0.9*	*0.3*	*-0.4*	*0.2*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*-0.1*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-3.0	-2.4	-1.7	-1.1	-1.2	-1.4	-1.7	-1.9	-2.0	-2.2	-2.4	-2.6	-2.8	-2.9
Gross financing needs	18.5	15.6	16.3	15.1	15.4	15.2	15.3	15.3	15.5	15.7	16.0	16.3	16.7	16.9

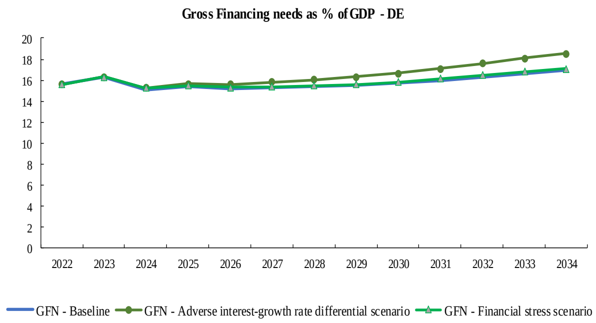












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
			Deterministic scenarios								
Overall (S0)	Overall		Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	MEDIUM	Overall	LOW	LOW	MEDIUM	MEDIUM	LOW	LOW	MEDIUM	LOW	MEDIUM
		Debt level (2034), % GDP	64.0	53.8	67.3	69.4	64.5				
		Debt peak year	2023	2023	2034	2034	2023				
		Fiscal consolidation space	79%	53%	87%	79%	79%				
		Probability of debt ratio exceeding in 2028 its 2023 level						33%			
		Difference between 90th and 10th percentiles (pps. GDP)						16.2			

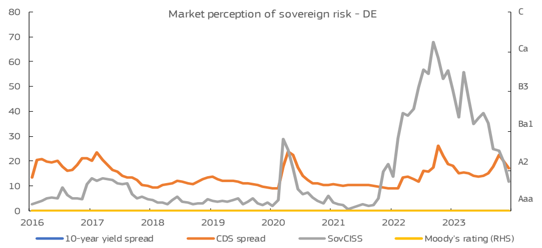
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.19**	**0.16**
Fiscal sub-index	0.36	0.35	0.23
Financial competitiveness sub-index	0.49	0.10	0.12

S2 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**3.6**	**2.0**	**2.1**	**3.6**
of which					
Initial budgetary position		1.5	0.5	0.6	0.5
Ageing costs		2.1	1.5	1.6	3.0
of which	*Pensions*	1.0	0.5	0.5	0.5
	Health care	0.4	0.5	0.4	1.2
	Long-term care	0.1	0.4	0.5	1.2
	Others	0.5	0.2	0.2	0.2
Required structural primary balance related to S2		**2.1**	**1.8**	**1.9**	**3.3**

S1 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**2.7**	**1.2**	**1.4**	**2.2**
of which					
Initial budgetary position		0.8	0.0	0.1	0.0
Debt requirement		0.1	0.1	0.1	0.1
Ageing costs		1.7	1.2	1.2	2.1
of which	*Pensions*	0.9	0.3	0.4	0.3
	Health care	0.3	0.3	0.3	0.8
	Long-term care	0.2	0.4	0.4	0.9
	Others	0.4	0.1	0.1	0.1
Required structural primary balance related to S1		**1.2**	**1.0**	**1.2**	**2.0**

3. Financial information



Financial market information DE - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	0.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - DE (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	10.2	1.6	20.3

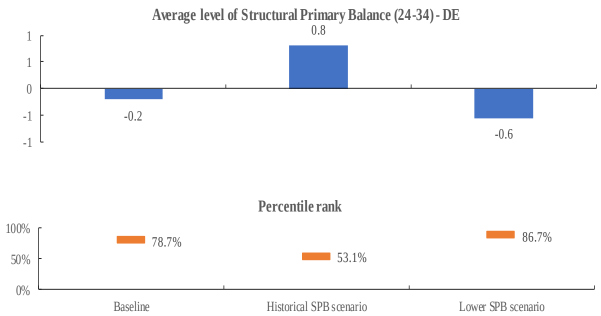
Net International Investment Position (IIP) - DE (2022)	Net IIP (% GDP):
	70.2

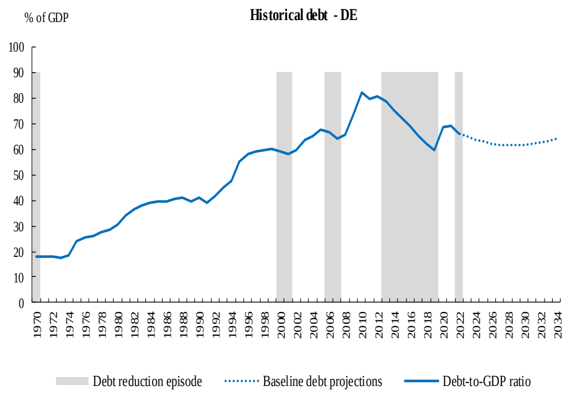
5. Risks related to government's contingent liabilities

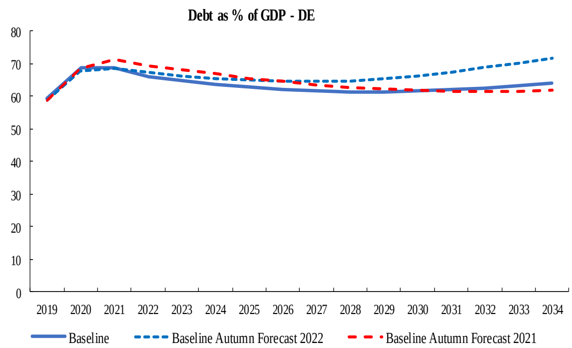
General government contingent liabilities		DE							EU
		2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)		14.3	13.4	12.8	13.1	18.4	17.5	15.5	7.1
of which	*One-off guarantees*	*14.3*	*13.4*	*12.8*	*13.1*	*18.4*	*17.5*	*15.5*	*5.6*
	Standardised guarantees	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*1.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.5	0.3	0.1	0.1	0.1	0.0	0.0	0.9

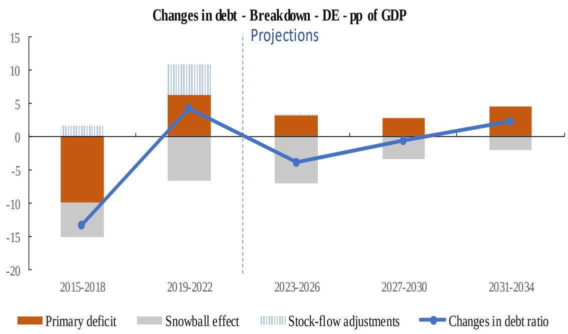
Government's contingent liability risks from banking sector - DE (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	6.7	5.3	122.9	1.1	0.1	33.0	0.00%	0.09%

6. Realism of baseline assumptions









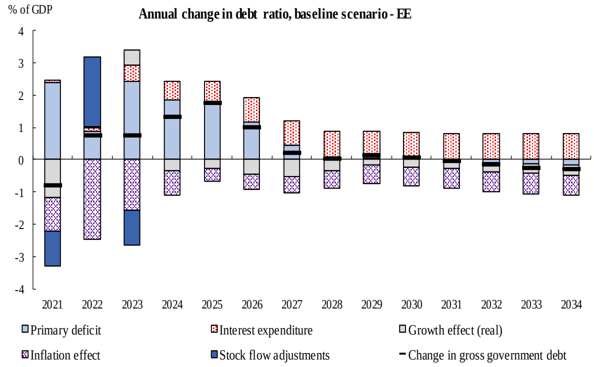
7. Underlying macro-fiscal assumptions

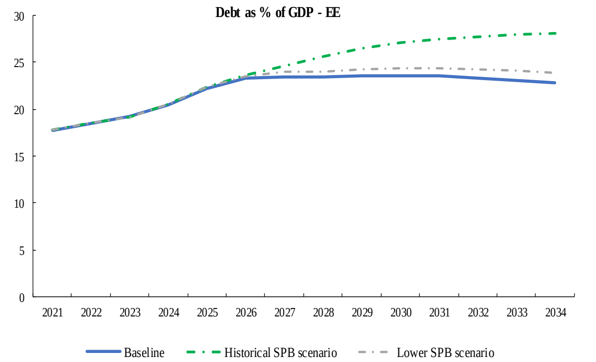
Macro-fiscal assumptions, Germany	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	64.8	63.6	62.8	61.6	62.5	64.0	63.7	62.2	62.6
Primary balance	-1.4	-0.7	-0.5	-0.8	-1.1	-1.3	-0.9	-0.9	-0.9
Structural primary balance (before CoA)	-0.9	-0.2	-0.2	-0.2	-0.2	-0.2	-0.4	-0.2	-0.3
Real GDP growth	-0.3	0.8	1.3	0.7	0.6	0.8	0.6	0.8	0.7
Potential GDP growth	0.8	0.8	0.8	0.7	0.6	0.8	0.8	0.7	0.7
Inflation rate	6.3	3.0	2.6	2.7	2.8	2.8	4.0	2.7	3.0
Implicit interest rate (nominal)	1.3	1.4	1.5	2.3	2.6	2.7	1.4	2.3	2.1
Gross financing needs	16.3	15.1	15.4	15.7	16.3	16.9	15.6	15.9	15.8
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	64.8	63.6	62.5	56.8	55.0	53.8	63.6	57.2	58.8
Primary balance	-1.4	-0.7	-0.2	0.4	0.3	0.1	-0.8	0.2	0.0
Structural primary balance (before CoA)	-0.9	-0.2	0.1	1.1	1.1	1.1	-0.3	1.0	0.7
Real GDP growth	-0.3	0.8	1.3	0.9	0.6	0.8	0.6	0.8	0.7
Gross financing needs	16.3	15.1	15.0	13.6	13.4	13.4	15.5	13.8	14.2
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	64.8	63.8	63.0	62.0	63.0	64.5	63.9	62.7	63.0
Implicit interest rate (nominal)	1.3	1.7	1.7	2.4	2.6	2.7	1.6	2.3	2.2
Gross financing needs	16.3	15.3	15.5	15.8	16.5	17.1	15.7	16.0	15.9
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	64.8	63.7	63.2	63.7	65.3	67.3	63.9	64.3	64.2
Primary balance	-1.4	-0.9	-0.8	-1.1	-1.4	-1.6	-1.0	-1.2	-1.2
Structural primary balance (before CoA)	-0.9	-0.6	-0.6	-0.6	-0.6	-0.6	-0.7	-0.6	-0.6
Real GDP growth	-0.3	1.1	1.3	0.7	0.6	0.8	0.7	0.7	0.7
Gross financing needs	16.3	15.3	15.6	16.5	17.3	18.1	15.7	16.6	16.4
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	64.8	64.0	63.6	64.8	66.8	69.4	64.1	65.5	65.2
Implicit interest rate (nominal)	1.3	1.6	1.7	2.7	3.0	3.2	1.5	2.6	2.4
Real GDP growth	-0.3	0.3	0.8	0.2	0.1	0.3	0.3	0.3	0.3
Gross financing needs	16.3	15.2	15.6	16.7	17.6	18.5	15.7	16.8	16.6
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	64.8	63.8	63.0	61.8	62.7	64.1	63.9	62.4	62.8
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	16.3	15.1	15.4	15.7	16.4	17.0	15.6	15.9	15.8

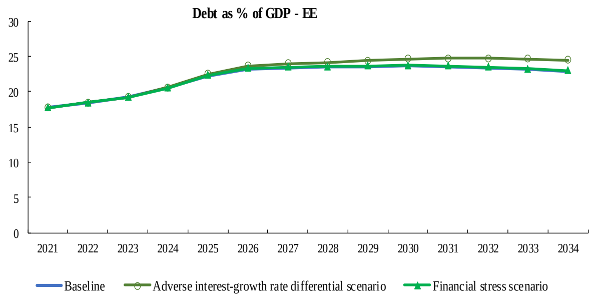
Estonia

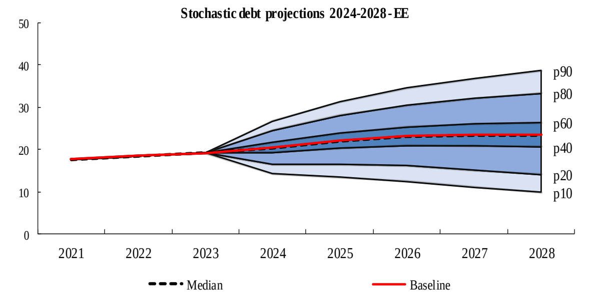
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

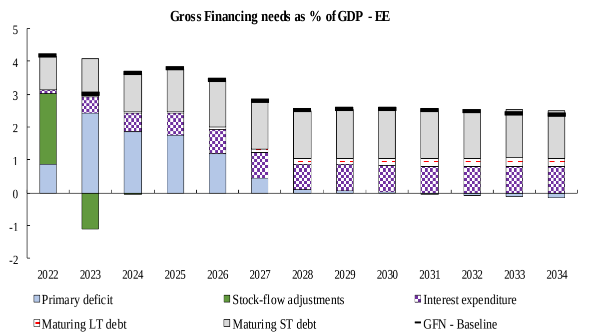
Estonia - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**17.8**	**18.5**	**19.2**	**20.5**	**22.3**	**23.3**	**23.5**	**23.5**	**23.6**	**23.6**	**23.6**	**23.4**	**23.1**	**22.8**
Changes in the ratio (-1+2+3)	*-0.8*	*0.7*	*0.7*	*1.3*	*1.7*	*1.0*	*0.2*	*0.0*	*0.1*	*0.0*	*-0.1*	*-0.2*	*-0.3*	*-0.3*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-2.4**	**-0.9**	**-2.4**	**-1.9**	**-1.7**	**-1.2**	**-0.4**	**-0.1**	**-0.1**	**0.0**	**0.0**	**0.1**	**0.1**	**0.2**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-4.3***	***-0.5***	***-0.2***	***0.0***	***0.0***	***0.0***	***-0.1***	***-0.1***	***-0.1***	***0.0***	***0.0***	***0.1***	***0.1***	***0.2***
(1.1.1) Structural primary balance (bef. CoA)	*-4.3*	*-0.5*	*-0.2*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.1.2) Cost of ageing					*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.0*	*-0.1*	*-0.1*	*-0.1*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.2) Cyclical component	***0.9***	***-0.5***	***-2.2***	***-1.9***	***-1.7***	***-1.1***	***-0.4***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***1.0***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-2.2**	**-2.3**	**-0.6**	**-0.5**	**0.0**	**-0.2**	**-0.2**	**-0.1**	**0.1**	**0.0**	**0.0**	**-0.1**	**-0.1**	**-0.2**
(2.1) Interest expenditure	*0.1*	*0.1*	*0.5*	*0.6*	*0.7*	*0.7*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*
(2.2) Growth effect	*-1.2*	*0.1*	*0.5*	*-0.3*	*-0.3*	*-0.5*	*-0.5*	*-0.3*	*-0.2*	*-0.2*	*-0.3*	*-0.3*	*-0.3*	*-0.3*
(2.3) Inflation effect	*-1.0*	*-2.5*	*-1.6*	*-0.8*	*-0.4*	*-0.5*	*-0.5*	*-0.5*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**-1.1**	**2.2**	**-1.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-1.1*	*2.2*	*-1.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-4.3	-0.6	-0.7	-0.6	-0.7	-0.8	-0.8	-0.9	-0.9	-0.8	-0.8	-0.7	-0.7	-0.6
Gross financing needs	2.7	4.1	3.0	3.6	3.8	3.4	2.8	2.5	2.5	2.5	2.5	2.5	2.4	2.3

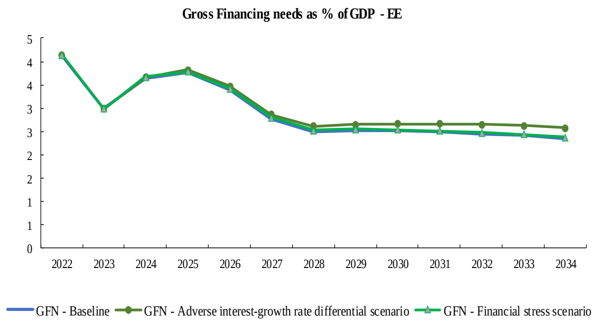












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)									Long term		
Overall (S0)	Overall		Deterministic scenarios					Stochastic projections		S2	S1	Overall (S1 + S2)
			Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress					
LOW	LOW	Overall	LOW	LOW	LOW	LOW	LOW	LOW		LOW	LOW	LOW
		Debt level (2034), % GDP	22.8	28.1	23.9	24.5	23.0					
		Debt peak year	2030	2034	2031	2031	2030					
		Fiscal consolidation space	55%	64%	56%	55%	55%					
		Probability of debt ratio exceeding in 2028 its 2023 level						65%				
		Difference between 90th and 10th percentiles (pps. GDP)						28.7				

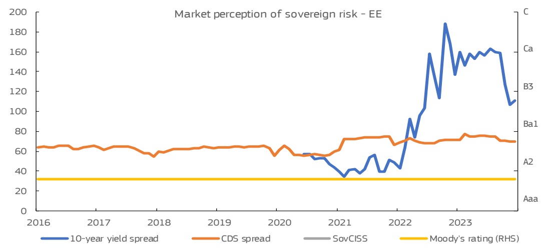
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.48**	**0.30**
Fiscal sub-index	0.36	0.27	0.18
Financial competitiveness sub-index	0.49	0.57	0.36

S2 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**0.9**	**-0.4**	**-0.2**	**5.0**
of which					
Initial budgetary position		2.0	0.1	0.1	0.1
Ageing costs		-1.1	-0.5	-0.3	4.9
of which	*Pensions*	-1.7	-1.1	-0.8	-1.0
	Health care	0.6	0.5	0.5	1.4
	Long-term care	0.3	0.5	0.5	5.0
	Others	-0.3	-0.5	-0.5	-0.5
Required structural primary balance related to S2		**-1.0**	**-0.4**	**-0.2**	**5.0**

S1 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**0.4**	**-0.9**	**-0.7**	**1.5**
of which					
Initial budgetary position		1.8	0.0	0.1	0.0
Debt requirement		-0.9	-0.8	-0.8	-0.9
Ageing costs		-0.5	-0.1	0.0	2.3
of which	*Pensions*	-1.0	-0.4	-0.3	-0.4
	Health care	0.5	0.4	0.4	1.0
	Long-term care	0.2	0.3	0.3	2.1
	Others	-0.2	-0.4	-0.4	-0.4
Required structural primary balance related to S1		**-1.6**	**-0.9**	**-0.7**	**1.5**

3. Financial information



Financial market information EE - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	111.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - EE (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	7.0	0.0	73.6

Net International Investment Position (IIP) - EE (2022)	Net IIP (% GDP):
	-20.2

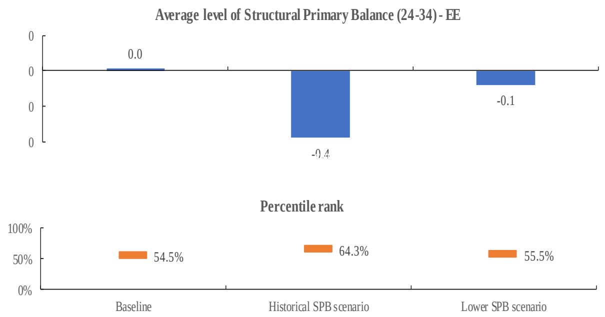
5. Risks related to government's contingent liabilities

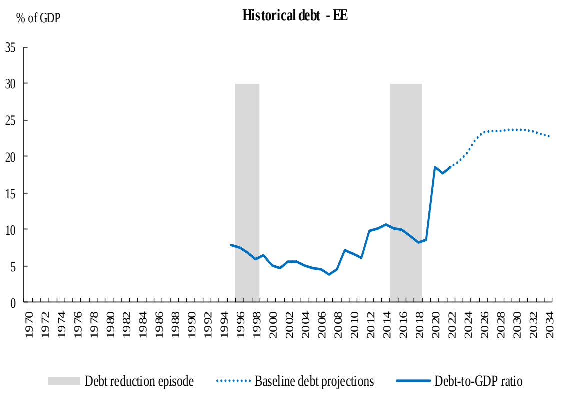
General government contingent liabilities	EE							EU
	2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)	1.8	1.7	1.6	1.4	2.0	1.7	1.4	7.1
of which *One-off guarantees*	*0.0*	*0.0*	*0.0*	*0.0*	*0.2*	*0.2*	*0.2*	*5.6*
Standardised guarantees	*1.8*	*1.7*	*1.5*	*1.4*	*1.8*	*1.6*	*1.2*	*1.5*
Public-private partnerships (PPPs) (% GDP)	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.0*	*0.0*	*0.0*

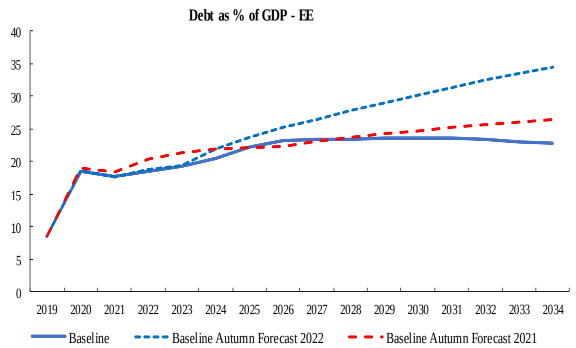
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.9
	Securities issued under liquidity schemes	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.0
	Special purpose entity	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.0
	Total	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.9

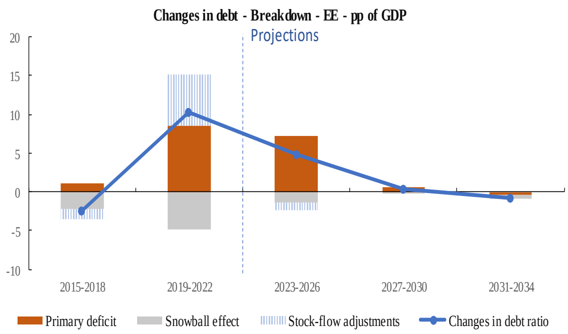
Government's contingent liability risks from banking sector - EE (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	9.2	22.2	100.8	0.6	-0.1	31.3	0.01%	0.21%

6. Realism of baseline assumptions









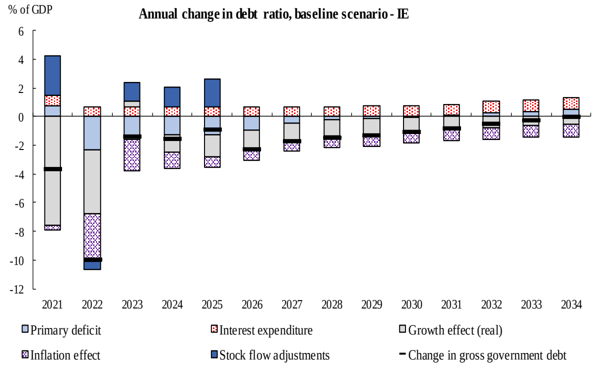
7. Underlying macro-fiscal assumptions

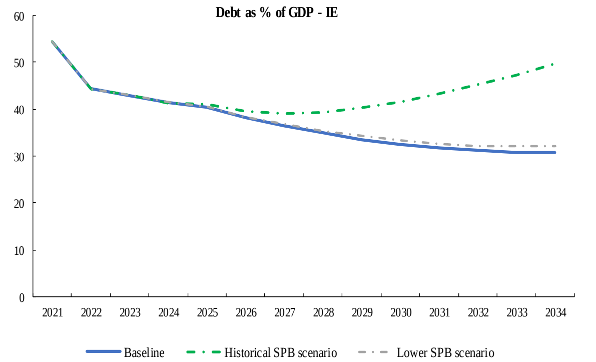
Macro-fiscal assumptions, Estonia	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	19.2	20.5	22.3	23.6	23.4	22.8	20.7	23.4	22.7
Primary balance	-2.4	-1.9	-1.7	0.0	0.1	0.2	-2.0	-0.2	-0.6
Structural primary balance (before CoA)	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Real GDP growth	-2.6	1.9	1.3	1.0	1.3	1.5	0.2	1.4	1.1
Potential GDP growth	1.0	1.1	1.0	1.0	1.3	1.5	1.0	1.0	1.0
Inflation rate	9.2	4.1	2.1	2.5	2.7	2.8	5.1	2.5	3.2
Implicit interest rate (nominal)	3.0	3.1	3.4	3.6	3.6	3.6	3.2	3.6	3.5
Gross financing needs	3.0	3.6	3.8	2.5	2.5	2.3	3.5	2.6	2.8
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	19.2	20.5	22.4	27.1	27.7	28.1	20.7	26.5	25.1
Primary balance	-2.4	-1.9	-1.9	-0.7	-0.4	-0.3	-2.0	-0.7	-1.1
Structural primary balance (before CoA)	-0.2	0.0	-0.1	-0.5	-0.5	-0.5	-0.1	-0.4	-0.4
Real GDP growth	-2.6	1.9	1.3	1.3	1.3	1.5	0.2	1.4	1.1
Gross financing needs	3.0	3.6	3.9	3.5	3.4	3.4	3.5	3.5	3.5
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	19.2	20.6	22.3	23.7	23.5	23.0	20.7	23.5	22.8
Implicit interest rate (nominal)	3.0	3.3	3.4	3.6	3.6	3.7	3.2	3.6	3.5
Gross financing needs	3.0	3.7	3.8	2.5	2.5	2.4	3.5	2.6	2.8
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	19.2	20.6	22.4	24.4	24.3	23.9	20.7	24.1	23.3
Primary balance	-2.4	-1.9	-1.8	-0.1	0.0	0.1	-2.0	-0.3	-0.7
Structural primary balance (before CoA)	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Real GDP growth	-2.6	2.0	1.3	1.0	1.3	1.5	0.2	1.4	1.1
Gross financing needs	3.0	3.7	3.8	2.7	2.6	2.5	3.5	2.8	3.0
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	19.2	20.6	22.5	24.6	24.7	24.5	20.8	24.4	23.5
Implicit interest rate (nominal)	3.0	3.2	3.5	3.8	3.9	3.9	3.2	3.8	3.7
Real GDP growth	-2.6	1.4	0.8	0.5	0.8	1.0	-0.1	0.9	0.7
Gross financing needs	3.0	3.7	3.8	2.7	2.6	2.6	3.5	2.8	2.9
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	19.2	20.5	22.3	23.6	23.4	22.8	20.7	23.4	22.7
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	3.0	3.6	3.8	2.5	2.5	2.3	3.5	2.6	2.8

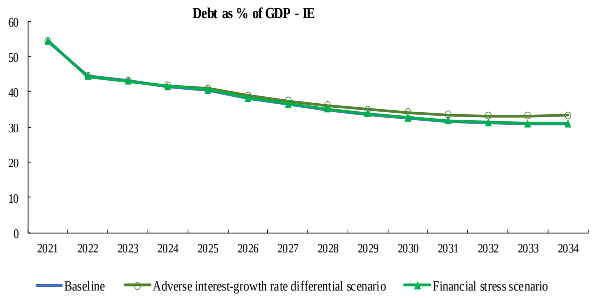
Ireland

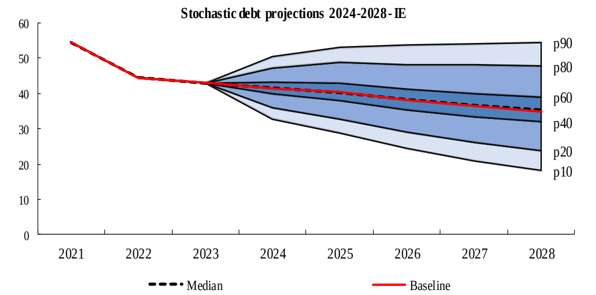
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

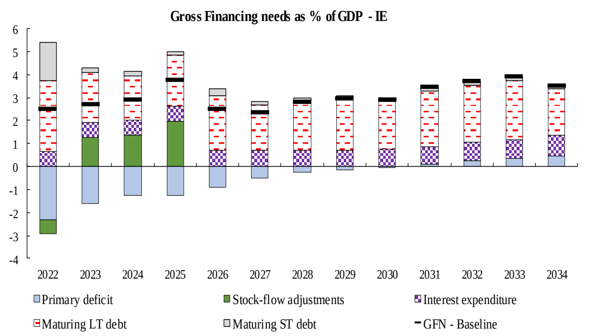
Ireland - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**54.4**	**44.4**	**43.0**	**41.4**	**40.5**	**38.2**	**36.4**	**34.9**	**33.6**	**32.5**	**31.7**	**31.2**	**30.9**	**30.8**
Changes in the ratio (-1+2+3)	*-3.7*	*-10.0*	*-1.4*	*-1.6*	*-0.9*	*-2.3*	*-1.7*	*-1.5*	*-1.3*	*-1.1*	*-0.8*	*-0.5*	*-0.3*	*-0.1*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-0.8**	**2.3**	**1.6**	**1.3**	**1.3**	**0.9**	**0.5**	**0.2**	**0.1**	**0.0**	**-0.1**	**-0.3**	**-0.4**	**-0.5**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-2.6***	***-1.7***	***0.5***	***0.8***	***0.7***	***0.5***	***0.4***	***0.2***	***0.1***	***0.0***	***-0.1***	***-0.3***	***-0.4***	***-0.5***
(1.1.1) Structural primary balance (bef. CoA)	*-2.6*	*-1.7*	*0.5*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*
(1.1.2) Cost of ageing					*0.1*	*0.2*	*0.4*	*0.5*	*0.6*	*0.7*	*0.9*	*1.0*	*1.1*	*1.2*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.2) Cyclical component	***1.8***	***4.0***	***1.1***	***0.5***	***0.5***	***0.4***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-7.1**	**-7.1**	**-1.1**	**-1.7**	**-1.6**	**-1.4**	**-1.2**	**-1.2**	**-1.2**	**-1.1**	**-0.9**	**-0.8**	**-0.6**	**-0.5**
(2.1) Interest expenditure	*0.8*	*0.7*	*0.7*	*0.6*	*0.7*	*0.7*	*0.7*	*0.7*	*0.7*	*0.7*	*0.8*	*0.8*	*0.8*	*0.9*
(2.2) Growth effect	*-7.6*	*-4.4*	*0.4*	*-1.2*	*-1.5*	*-1.3*	*-1.2*	*-1.1*	*-1.1*	*-1.0*	*-0.9*	*-0.7*	*-0.6*	*-0.6*
(2.3) Inflation effect	*-0.3*	*-3.4*	*-2.2*	*-1.1*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.9*	*-0.8*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**2.7**	**-0.6**	**1.3**	**1.4**	**2.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*2.7*	*-0.6*	*1.3*	*1.4*	*2.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-3.3	-2.4	-0.2	0.1	0.1	-0.2	-0.3	-0.5	-0.6	-0.7	-0.8	-1.1	-1.2	-1.3
Gross financing needs	5.7	2.5	2.7	2.9	3.7	2.5	2.3	2.8	2.9	2.9	3.4	3.7	3.9	3.5

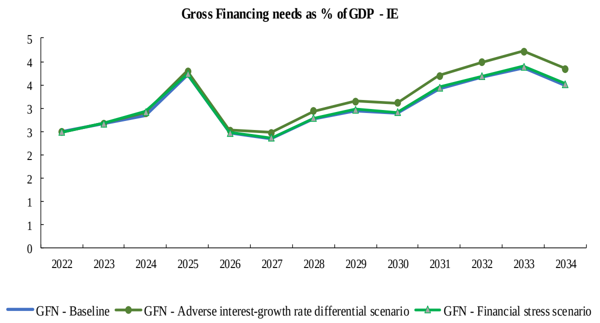












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios					Stochastic projections	S2	S1	Overall (S1 + S2)
			Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress				
LOW	LOW	Overall	LOW	LOW	LOW	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM
		Debt level (2034), % GDP	30.8	49.8	32.2	33.3	31.0				
		Debt peak year	2023	2034	2023	2023	2023				
		Fiscal consolidation space	57%	76%	59%	57%	57%				
		Probability of debt ratio exceeding in 2028 its 2023 level						30%			
		Difference between 90th and 10th percentiles (pps. GDP)						36.4			

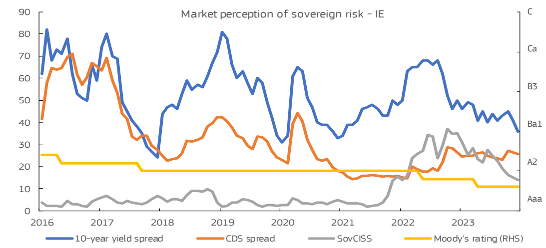
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.74**	**0.13**
Fiscal sub-index	0.36	0.81	0.00
Financial competitiveness sub-index	0.49	0.70	0.21

S2 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**4.0**	**4.0**	**3.9**	**5.3**
of which					
Initial budgetary position		-0.9	-0.5	-0.5	-0.5
Ageing costs		4.9	4.5	4.4	5.8
of which	*Pensions*	2.3	2.6	2.6	2.6
	Health care	1.2	1.3	1.2	2.1
	Long-term care	1.6	1.1	1.1	1.6
	Others	-0.1	-0.5	-0.5	-0.5
Required structural primary balance related to S2		**5.1**	**4.8**	**4.7**	**6.1**

S1 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**1.6**	**1.7**	**1.8**	**2.6**
of which					
Initial budgetary position		-1.4	-1.1	-1.0	-1.1
Debt requirement		-0.5	-0.4	-0.4	-0.4
Ageing costs		3.5	3.2	3.1	4.1
of which	*Pensions*	1.9	2.0	2.0	2.0
	Health care	0.8	0.9	0.9	1.6
	Long-term care	0.9	0.7	0.7	1.0
	Others	-0.1	-0.4	-0.4	-0.4
Required structural primary balance related to S1		**2.6**	**2.5**	**2.5**	**3.4**

3. Financial information



Financial market information IE - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	36.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - IE (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	6.8	0.0	53.1

Net International Investment Position (IIP) - IE (2022)	Net IIP (% GDP):
	-116.8

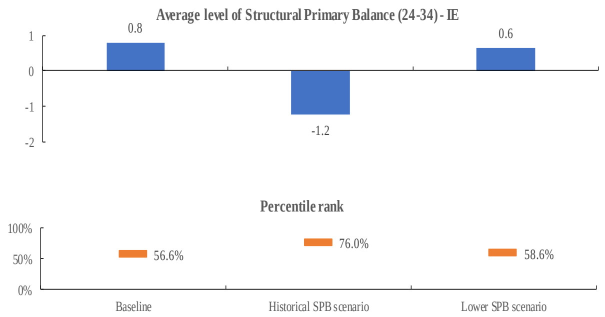
5. Risks related to government's contingent liabilities

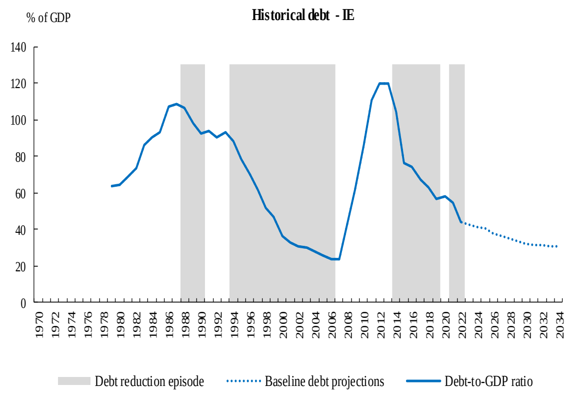
General government contingent liabilities	2016	2017	2018	2019	2020	2021	2022	EU 2022
	IE							EU
State guarantees (% GDP)	1.5	0.2	0.0	0.0	0.2	0.3	0.2	7.1
of which *One-off guarantees*	*1.5*	*0.1*	*0.0*	*0.0*	*0.2*	*0.2*	*0.1*	*5.6*
Standardised guarantees	*0.0*	*0.1*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*1.5*
Public-private partnerships (PPPs) (% GDP)	*0.7*	*0.8*	*0.7*	*0.7*	*0.7*	*0.6*	*0.0*	*0.0*

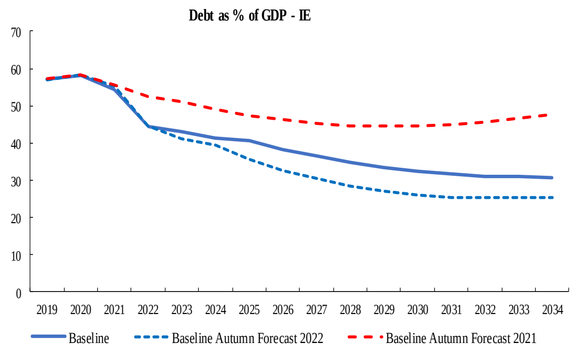
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)		2016	2017	2018	2019	2020	2021	2022	2022
	Liabilities and assets outside gen. gov. under guarantee	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	1.5	0.1	0.0	0.0	0.0	0.0	0.0	0.9

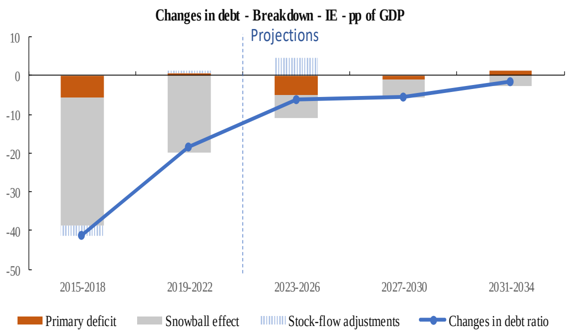
Government's contingent liability risks from banking sector - IE (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	2.0	12.3	70.5	1.8	-0.6	30.7	0.04%	0.53%

6. Realism of baseline assumptions









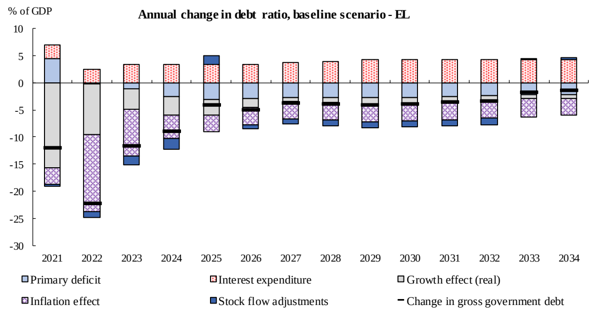
7. Underlying macro-fiscal assumptions

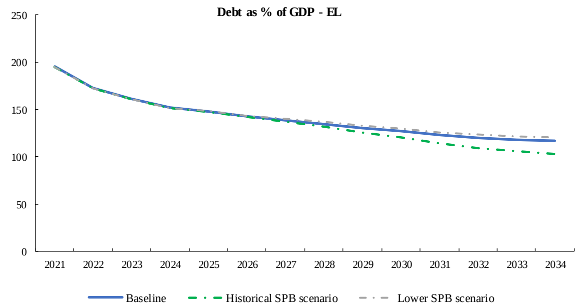
Macro-fiscal assumptions, Ireland	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	43.0	41.4	40.5	32.5	31.2	30.8	41.6	33.4	35.4
Primary balance	1.6	1.3	1.3	0.0	-0.3	-0.5	1.4	0.1	0.4
Structural primary balance (before CoA)	0.5	0.8	0.8	0.8	0.8	0.8	0.7	0.8	0.8
Real GDP growth	-0.9	3.0	3.9	3.1	2.5	2.0	2.0	2.8	2.6
Potential GDP growth	4.5	4.3	3.8	3.1	2.5	2.0	4.2	3.0	3.3
Inflation rate	5.1	2.6	1.9	2.5	2.7	2.8	3.2	2.5	2.6
Implicit interest rate (nominal)	1.5	1.6	1.7	2.3	2.6	3.0	1.6	2.4	2.2
Gross financing needs	2.7	2.9	3.7	2.9	3.7	3.5	3.1	3.1	3.1
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	43.0	41.4	41.1	41.5	45.2	49.8	41.8	42.8	42.6
Primary balance	1.6	1.3	0.6	-2.3	-2.9	-3.1	1.2	-2.1	-1.3
Structural primary balance (before CoA)	0.5	0.8	0.1	-1.8	-1.8	-1.8	0.5	-1.6	-1.1
Real GDP growth	-0.9	3.0	3.9	2.6	2.5	2.0	2.0	2.8	2.6
Gross financing needs	2.7	2.9	4.4	5.9	7.6	7.8	3.3	6.0	5.3
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	43.0	41.5	40.6	32.7	31.3	31.0	41.7	33.5	35.5
Implicit interest rate (nominal)	1.5	1.8	1.7	2.4	2.7	3.0	1.7	2.4	2.2
Gross financing needs	2.7	2.9	3.7	2.9	3.7	3.5	3.1	3.1	3.1
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	43.0	41.5	40.7	33.3	32.2	32.2	41.7	34.2	36.0
Primary balance	1.6	1.2	1.2	-0.1	-0.4	-0.6	1.3	-0.1	0.3
Structural primary balance (before CoA)	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Real GDP growth	-0.9	3.2	3.8	3.1	2.5	2.0	2.0	2.8	2.6
Gross financing needs	2.7	2.9	3.8	3.1	3.9	3.8	3.1	3.3	3.3
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	43.0	41.7	40.9	34.1	33.2	33.3	41.9	34.9	36.7
Implicit interest rate (nominal)	1.5	1.7	1.8	2.6	2.9	3.3	1.7	2.6	2.4
Real GDP growth	-0.9	2.5	3.4	2.6	2.0	1.5	1.7	2.3	2.2
Gross financing needs	2.7	2.9	3.8	3.1	4.0	3.8	3.1	3.3	3.3
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	43.0	41.4	40.5	32.5	31.2	30.8	41.6	33.4	35.4
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	2.7	2.9	3.7	2.9	3.7	3.5	3.1	3.1	3.1

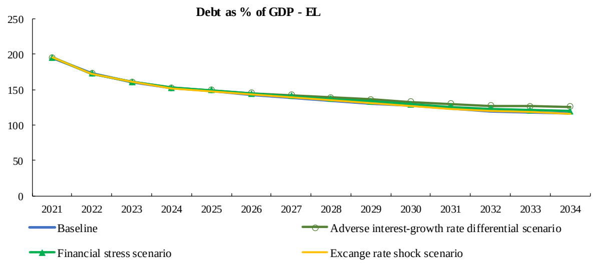
Greece

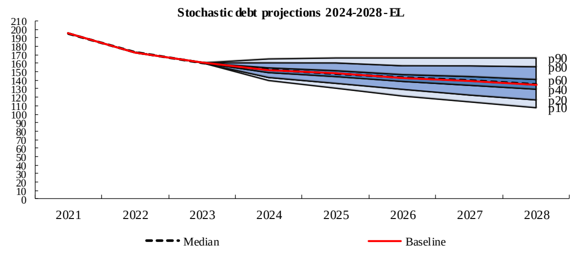
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

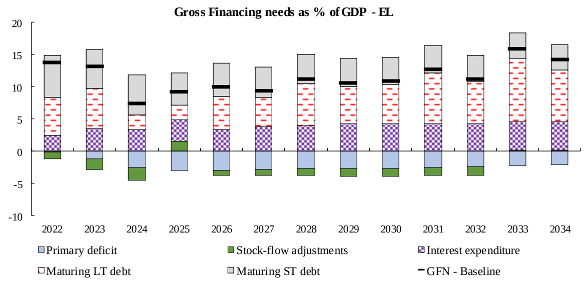
Greece - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**195.0**	**172.6**	**160.9**	**151.9**	**147.8**	**142.7**	**138.8**	**134.8**	**130.7**	**126.8**	**123.1**	**119.6**	**117.8**	**116.4**
Changes in the ratio (-1+2+3)	*-12.0*	*-22.4*	*-11.7*	*-8.9*	*-4.1*	*-5.1*	*-3.9*	*-4.0*	*-4.1*	*-3.9*	*-3.7*	*-3.5*	*-1.8*	*-1.5*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-4.5**	**0.1**	**1.1**	**2.5**	**3.0**	**2.9**	**2.8**	**2.7**	**2.7**	**2.7**	**2.6**	**2.4**	**2.3**	**2.1**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-1.9***	***0.3***	***1.2***	***2.0***	***2.3***	***2.4***	***2.6***	***2.7***	***2.7***	***2.7***	***2.6***	***2.4***	***2.3***	***2.1***
(1.1.1) Structural primary balance (bef. CoA)	*-1.9*	*0.3*	*1.2*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
(1.1.2) Cost of ageing					*-0.3*	*-0.5*	*-0.7*	*-0.8*	*-0.8*	*-0.7*	*-0.6*	*-0.5*	*-0.3*	*-0.1*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*0.0*	*0.0*
(1.2) Cyclical component	***-3.4***	***-0.7***	***0.2***	***0.5***	***0.8***	***0.5***	***0.2***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.8***	***0.5***	***-0.2***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-16.3**	**-21.2**	**-8.9**	**-4.4**	**-2.7**	**-1.3**	**-0.1**	**-0.2**	**-0.3**	**-0.1**	**0.1**	**0.2**	**0.3**	**0.4**
(2.1) Interest expenditure	*2.5*	*2.5*	*3.5*	*3.3*	*3.4*	*3.4*	*3.8*	*4.0*	*4.2*	*4.3*	*4.3*	*4.3*	*4.3*	*4.4*
(2.2) Growth effect	*-15.8*	*-9.5*	*-3.8*	*-3.5*	*-2.9*	*-1.6*	*-0.7*	*-1.0*	*-1.2*	*-1.1*	*-0.9*	*-0.8*	*-0.7*	*-0.7*
(2.3) Inflation effect	*-3.0*	*-14.2*	*-8.6*	*-4.3*	*-3.1*	*-3.2*	*-3.2*	*-3.2*	*-3.2*	*-3.3*	*-3.3*	*-3.3*	*-3.3*	*-3.2*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**-0.2**	**-1.0**	**-1.7**	**-2.0**	**1.6**	**-0.8**	**-0.9**	**-1.1**	**-1.1**	**-1.2**	**-1.2**	**-1.2**	**0.2**	**0.2**
(3.1) Base	*-0.2*	*-1.0*	*-1.7*	*-2.0*	*1.6*	*-0.8*	*-0.9*	*-1.1*	*-1.1*	*-1.2*	*-1.2*	*-1.2*	*0.2*	*0.2*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-4.4	-2.2	-2.3	-1.3	-1.1	-1.0	-1.1	-1.2	-1.5	-1.6	-1.7	-1.9	-2.0	-2.3
Gross financing needs	19.4	13.7	13.1	7.3	9.2	9.8	9.3	11.2	10.5	10.8	12.5	11.1	15.8	14.2

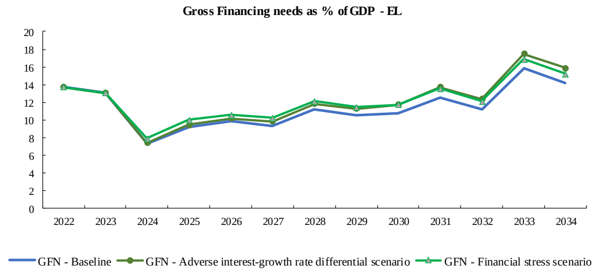












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios: Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	HIGH	Overall	HIGH	HIGH	HIGH	HIGH	HIGH	MEDIUM	LOW	LOW	LOW
		Debt level (2034), % GDP	116.4	102.7	120.8	126.0	119.9				
		Debt peak year	2023	2023	2023	2023	2023				
		Fiscal consolidation space	23%	21%	24%	23%	23%				
		Probability of debt ratio exceeding in 2028 its 2023 level						14%			
		Difference between 90th and 10th percentiles (pps. GDP)						58.0			

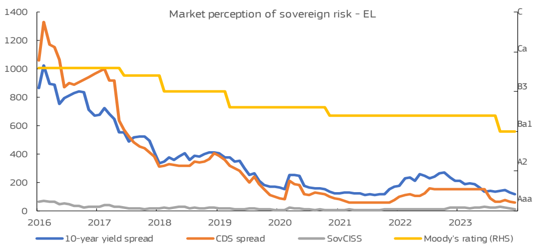
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.76**	**0.31**
Fiscal sub-index	0.36	0.87	0.24
Financial competitiveness sub-index	0.49	0.72	0.35

S2 indicator	DSM 2022	DSM 2023: Baseline	DSM 2023: Lower productivity scenario	DSM 2023: Non-demographic risk scenario
Overall index (pps. of GDP)	**-3.6**	**-1.7**	**-0.8**	**1.6**
of which				
Initial budgetary position	-1.7	-1.1	-0.7	-1.0
Ageing costs	-1.9	-0.6	0.0	2.7
of which *Pensions*	-2.1	-1.0	-0.4	-1.0
Health care	0.6	0.7	0.7	1.5
Long-term care	0.0	0.0	0.0	2.5
Others	-0.5	-0.3	-0.3	-0.3
Required structural primary balance related to S2	**-1.1**	**0.3**	**1.3**	**3.6**

S1 indicator	DSM 2022	DSM 2023: Baseline	DSM 2023: Lower productivity scenario	DSM 2023: Non-demographic risk scenario
Overall index (pps. of GDP)	**-1.7**	**0.3**	**0.8**	**1.5**
of which				
Initial budgetary position	-2.6	-1.7	-1.4	-1.7
Debt requirement	2.1	1.8	1.7	1.8
Ageing costs	-1.1	0.2	0.5	1.4
of which *Pensions*	-1.2	-0.2	0.1	-0.2
Health care	0.5	0.7	0.6	1.2
Long-term care	0.0	0.0	0.0	0.7
Others	-0.4	-0.2	-0.2	-0.2
Required structural primary balance related to S1	**0.8**	**2.3**	**2.8**	**3.6**

3. Financial information



Financial market information EL - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	118.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - EL (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	6.6	0.0	78.2

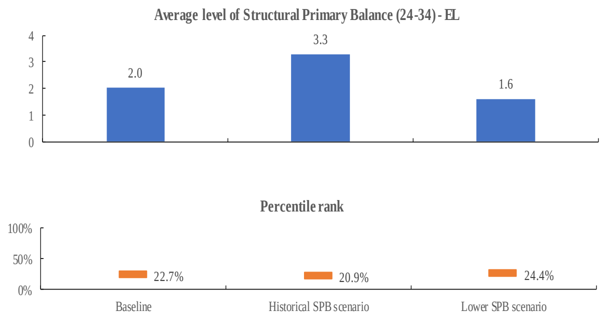
Net International Investment Position (IIP) - EL (2022)	Net IIP (% GDP):
	-143.5

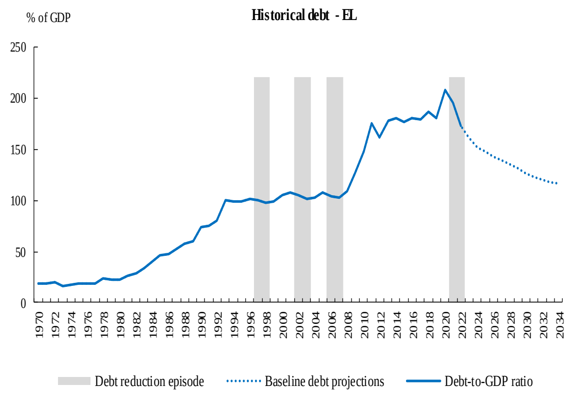
5. Risks related to government's contingent liabilities

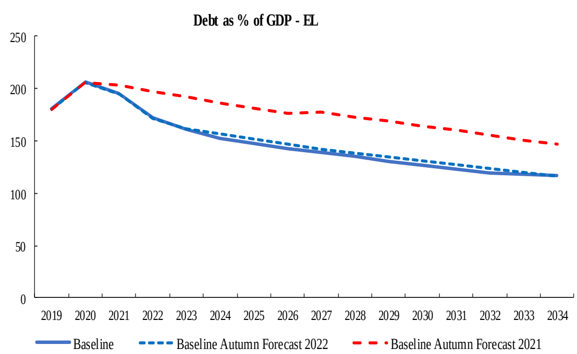
General government contingent liabilities		EL							EU
		2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)		6.5	4.4	4.1	4.1	6.4	14.4	12.2	7.1
of which	*One-off guarantees*	*6.5*	*4.3*	*4.1*	*4.1*	*5.4*	*13.5*	*11.3*	*5.6*
	Standardised guarantees	*0.0*	*0.0*	*0.0*	*0.0*	*1.0*	*1.0*	*0.9*	*1.5*
Public-private partnerships (PPPs) (% GDP)		*0.1*	*0.1*	*0.2*	*0.2*	*0.2*	*0.2*	*0.0*	*0.0*
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	2.2	0.2	0.2	0.2	1.7	10.2	8.7	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	2.2	0.2	0.2	0.2	1.7	10.2	8.7	0.9

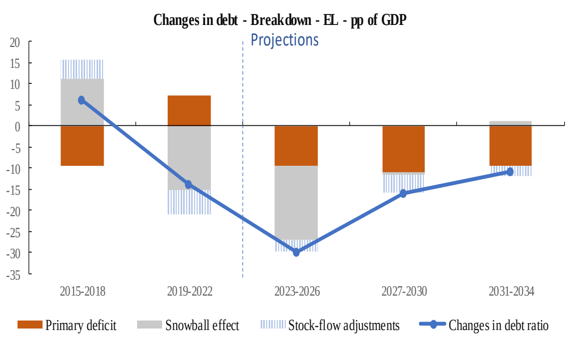
Government's contingent liability risks from banking sector - EL (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	1.1	11.1	59.6	4.6	-0.6	43.0	0.07%	0.98%

6. Realism of baseline assumptions









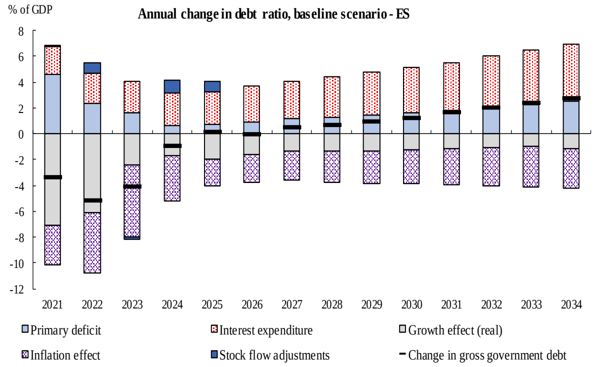
7. Underlying macro-fiscal assumptions

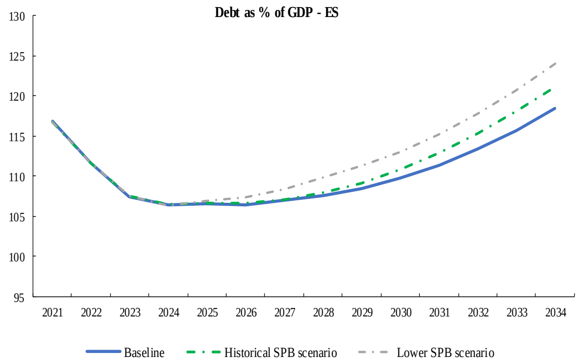
Macro-fiscal assumptions, Greece	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	160.9	151.9	147.8	126.8	119.6	116.4	153.5	127.9	134.3
Primary balance	1.1	2.5	3.0	2.7	2.4	2.1	2.2	2.6	2.5
Structural primary balance (before CoA)	1.2	2.0	2.0	2.0	2.0	2.0	1.7	2.0	2.0
Real GDP growth	2.4	2.3	2.0	0.9	0.7	0.7	2.2	0.8	1.1
Potential GDP growth	0.7	1.5	1.6	0.9	0.7	0.7	1.3	0.9	1.0
Inflation rate	5.3	2.7	2.1	2.6	2.7	2.8	3.4	2.5	2.7
Implicit interest rate (nominal)	2.2	2.2	2.3	3.4	3.6	3.8	2.2	3.3	3.0
Gross financing needs	13.1	7.3	9.2	10.8	11.1	14.2	9.9	11.7	11.2
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	160.9	151.9	147.4	120.0	109.4	102.7	153.4	121.0	129.1
Primary balance	1.1	2.5	3.4	4.3	4.1	3.7	2.3	4.0	3.6
Structural primary balance (before CoA)	1.2	2.0	2.4	3.6	3.6	3.6	1.9	3.5	3.1
Real GDP growth	2.4	2.3	2.0	0.9	0.7	0.7	2.2	0.8	1.1
Gross financing needs	13.1	7.3	8.8	7.5	6.9	9.1	9.7	8.6	8.9
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	160.9	152.7	148.9	129.4	122.7	119.9	154.2	130.4	136.4
Implicit interest rate (nominal)	2.2	2.7	2.6	3.6	3.8	4.0	2.5	3.5	3.2
Gross financing needs	13.1	7.9	10.0	11.7	12.1	15.2	10.3	12.6	12.1
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	160.9	151.7	148.0	129.3	123.1	120.8	153.5	130.4	136.2
Primary balance	1.1	2.2	2.7	2.3	2.0	1.7	2.0	2.2	2.1
Structural primary balance (before CoA)	1.2	1.6	1.6	1.6	1.6	1.6	1.5	1.6	1.6
Real GDP growth	2.4	2.6	1.9	0.9	0.7	0.7	2.3	0.7	1.1
Gross financing needs	13.1	7.5	9.6	11.7	12.2	15.4	10.0	12.6	11.9
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	160.9	152.8	149.4	132.7	127.3	126.0	154.4	133.8	138.9
Implicit interest rate (nominal)	2.2	2.2	2.4	3.5	3.8	4.1	2.3	3.4	3.1
Real GDP growth	2.4	1.8	1.5	0.4	0.2	0.2	1.9	0.3	0.7
Gross financing needs	13.1	7.4	9.4	11.7	12.4	15.9	10.0	12.7	12.0
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	160.9	151.9	147.8	126.8	119.6	116.4	153.5	127.9	134.3
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	13.1	7.3	9.2	10.8	11.1	14.2	9.9	11.7	11.2

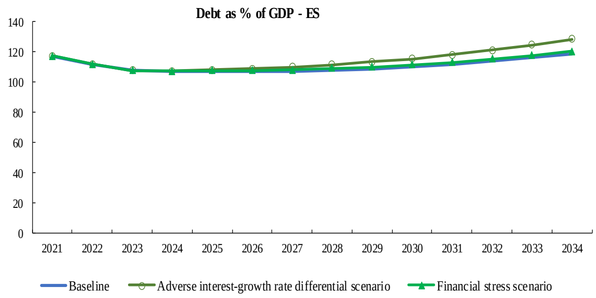
Spain

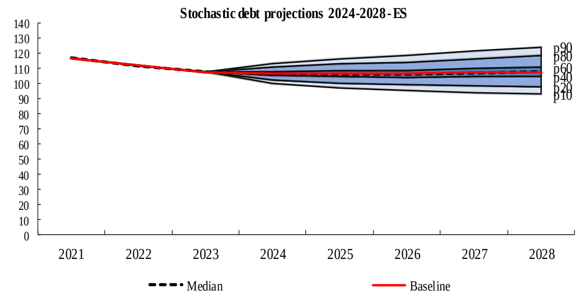
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

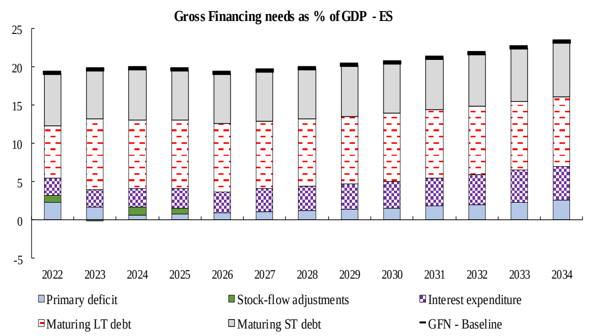
Spain - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**116.8**	**111.6**	**107.5**	**106.5**	**106.6**	**106.5**	**107.0**	**107.6**	**108.5**	**109.7**	**111.3**	**113.3**	**115.7**	**118.4**
Changes in the ratio (-1+2+3)	*-3.4*	*-5.2*	*-4.1*	*-1.0*	*0.1*	*-0.1*	*0.5*	*0.7*	*0.9*	*1.2*	*1.6*	*2.0*	*2.4*	*2.7*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-4.6**	**-2.4**	**-1.6**	**-0.6**	**-0.8**	**-0.9**	**-1.2**	**-1.3**	**-1.4**	**-1.6**	**-1.8**	**-2.1**	**-2.3**	**-2.5**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-1.9***	***-2.3***	***-2.1***	***-1.0***	***-1.0***	***-1.1***	***-1.2***	***-1.3***	***-1.4***	***-1.6***	***-1.8***	***-2.1***	***-2.3***	***-2.5***
(1.1.1) Structural primary balance (bef. CoA)	*-1.9*	*-2.3*	*-2.1*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.0*
(1.1.2) Cost of ageing					*0.1*	*0.1*	*0.3*	*0.3*	*0.5*	*0.7*	*0.9*	*1.2*	*1.4*	*1.7*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.1*
(1.2) Cyclical component	***-2.6***	***0.0***	***0.4***	***0.3***	***0.3***	***0.2***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-0.1***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-8.0**	**-8.4**	**-5.6**	**-2.7**	**-1.5**	**-1.0**	**-0.7**	**-0.6**	**-0.6**	**-0.4**	**-0.2**	**-0.1**	**0.1**	**0.2**
(2.1) Interest expenditure	*2.1*	*2.4*	*2.4*	*2.5*	*2.5*	*2.7*	*2.9*	*3.1*	*3.3*	*3.5*	*3.7*	*3.9*	*4.2*	*4.4*
(2.2) Growth effect	*-7.1*	*-6.1*	*-2.5*	*-1.7*	*-1.9*	*-1.6*	*-1.3*	*-1.3*	*-1.3*	*-1.2*	*-1.1*	*-1.0*	*-1.0*	*-1.1*
(2.3) Inflation effect	*-3.1*	*-4.6*	*-5.6*	*-3.5*	*-2.1*	*-2.2*	*-2.3*	*-2.4*	*-2.5*	*-2.7*	*-2.8*	*-2.9*	*-3.1*	*-3.1*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**0.0**	**0.8**	**-0.1**	**1.0**	**0.8**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*0.0*	*0.8*	*-0.1*	*1.0*	*0.8*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-4.1	-4.7	-4.5	-3.5	-3.6	-3.9	-4.1	-4.4	-4.7	-5.1	-5.5	-6.0	-6.5	-6.9
Gross financing needs	23.9	19.1	19.6	19.6	19.5	19.1	19.4	19.8	20.1	20.5	21.1	21.7	22.4	23.2

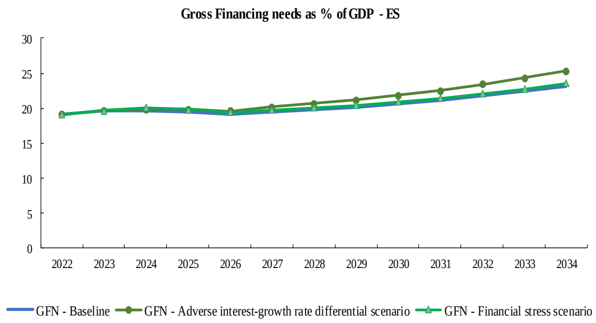












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios					Stochastic projections	S2	S1	Overall (S1 + S2)
			Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress				
LOW	HIGH	Overall	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	MEDIUM	MEDIUM	MEDIUM
		Debt level (2034), % GDP	118.4	121.1	124.0	128.0	120.1				
		Debt peak year	2034	2034	2034	2034	2034				
		Fiscal consolidation space	75%	78%	84%	75%	75%				
		Probability of debt ratio exceeding in 2028 its 2023 level						51%			
		Difference between 90th and 10th percentiles (pps. GDP)						31.1			

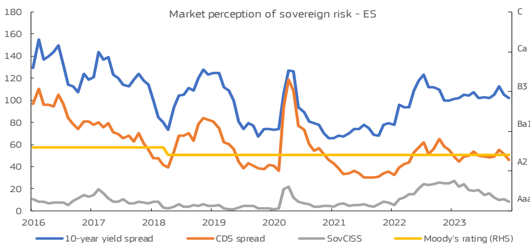
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.79**	**0.41**
Fiscal sub-index	0.36	0.69	0.57
Financial competitiveness sub-index	0.49	0.85	0.33

S2 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**1.0**	**5.9**	**6.6**	**8.6**
of which					
Initial budgetary position		1.7	1.9	2.1	1.9
Ageing costs		-0.7	4.0	4.5	6.7
of which	*Pensions*	-2.0	2.7	3.3	2.7
	Health care	1.1	1.1	1.1	1.7
	Long-term care	0.6	0.7	0.7	2.8
	Others	-0.4	-0.5	-0.5	-0.5
Required structural primary balance related to S2		**-0.2**	**4.9**	**5.6**	**7.6**

S1 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**2.4**	**5.4**	**5.8**	**6.8**
of which					
Initial budgetary position		0.9	1.3	1.5	1.2
Debt requirement		1.1	0.9	0.8	0.9
Ageing costs		0.4	3.2	3.5	4.7
of which	*Pensions*	-0.5	2.3	2.7	2.4
	Health care	0.9	0.9	0.9	1.4
	Long-term care	0.4	0.4	0.4	1.5
	Others	-0.4	-0.5	-0.5	-0.5
Required structural primary balance related to S1		**1.3**	**4.4**	**4.9**	**5.8**

3. Financial information



Financial market information ES - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	102.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - ES (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	5.1	0.0	40.8

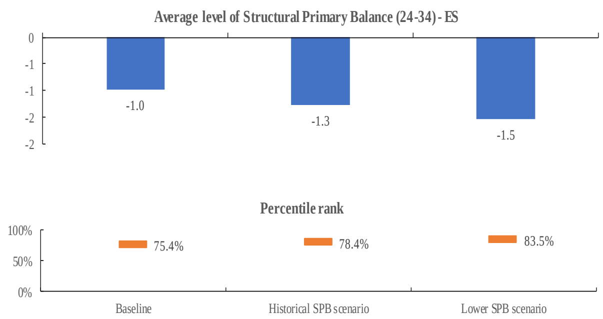
Net International Investment Position (IIP) - ES (2022)	Net IIP (% GDP):
	-60.2

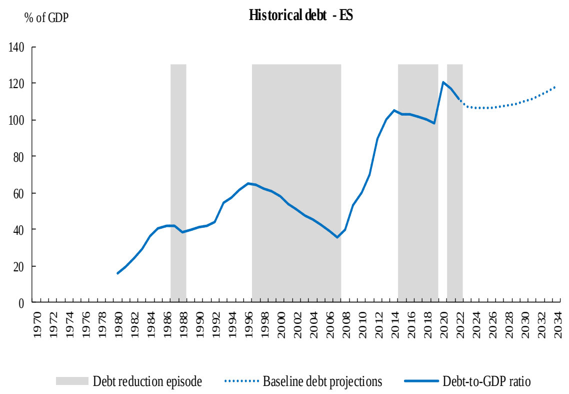
5. Risks related to government's contingent liabilities

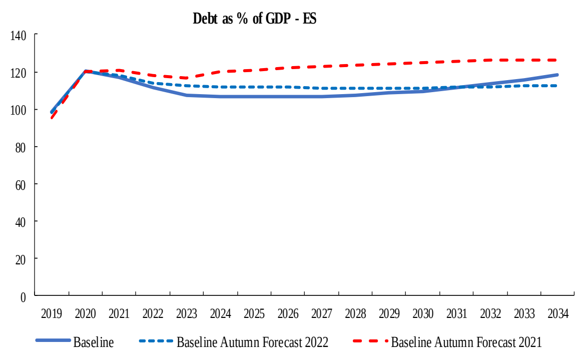
General government contingent liabilities		ES							EU
		2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)		7.8	6.5	2.5	2.1	10.7	11.5	10.1	7.1
of which	*One-off guarantees*	*7.8*	*6.5*	*2.5*	*2.1*	*10.7*	*2.9*	*2.0*	*5.6*
	Standardised guarantees	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*8.5*	*8.1*	*1.5*
Public-private partnerships (PPPs) (% GDP)		*0.4*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.0*	*0.0*
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	3.7	3.4	3.0	2.8	0.0	0.0	0.0	0.0
	Total	3.8	3.4	3.0	2.8	0.0	0.0	0.0	0.9

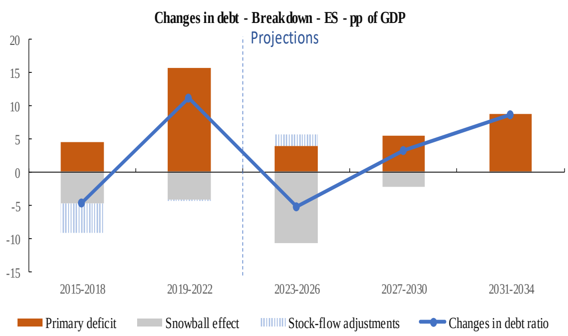
Government's contingent liability risks from banking sector - ES (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	0.3	7.4	101.8	2.8	0.0	42.8	0.16%	1.32%

6. Realism of baseline assumptions









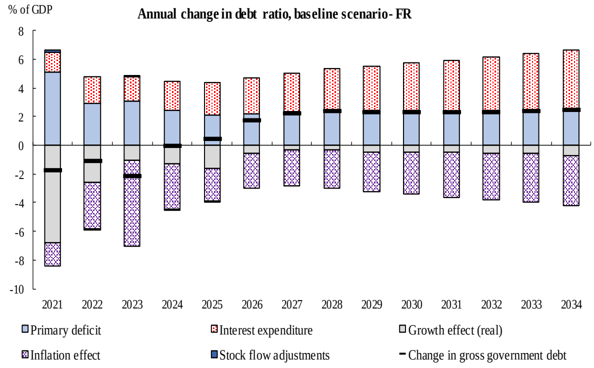
7. Underlying macro-fiscal assumptions

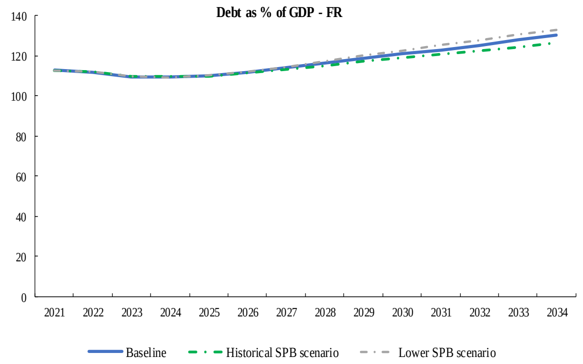
Macro-fiscal assumptions, Spain	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	107.5	106.5	106.6	109.7	113.3	118.4	106.9	110.9	109.9
Primary balance	-1.6	-0.6	-0.8	-1.6	-2.1	-2.5	-1.0	-1.7	-1.5
Structural primary balance (before CoA)	-2.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.3	-1.0	-1.1
Real GDP growth	2.4	1.7	1.9	1.2	1.0	1.0	2.0	1.2	1.4
Potential GDP growth	1.7	1.8	2.0	1.2	1.0	1.0	1.8	1.2	1.4
Inflation rate	5.3	3.4	2.0	2.5	2.7	2.8	3.5	2.5	2.8
Implicit interest rate (nominal)	2.3	2.5	2.5	3.4	3.7	3.9	2.4	3.3	3.1
Gross financing needs	19.6	19.6	19.5	20.5	21.7	23.2	19.6	20.8	20.5
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	107.5	106.5	106.7	110.8	115.3	121.1	106.9	112.1	110.8
Primary balance	-1.6	-0.6	-0.9	-1.9	-2.4	-2.9	-1.0	-2.0	-1.7
Structural primary balance (before CoA)	-2.1	-1.0	-1.1	-1.3	-1.3	-1.3	-1.4	-1.3	-1.3
Real GDP growth	2.4	1.7	1.9	1.1	1.0	1.0	2.0	1.2	1.4
Gross financing needs	19.6	19.6	19.6	21.0	22.4	24.0	19.6	21.3	20.9
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	107.5	106.9	107.2	111.1	114.9	120.1	107.2	112.2	111.0
Implicit interest rate (nominal)	2.3	2.8	2.7	3.5	3.8	4.0	2.6	3.5	3.2
Gross financing needs	19.6	20.0	19.8	20.9	22.1	23.5	19.8	21.1	20.8
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	107.5	106.4	107.0	113.0	117.8	124.0	107.0	114.2	112.4
Primary balance	-1.6	-1.0	-1.1	-2.2	-2.6	-3.1	-1.2	-2.2	-2.0
Structural primary balance (before CoA)	-2.1	-1.5	-1.5	-1.5	-1.5	-1.5	-1.7	-1.5	-1.6
Real GDP growth	2.4	2.1	1.8	1.2	1.0	1.0	2.1	1.1	1.4
Gross financing needs	19.6	19.9	19.9	21.6	22.9	24.6	19.8	21.8	21.3
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	107.5	107.1	107.8	115.1	120.7	128.0	107.5	116.4	114.2
Implicit interest rate (nominal)	2.3	2.5	2.6	3.7	4.0	4.4	2.5	3.7	3.4
Real GDP growth	2.4	1.2	1.4	0.7	0.5	0.5	1.6	0.7	0.9
Gross financing needs	19.6	19.8	19.9	21.8	23.4	25.3	19.8	22.1	21.5
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	107.5	106.5	106.6	109.7	113.3	118.4	106.9	110.9	109.9
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	19.6	19.6	19.5	20.5	21.7	23.2	19.6	20.8	20.5

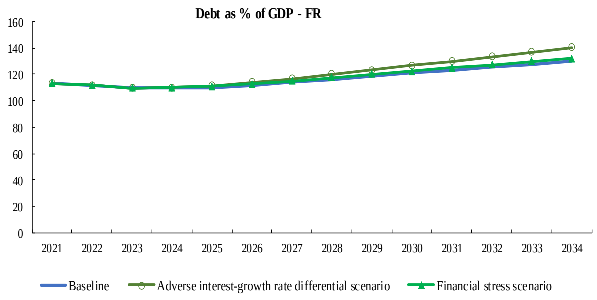
France

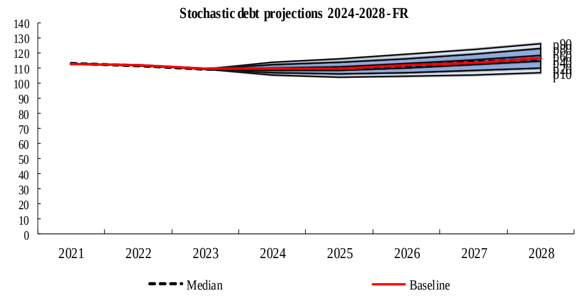
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

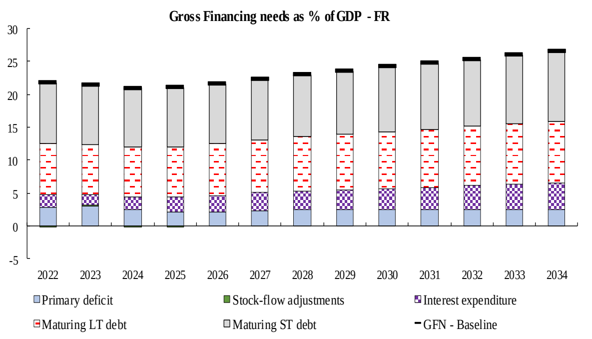
France - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	112.9	111.8	109.6	109.5	109.9	111.6	113.8	116.2	118.4	120.7	123.0	125.3	127.7	130.1
Changes in the ratio (-1+2+3)	*-1.8*	*-1.1*	*-2.2*	*-0.1*	*0.4*	*1.7*	*2.2*	*2.4*	*2.3*	*2.3*	*2.3*	*2.3*	*2.4*	*2.4*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-5.1**	**-2.9**	**-3.1**	**-2.4**	**-2.1**	**-2.2**	**-2.4**	**-2.4**	**-2.4**	**-2.4**	**-2.4**	**-2.4**	**-2.4**	**-2.5**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-4.3***	***-2.9***	***-3.0***	***-2.4***	***-2.4***	***-2.4***	***-2.4***	***-2.4***	***-2.4***	***-2.4***	***-2.4***	***-2.4***	***-2.4***	***-2.5***
(1.1.1) Structural primary balance (bef. CoA)	*-4.3*	*-2.9*	*-3.0*	*-2.4*	*-2.4*	*-2.4*	*-2.4*	*-2.4*	*-2.4*	*-2.4*	*-2.4*	*-2.4*	*-2.4*	*-2.4*
(1.1.2) Cost of ageing					*-0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.2) Cyclical component	***-0.7***	***0.1***	***0.0***	***0.0***	***0.3***	***0.2***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-0.1***	***-0.1***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-7.1**	**-3.9**	**-5.3**	**-2.4**	**-1.6**	**-0.5**	**-0.2**	**-0.1**	**-0.2**	**-0.1**	**-0.1**	**-0.1**	**0.0**	**-0.1**
(2.1) Interest expenditure	*1.4*	*1.9*	*1.7*	*2.0*	*2.3*	*2.5*	*2.7*	*2.9*	*3.1*	*3.3*	*3.5*	*3.7*	*3.9*	*4.1*
(2.2) Growth effect	*-6.8*	*-2.6*	*-1.0*	*-1.3*	*-1.6*	*-0.6*	*-0.3*	*-0.3*	*-0.5*	*-0.5*	*-0.5*	*-0.6*	*-0.5*	*-0.8*
(2.3) Inflation effect	*-1.6*	*-3.2*	*-6.0*	*-3.1*	*-2.3*	*-2.4*	*-2.5*	*-2.7*	*-2.8*	*-3.0*	*-3.1*	*-3.3*	*-3.4*	*-3.5*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**0.2**	**0.0**	**0.1**	**-0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*0.2*	*0.0*	*0.1*	*-0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-5.7	-4.9	-4.7	-4.4	-4.6	-4.9	-5.1	-5.3	-5.5	-5.7	-5.9	-6.1	-6.4	-6.6
Gross financing needs	24.7	21.7	21.3	20.9	21.0	21.6	22.3	23.0	23.6	24.1	24.7	25.3	25.9	26.5

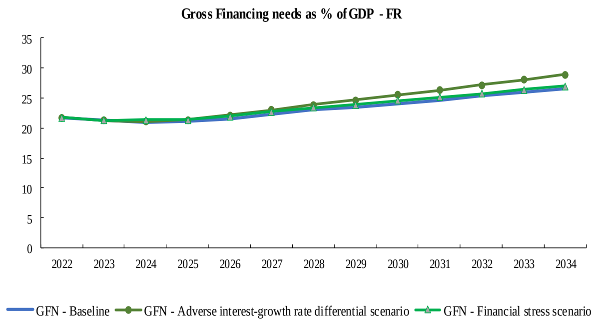












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios: Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	HIGH	Overall	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	MEDIUM	MEDIUM	MEDIUM
		Debt level (2034), % GDP	130.1	126.4	133.1	140.4	132.0				
		Debt peak year	2034	2034	2034	2034	2034				
		Fiscal consolidation space	94%	91%	95%	94%	94%				
		Probability of debt ratio exceeding in 2028 its 2023 level						81%			
		Difference between 90th and 10th percentiles (pps. GDP)						19.5			

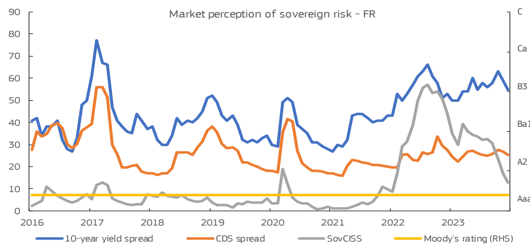
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.39**	**0.38**
Fiscal sub-index	0.36	0.96	0.57
Financial competitiveness sub-index	0.49	0.09	0.28

S2 indicator	DSM 2022	DSM 2023: Baseline	DSM 2023: Lower productivity scenario	DSM 2023: Non-demographic risk scenario
Overall index (pps. of GDP)	**0.9**	**3.1**	**3.8**	**5.5**
of which				
Initial budgetary position	2.2	3.1	3.3	3.2
Ageing costs	-1.3	0.0	0.5	2.4
of which *Pensions*	-2.2	-0.6	0.0	-0.6
Health care	0.6	0.6	0.6	1.3
Long-term care	0.7	0.6	0.6	2.4
Others	-0.4	-0.7	-0.7	-0.7
Required structural primary balance related to S2	**-1.1**	**0.7**	**1.4**	**3.1**

S1 indicator	DSM 2022	DSM 2023: Baseline	DSM 2023: Lower productivity scenario	DSM 2023: Non-demographic risk scenario
Overall index (pps. of GDP)	**2.4**	**3.5**	**3.9**	**4.8**
of which				
Initial budgetary position	1.5	2.5	2.7	2.5
Debt requirement	1.1	1.0	0.9	1.0
Ageing costs	-0.3	0.0	0.2	1.3
of which *Pensions*	-0.9	-0.4	-0.1	-0.4
Health care	0.5	0.5	0.4	0.9
Long-term care	0.4	0.4	0.4	1.3
Others	-0.3	-0.5	-0.5	-0.5
Required structural primary balance related to S1	**0.4**	**1.1**	**1.5**	**2.3**

3. Financial information



Financial market information FR - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	55.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - FR (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	8.3	0.0	47.3

Net International Investment Position (IIP) - FR (2022)	Net IIP (% GDP):
	-23.8

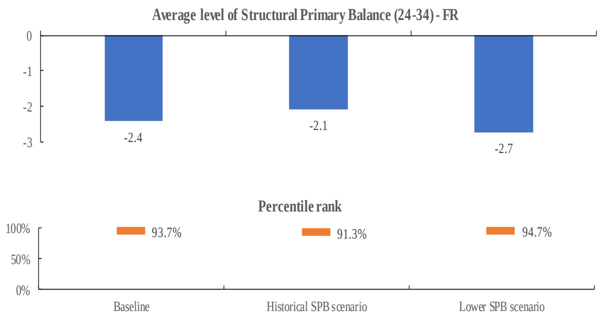
5. Risks related to government's contingent liabilities

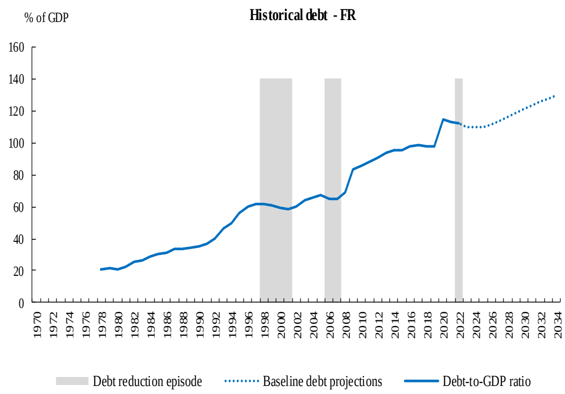
General government contingent liabilities	FR							EU
	2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)	12.0	12.0	12.0	11.6	16.9	15.2	13.5	7.1
of which One-off guarantees	*9.7*	*9.7*	*9.6*	*9.3*	*14.4*	*12.9*	*11.2*	*5.6*
Standardised guarantees	*2.2*	*2.3*	*2.4*	*2.3*	*2.5*	*2.4*	*2.3*	*1.5*
Public-private partnerships (PPPs) (% GDP)	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*

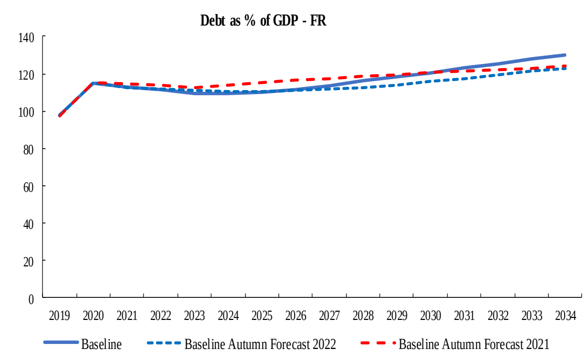
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)		2016	2017	2018	2019	2020	2021	2022	2022
	Liabilities and assets outside gen. gov. under guarantee	2.0	1.6	1.5	1.3	1.3	1.0	0.8	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	2.0	1.6	1.5	1.3	1.3	1.0	0.8	0.9

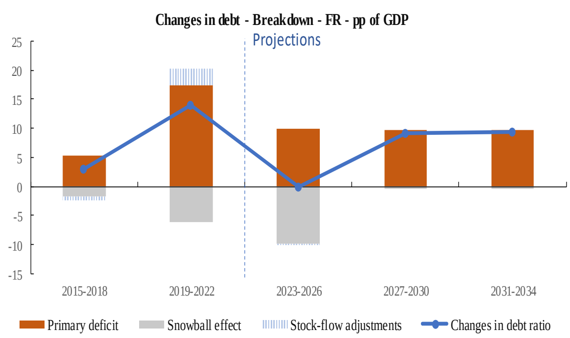
Government's contingent liability risks from banking sector - FR (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	8.7	6.3	107.8	1.9	0.1	45.6	0.03%	0.56%

6. Realism of baseline assumptions









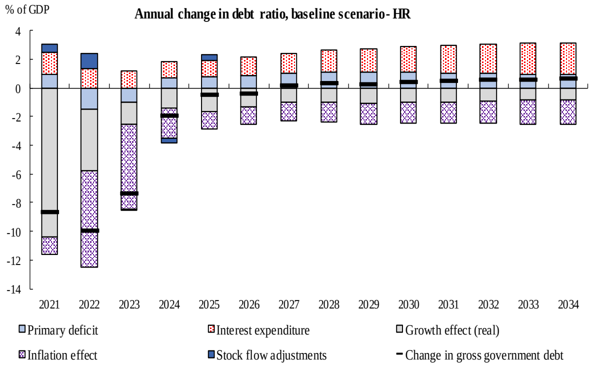
7. Underlying macro-fiscal assumptions

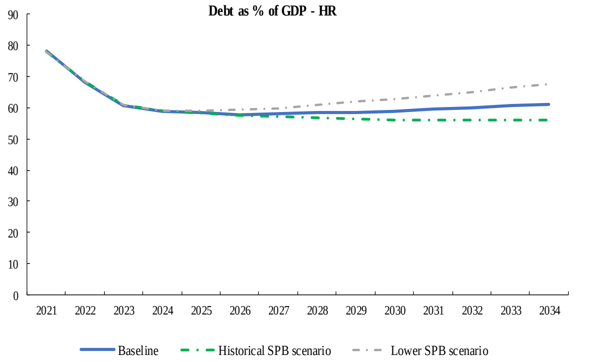
Macro-fiscal assumptions, France	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	109.6	109.5	109.9	120.7	125.3	130.1	109.7	120.8	118.0
Primary balance	-3.1	-2.4	-2.1	-2.4	-2.4	-2.5	-2.5	-2.4	-2.4
Structural primary balance (before CoA)	-3.0	-2.4	-2.4	-2.4	-2.4	-2.4	-2.6	-2.4	-2.5
Real GDP growth	1.0	1.2	1.5	0.4	0.5	0.6	1.3	0.4	0.6
Potential GDP growth	1.2	1.2	1.1	0.4	0.5	0.6	1.2	0.5	0.7
Inflation rate	5.7	2.9	2.1	2.6	2.7	2.8	3.6	2.5	2.8
Implicit interest rate (nominal)	1.6	1.9	2.2	2.9	3.1	3.3	1.9	2.9	2.6
Gross financing needs	21.3	20.9	21.0	24.1	25.3	26.5	21.1	24.1	23.4
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	109.6	109.5	109.8	118.9	122.5	126.4	109.6	118.9	116.6
Primary balance	-3.1	-2.4	-2.0	-2.0	-2.0	-2.0	-2.5	-2.0	-2.1
Structural primary balance (before CoA)	-3.0	-2.4	-2.3	-2.0	-2.0	-2.0	-2.6	-2.0	-2.2
Real GDP growth	1.0	1.2	1.5	0.4	0.5	0.6	1.3	0.4	0.6
Gross financing needs	21.3	20.9	20.9	23.4	24.4	25.5	21.0	23.4	22.8
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	109.6	110.0	110.6	122.3	127.1	132.0	110.0	122.3	119.2
Implicit interest rate (nominal)	1.6	2.3	2.4	3.0	3.2	3.4	2.1	3.0	2.8
Gross financing needs	21.3	21.4	21.3	24.5	25.7	27.0	21.3	24.5	23.7
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	109.6	109.4	110.1	122.5	127.7	133.1	109.7	122.5	119.3
Primary balance	-3.1	-2.6	-2.3	-2.7	-2.7	-2.8	-2.7	-2.7	-2.7
Structural primary balance (before CoA)	-3.0	-2.7	-2.7	-2.7	-2.7	-2.7	-2.8	-2.7	-2.7
Real GDP growth	1.0	1.5	1.5	0.4	0.5	0.6	1.3	0.4	0.6
Gross financing needs	21.3	21.0	21.2	24.7	26.0	27.3	21.2	24.7	23.8
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	109.6	110.1	111.2	126.5	133.2	140.4	110.3	126.7	122.6
Implicit interest rate (nominal)	1.6	2.0	2.3	3.2	3.5	3.7	2.0	3.2	2.9
Real GDP growth	1.0	0.7	1.0	-0.1	0.0	0.1	0.9	-0.1	0.2
Gross financing needs	21.3	21.1	21.4	25.5	27.2	28.9	21.3	25.5	24.5
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	109.6	109.5	109.9	120.7	125.3	130.1	109.7	120.8	118.0
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	21.3	20.9	21.0	24.1	25.3	26.5	21.1	24.1	23.4

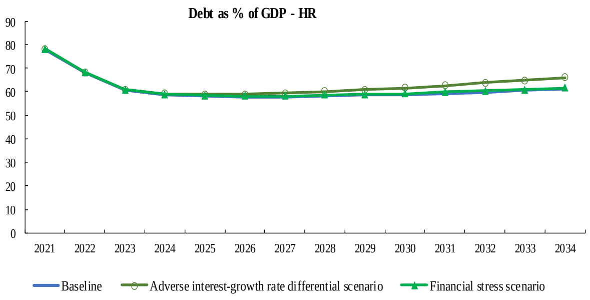
Croatia

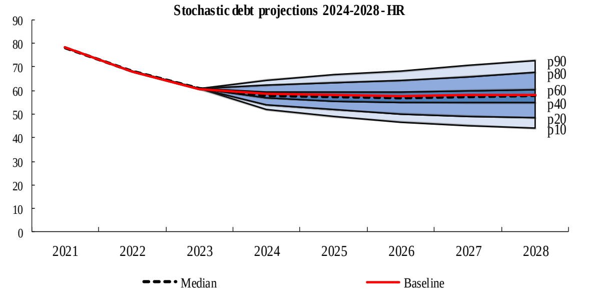
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

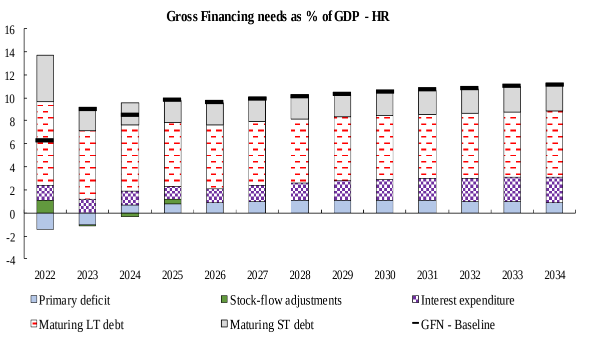
Croatia - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**78.1**	**68.2**	**60.8**	**58.8**	**58.3**	**57.9**	**58.0**	**58.3**	**58.5**	**58.9**	**59.4**	**59.9**	**60.5**	**61.1**
Changes in the ratio (-1+2+3)	*-8.7*	*-10.0*	*-7.4*	*-2.0*	*-0.5*	*-0.4*	*0.1*	*0.3*	*0.3*	*0.4*	*0.5*	*0.5*	*0.6*	*0.6*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-1.0**	**1.5**	**1.0**	**-0.7**	**-0.8**	**-0.8**	**-1.0**	**-1.1**	**-1.1**	**-1.1**	**-1.0**	**-1.0**	**-1.0**	**-0.9**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-1.4***	***0.3***	***0.1***	***-1.2***	***-1.2***	***-1.1***	***-1.1***	***-1.1***	***-1.1***	***-1.1***	***-1.0***	***-1.0***	***-1.0***	***-0.9***
(1.1.1) Structural primary balance (bef. CoA)	*-1.4*	*0.3*	*0.1*	*-1.2*	*-1.2*	*-1.2*	*-1.2*	*-1.2*	*-1.2*	*-1.2*	*-1.2*	*-1.2*	*-1.2*	*-1.2*
(1.1.2) Cost of ageing					*0.0*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.2*	*-0.2*	*-0.3*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.2) Cyclical component	***0.4***	***1.5***	***0.9***	***0.4***	***0.4***	***0.3***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***-0.3***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-10.2**	**-9.5**	**-6.3**	**-2.4**	**-1.7**	**-1.3**	**-0.9**	**-0.8**	**-0.8**	**-0.7**	**-0.6**	**-0.5**	**-0.4**	**-0.3**
(2.1) Interest expenditure	*1.5*	*1.4*	*1.2*	*1.1*	*1.1*	*1.3*	*1.4*	*1.6*	*1.7*	*1.8*	*1.9*	*2.0*	*2.1*	*2.2*
(2.2) Growth effect	*-10.4*	*-4.3*	*-1.6*	*-1.4*	*-1.7*	*-1.3*	*-1.0*	*-1.0*	*-1.1*	*-1.0*	*-1.0*	*-0.9*	*-0.9*	*-0.9*
(2.3) Inflation effect	*-1.3*	*-6.8*	*-5.8*	*-2.1*	*-1.2*	*-1.2*	*-1.3*	*-1.3*	*-1.4*	*-1.4*	*-1.5*	*-1.6*	*-1.6*	*-1.6*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**0.5**	**1.0**	**-0.1**	**-0.3**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*2.5*	*-5.2*	*0.9*	*-1.1*	*0.4*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*-2.0*	*6.2*	*-1.0*	*0.8*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-2.9	-1.2	-1.0	-2.3	-2.3	-2.4	-2.5	-2.6	-2.8	-2.9	-3.0	-3.0	-3.1	-3.1
Gross financing needs	14.7	6.2	9.0	8.4	9.7	9.5	9.8	10.1	10.3	10.4	10.6	10.8	10.9	11.1

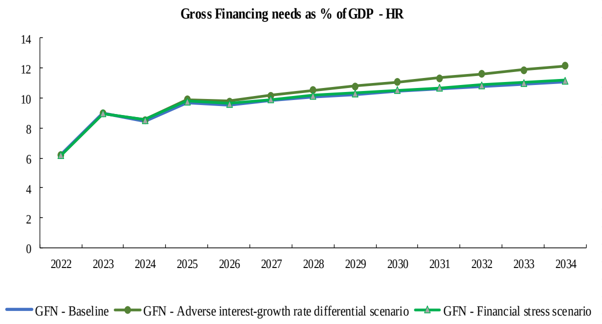












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios: Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	MEDIUM	Overall	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	LOW	LOW
		Debt level (2034), % GDP	61.1	56.0	67.6	66.1	61.5				
		Debt peak year	2034	2023	2034	2034	2034				
		Fiscal consolidation space	51%	44%	54%	51%	51%				
		Probability of debt ratio exceeding in 2028 its 2023 level						39%			
		Difference between 90th and 10th percentiles (pps. GDP)						28.9			

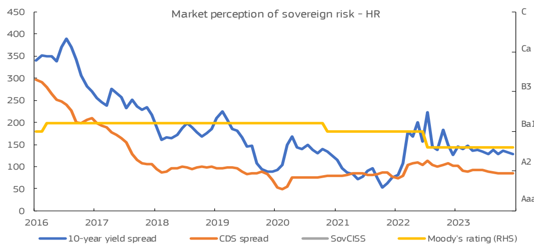
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.84**	**0.21**
Fiscal sub-index	0.36	0.64	0.00
Financial competitiveness sub-index	0.49	0.93	0.33

S2 indicator	DSM 2022	DSM 2023: Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)	**2.0**	**0.7**	**1.0**	**2.7**
of which				
Initial budgetary position	2.6	1.7	1.8	1.7
Ageing costs	-0.6	-1.0	-0.8	1.0
of which *Pensions*	-1.1	-1.3	-1.1	-1.3
Health care	0.5	0.6	0.6	1.7
Long-term care	0.1	0.1	0.1	1.0
Others	-0.1	-0.4	-0.4	-0.4
Required structural primary balance related to S2	**0.0**	**-0.4**	**-0.2**	**1.5**

S1 indicator	DSM 2022	DSM 2023: Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)	**2.1**	**0.5**	**0.7**	**1.7**
of which				
Initial budgetary position	2.2	1.3	1.4	1.2
Debt requirement	0.2	0.0	0.0	0.0
Ageing costs	-0.3	-0.7	-0.7	0.5
of which *Pensions*	-0.6	-0.9	-0.8	-0.9
Health care	0.4	0.5	0.5	1.3
Long-term care	0.1	0.1	0.1	0.5
Others	-0.2	-0.4	-0.4	-0.4
Required structural primary balance related to S1	**0.1**	**-0.7**	**-0.5**	**0.6**

3. Financial information



Financial market information HR - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	129.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - HR (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	4.4	73.6	32.4

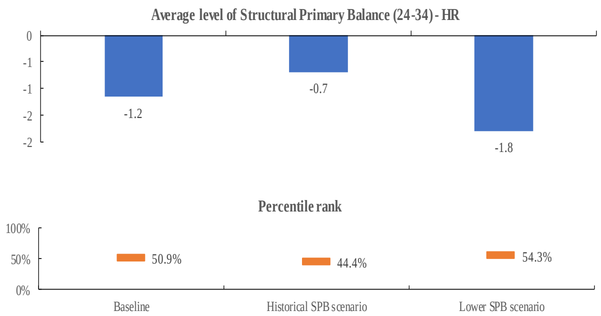
Net International Investment Position (IIP) - HR (2022)	Net IIP (% GDP):
	-25.4

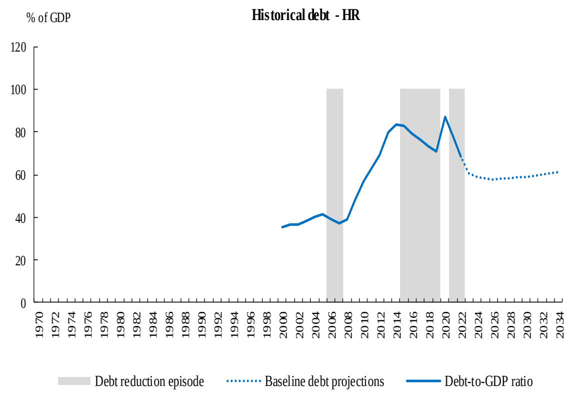
5. Risks related to government's contingent liabilities

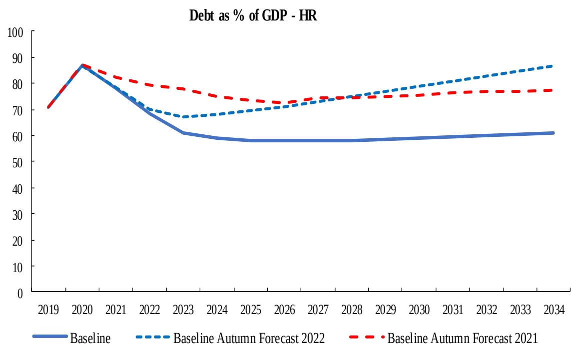
General government contingent liabilities		HR							EU
		2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)		2.6	2.6	1.4	1.1	1.7	1.8	2.3	7.1
of which	*One-off guarantees*	*2.6*	*2.6*	*1.4*	*1.1*	*1.7*	*1.7*	*2.2*	*5.6*
	Standardised guarantees	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*1.5*
Public-private partnerships (PPPs) (% GDP)		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.0*	*0.0*
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9

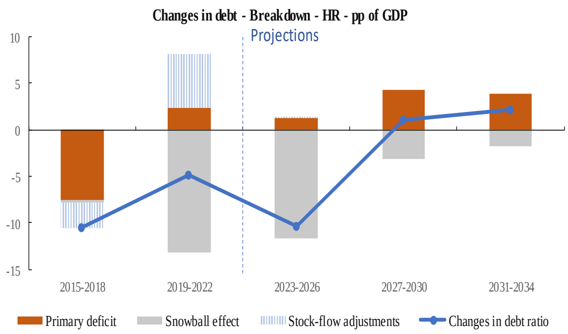
Government's contingent liability risks from banking sector - HR (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	6.0	14.9	64.5	2.1	-0.8	67.8	0.00%	0.04%

6. Realism of baseline assumptions









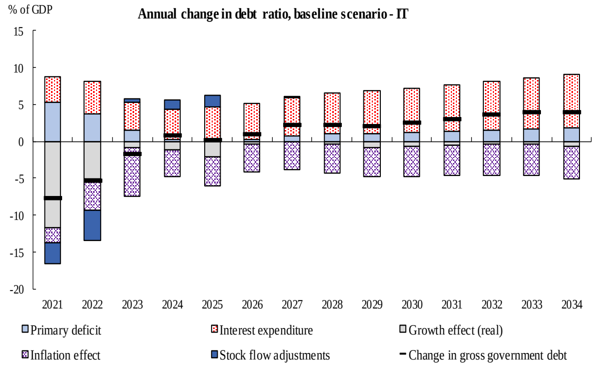
7. Underlying macro-fiscal assumptions

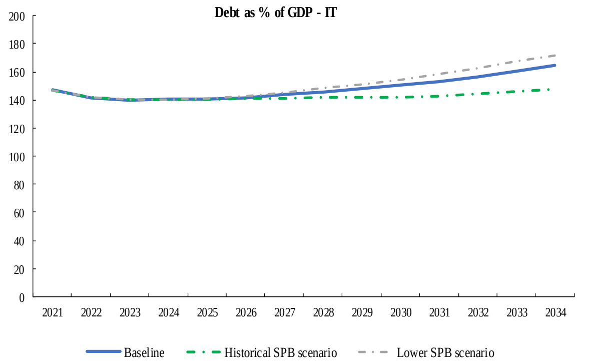
Macro-fiscal assumptions, Croatia	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	60.8	58.8	58.3	58.9	59.9	61.1	59.3	59.2	59.2
Primary balance	1.0	-0.7	-0.8	-1.1	-1.0	-0.9	-0.2	-1.0	-0.8
Structural primary balance (before CoA)	0.1	-1.2	-1.2	-1.2	-1.2	-1.2	-0.7	-1.2	-1.1
Real GDP growth	2.6	2.5	3.0	1.8	1.6	1.5	2.7	1.8	2.0
Potential GDP growth	3.9	3.5	3.1	1.8	1.6	1.5	3.5	1.9	2.3
Inflation rate	9.4	3.6	2.1	2.5	2.7	2.8	5.0	2.5	3.1
Implicit interest rate (nominal)	1.9	2.0	2.0	3.2	3.5	3.8	2.0	3.1	2.8
Gross financing needs	9.0	8.4	9.7	10.4	10.8	11.1	9.0	10.4	10.1
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	60.8	58.8	58.1	56.2	56.0	56.0	59.3	56.5	57.2
Primary balance	1.0	-0.7	-0.6	-0.5	-0.4	-0.3	-0.1	-0.4	-0.4
Structural primary balance (before CoA)	0.1	-1.2	-1.0	-0.6	-0.6	-0.6	-0.7	-0.6	-0.6
Real GDP growth	2.6	2.5	3.0	1.8	1.6	1.5	2.7	1.8	2.0
Gross financing needs	9.0	8.4	9.6	9.4	9.6	9.7	9.0	9.5	9.3
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	60.8	58.9	58.4	59.2	60.3	61.5	59.4	59.5	59.5
Implicit interest rate (nominal)	1.9	2.1	2.1	3.3	3.6	3.8	2.0	3.2	2.9
Gross financing needs	9.0	8.5	9.8	10.5	10.9	11.2	9.1	10.5	10.1
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	60.8	59.0	59.0	62.8	65.1	67.6	59.6	63.1	62.2
Primary balance	1.0	-1.1	-1.3	-1.7	-1.7	-1.6	-0.5	-1.6	-1.3
Structural primary balance (before CoA)	0.1	-1.8	-1.8	-1.8	-1.8	-1.8	-1.2	-1.8	-1.6
Real GDP growth	2.6	3.0	2.8	1.8	1.6	1.5	2.8	1.8	2.0
Gross financing needs	9.0	8.8	10.3	11.7	12.2	12.8	9.4	11.6	11.0
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	60.8	59.2	59.0	61.7	63.7	66.1	59.6	62.0	61.4
Implicit interest rate (nominal)	1.9	2.1	2.1	3.5	3.9	4.2	2.0	3.5	3.1
Real GDP growth	2.6	2.0	2.5	1.3	1.1	1.0	2.3	1.3	1.6
Gross financing needs	9.0	8.5	9.9	11.1	11.6	12.2	9.1	11.0	10.6
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	60.8	68.6	67.7	67.6	68.5	69.6	65.7	68.0	67.4
Exchange rate depreciation	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%	0.1%
Gross financing needs	9.0	9.9	11.1	11.8	12.2	12.5	10.0	11.8	11.4

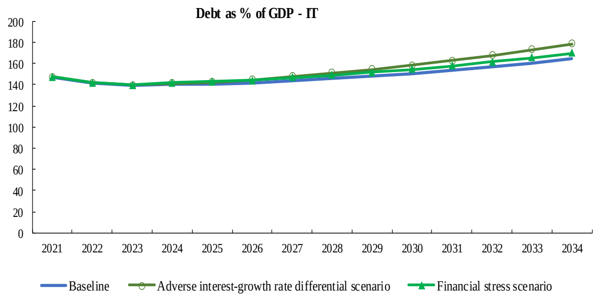
Italy

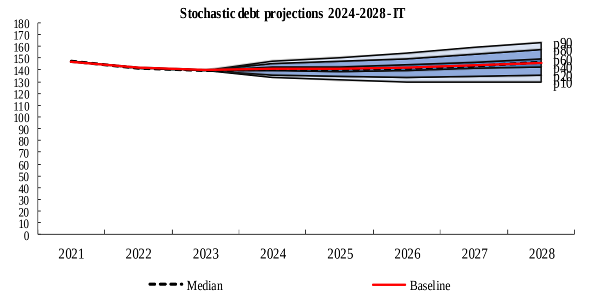
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

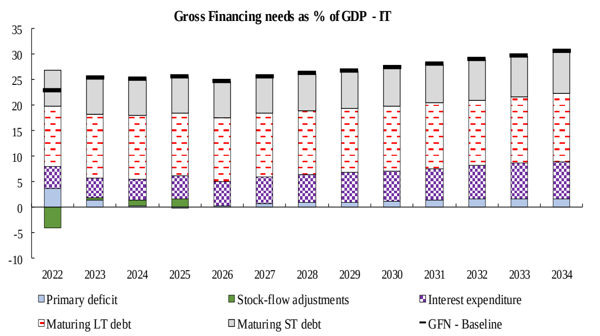
Italy - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**147.1**	**141.7**	**139.8**	**140.6**	**140.7**	**141.6**	**143.7**	**145.8**	**147.7**	**150.2**	**153.1**	**156.6**	**160.5**	**164.4**
Changes in the ratio (-1+2+3)	*-7.9*	*-5.4*	*-1.8*	*0.7*	*0.2*	*0.9*	*2.1*	*2.1*	*2.0*	*2.5*	*2.9*	*3.5*	*3.9*	*3.9*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-5.3**	**-3.8**	**-1.4**	**-0.2**	**0.1**	**-0.2**	**-0.8**	**-1.1**	**-1.1**	**-1.2**	**-1.4**	**-1.5**	**-1.6**	**-1.7**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-5.0***	***-4.9***	***-2.3***	***-0.9***	***-0.9***	***-0.9***	***-1.0***	***-1.1***	***-1.1***	***-1.2***	***-1.4***	***-1.5***	***-1.6***	***-1.7***
(1.1.1) Structural primary balance (bef. CoA)	*-5.0*	*-4.9*	*-2.3*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*
(1.1.2) Cost of ageing					*0.0*	*0.0*	*0.2*	*0.2*	*0.2*	*0.4*	*0.6*	*0.8*	*0.9*	*1.0*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.2*	*0.2*
(1.2) Cyclical component	***-0.7***	***0.8***	***0.7***	***0.7***	***1.0***	***0.7***	***0.2***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.4***	***0.3***	***0.2***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-10.2**	**-5.1**	**-3.7**	**-0.6**	**-1.3**	**0.7**	**1.3**	**1.0**	**0.9**	**1.2**	**1.6**	**1.9**	**2.2**	**2.2**
(2.1) Interest expenditure	*3.5*	*4.3*	*3.8*	*4.2*	*4.6*	*4.9*	*5.2*	*5.4*	*5.7*	*6.0*	*6.3*	*6.6*	*6.9*	*7.2*
(2.2) Growth effect	*-11.7*	*-5.1*	*-0.9*	*-1.2*	*-2.0*	*-0.3*	*0.0*	*-0.4*	*-0.8*	*-0.7*	*-0.6*	*-0.5*	*-0.4*	*-0.7*
(2.3) Inflation effect	*-2.0*	*-4.3*	*-6.6*	*-3.6*	*-3.9*	*-3.9*	*-3.9*	*-4.0*	*-4.0*	*-4.1*	*-4.1*	*-4.2*	*-4.3*	*-4.3*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**-2.9**	**-4.0**	**0.4**	**1.2**	**1.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-2.9*	*-4.1*	*0.4*	*1.2*	*1.6*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-8.5	-9.1	-6.1	-5.1	-5.4	-5.8	-6.2	-6.5	-6.8	-7.2	-7.6	-8.1	-8.6	-9.0
Gross financing needs	25.0	22.8	25.2	25.1	25.4	24.7	25.6	26.3	26.7	27.3	28.0	28.8	29.6	30.5

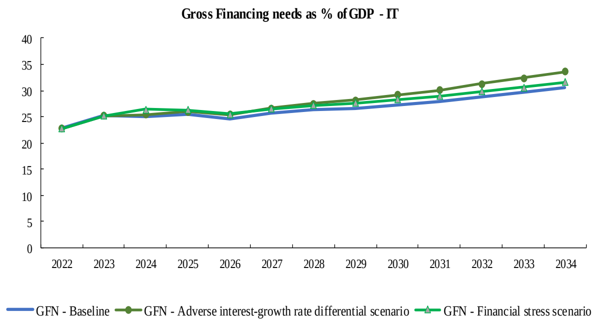












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)									Long term		
			Deterministic scenarios									
Overall (S0)	Overall		Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections		S2	S1	Overall (S1 + S2)
LOW	HIGH	Overall	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH		LOW	MEDIUM	MEDIUM
		Debt level (2034), % GDP	164.4	147.8	171.8	178.8	169.7					
		Debt peak year	2034	2034	2034	2034	2034					
		Fiscal consolidation space	69%	52%	73%	69%	69%					
		Probability of debt ratio exceeding in 2028 its 2023 level						68%				
		Difference between 90th and 10th percentiles (pps. GDP)						33.3				

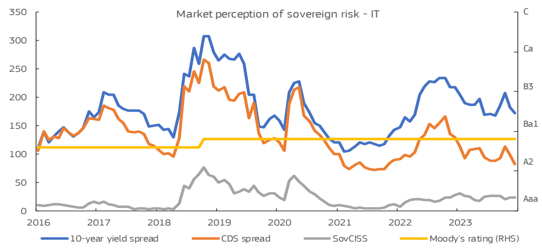
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.58**	**0.35**
Fiscal sub-index	0.36	0.96	0.69
Financial competitiveness sub-index	0.49	0.38	0.18

S2 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**0.7**	**0.9**	**1.8**	**2.3**
of which					
Initial budgetary position		1.1	1.9	2.3	1.9
Ageing costs		-0.4	-1.1	-0.5	0.4
of which	*Pensions*	-1.7	-1.5	-0.9	-1.5
	Health care	0.8	0.6	0.6	1.2
	Long-term care	0.8	0.5	0.5	1.4
	Others	-0.3	-0.7	-0.7	-0.7
Required structural primary balance related to S2		**0.2**	**0.0**	**0.9**	**1.4**

S1 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**3.5**	**3.4**	**3.9**	**4.2**
of which					
Initial budgetary position		0.7	2.0	2.2	1.9
Debt requirement		1.7	1.5	1.4	1.5
Ageing costs		1.0	0.0	0.3	0.8
of which	*Pensions*	0.0	-0.4	-0.1	-0.4
	Health care	0.7	0.5	0.5	0.8
	Long-term care	0.6	0.4	0.4	0.8
	Others	-0.2	-0.5	-0.5	-0.5
Required structural primary balance related to S1		**3.0**	**2.5**	**3.0**	**3.3**

3. Financial information



Financial market information IT - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	172.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - IT (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	13.1	0.1	26.8

Net International Investment Position (IIP) - IT (2022)	Net IIP (% GDP):
	4.7

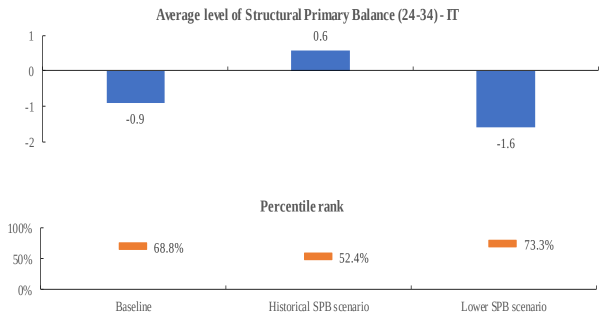
5. Risks related to government's contingent liabilities

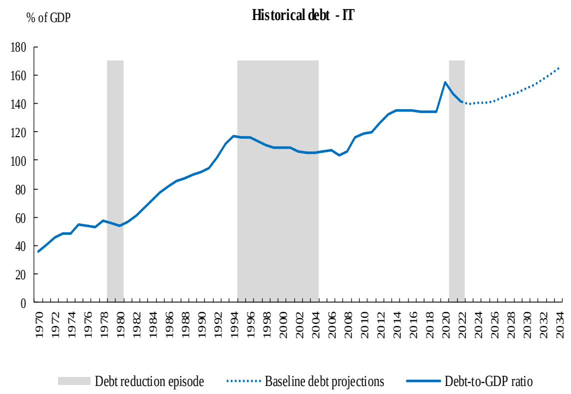
General government contingent liabilities	IT							EU
	2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)	2.4	3.9	4.3	4.8	13.0	16.5	16.3	7.1
of which One-off guarantees	*1.2*	*2.5*	*2.6*	*2.9*	*5.4*	*6.8*	*6.8*	*5.6*
Standardised guarantees	*1.2*	*1.4*	*1.7*	*1.9*	*7.6*	*9.8*	*9.5*	*1.5*
Public-private partnerships (PPPs) (% GDP)	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*

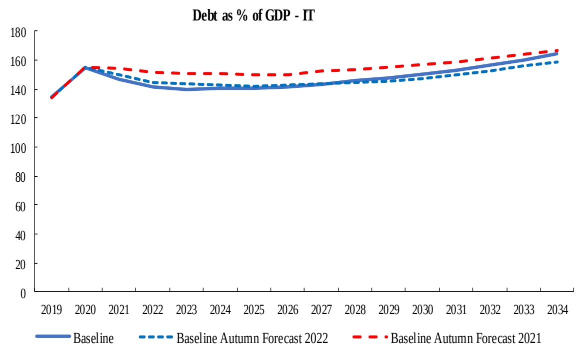
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)		2016	2017	2018	2019	2020	2021	2022	2022
	Liabilities and assets outside gen. gov. under guarantee	0.4	1.3	0.9	1.2	0.6	0.6	0.6	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.4	1.3	0.9	1.2	0.6	0.6	0.6	0.9

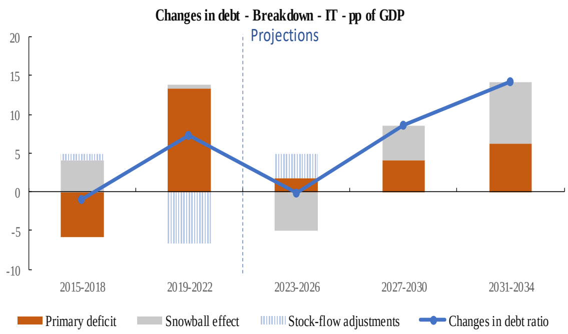
Government's contingent liability risks from banking sector - IT (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	2.9	3.8	92.8	2.4	-0.2	54.1	0.02%	0.33%

6. Realism of baseline assumptions









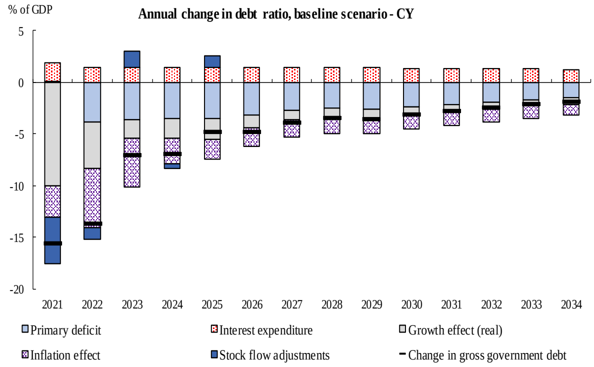
7. Underlying macro-fiscal assumptions

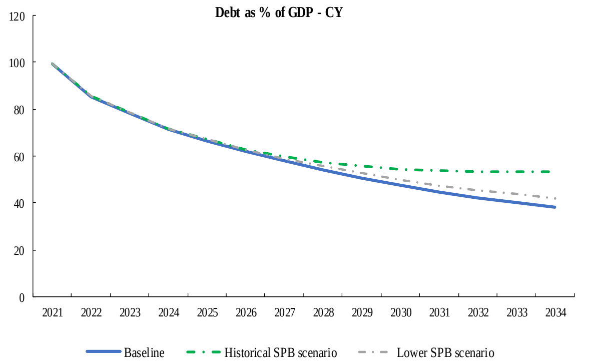
Macro-fiscal assumptions, Italy	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	139.8	140.6	140.7	150.2	156.6	164.4	140.4	151.5	148.7
Primary balance	-1.4	-0.2	0.1	-1.2	-1.5	-1.7	-0.5	-1.2	-1.0
Structural primary balance (before CoA)	-2.3	-0.9	-0.9	-0.9	-0.9	-0.9	-1.4	-0.9	-1.0
Real GDP growth	0.7	0.9	1.5	0.5	0.3	0.5	1.0	0.3	0.5
Potential GDP growth	1.0	0.8	0.9	0.5	0.3	0.5	0.9	0.5	0.6
Inflation rate	4.9	2.7	2.9	2.8	2.8	2.8	3.5	2.8	3.0
Implicit interest rate (nominal)	2.9	3.1	3.4	4.2	4.4	4.7	3.1	4.2	3.9
Gross financing needs	25.2	25.1	25.4	27.3	28.8	30.5	25.2	27.5	26.9
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	139.8	140.6	140.3	142.1	144.3	147.8	140.2	143.2	142.4
Primary balance	-1.4	-0.2	0.6	0.6	0.3	0.1	-0.3	0.5	0.3
Structural primary balance (before CoA)	-2.3	-0.9	-0.4	1.0	1.0	1.0	-1.2	0.8	0.3
Real GDP growth	0.7	0.9	1.5	0.5	0.3	0.5	1.0	0.3	0.5
Gross financing needs	25.2	25.1	25.0	24.3	25.0	26.0	25.1	24.6	24.7
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	139.8	141.9	142.7	154.3	161.4	169.7	141.5	155.6	152.0
Implicit interest rate (nominal)	2.9	4.1	3.8	4.4	4.6	4.8	3.6	4.4	4.2
Gross financing needs	25.2	26.5	26.3	28.3	29.8	31.6	26.0	28.5	27.9
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	139.8	140.3	141.2	154.4	162.4	171.8	140.4	155.7	151.9
Primary balance	-1.4	-0.6	-0.4	-1.9	-2.2	-2.4	-0.8	-1.8	-1.6
Structural primary balance (before CoA)	-2.3	-1.6	-1.6	-1.6	-1.6	-1.6	-1.8	-1.6	-1.6
Real GDP growth	0.7	1.4	1.3	0.5	0.3	0.5	1.1	0.3	0.5
Gross financing needs	25.2	25.4	25.9	28.6	30.4	32.4	25.5	28.8	28.0
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	139.8	141.4	142.5	158.0	167.5	178.8	141.3	159.7	155.1
Implicit interest rate (nominal)	2.9	3.2	3.6	4.6	4.9	5.1	3.2	4.5	4.2
Real GDP growth	0.7	0.4	1.0	0.0	-0.2	0.0	0.7	-0.2	0.0
Gross financing needs	25.2	25.4	25.9	29.1	31.3	33.7	25.5	29.4	28.4
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	139.8	140.6	140.8	150.2	156.6	164.4	140.4	151.5	148.7
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	25.2	25.1	25.4	27.3	28.8	30.5	25.3	27.5	26.9

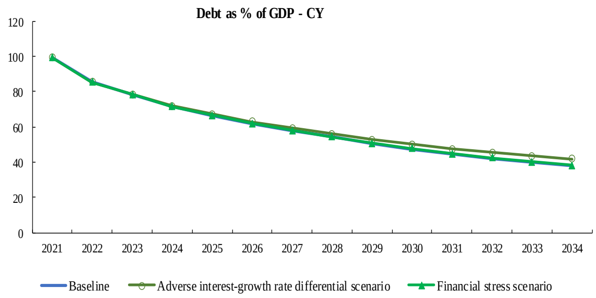
Cyprus

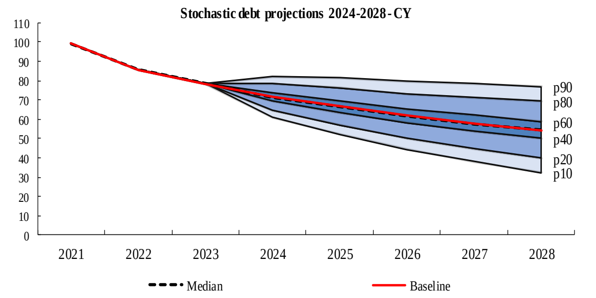
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

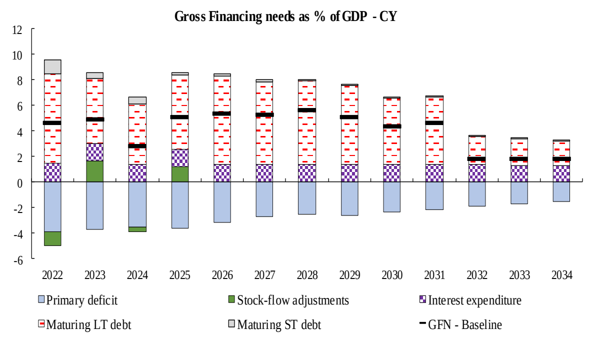
Cyprus - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**99.3**	**85.6**	**78.4**	**71.5**	**66.6**	**61.8**	**57.9**	**54.3**	**50.7**	**47.5**	**44.7**	**42.2**	**40.1**	**38.1**
Changes in the ratio (-1+2+3)	*-15.7*	*-13.7*	*-7.1*	*-7.0*	*-4.9*	*-4.8*	*-3.9*	*-3.6*	*-3.6*	*-3.2*	*-2.8*	*-2.5*	*-2.2*	*-2.0*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-0.1**	**3.9**	**3.7**	**3.5**	**3.6**	**3.1**	**2.7**	**2.5**	**2.6**	**2.4**	**2.1**	**1.9**	**1.7**	**1.5**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-1.5***	***2.0***	***2.6***	***3.4***	***3.1***	***2.8***	***2.6***	***2.5***	***2.6***	***2.4***	***2.1***	***1.9***	***1.7***	***1.5***
(1.1.1) Structural primary balance (bef. CoA)	*-1.5*	*2.0*	*2.6*	*3.4*	*3.4*	*3.4*	*3.4*	*3.4*	*3.4*	*3.4*	*3.4*	*3.4*	*3.4*	*3.4*
(1.1.2) Cost of ageing					*0.3*	*0.6*	*0.8*	*0.9*	*0.8*	*1.0*	*1.3*	*1.5*	*1.7*	*1.8*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*-0.1*	*-0.1*
(1.2) Cyclical component	***1.3***	***1.9***	***1.1***	***0.6***	***0.5***	***0.3***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.1***	***0.0***	***0.0***	***-0.6***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-11.4**	**-8.7**	**-5.1**	**-3.1**	**-2.5**	**-1.7**	**-1.2**	**-1.1**	**-1.0**	**-0.8**	**-0.7**	**-0.6**	**-0.5**	**-0.4**
(2.1) Interest expenditure	*1.7*	*1.5*	*1.4*	*1.4*	*1.4*	*1.4*	*1.4*	*1.4*	*1.4*	*1.4*	*1.4*	*1.3*	*1.3*	*1.3*
(2.2) Growth effect	*-10.1*	*-4.5*	*-1.8*	*-1.9*	*-1.9*	*-1.3*	*-0.9*	*-0.9*	*-0.9*	*-0.8*	*-0.7*	*-0.7*	*-0.6*	*-0.6*
(2.3) Inflation effect	*-3.0*	*-5.7*	*-4.7*	*-2.5*	*-1.9*	*-1.8*	*-1.7*	*-1.6*	*-1.5*	*-1.4*	*-1.3*	*-1.2*	*-1.2*	*-1.1*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**-4.4**	**-1.1**	**1.7**	**-0.4**	**1.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-4.4*	*-1.1*	*1.7*	*-0.4*	*1.2*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-3.3	0.6	1.2	2.0	1.7	1.4	1.3	1.1	1.2	1.0	0.8	0.6	0.4	0.3
Gross financing needs	6.1	4.6	4.9	2.7	5.0	5.3	5.2	5.5	5.0	4.3	4.5	1.7	1.7	1.7

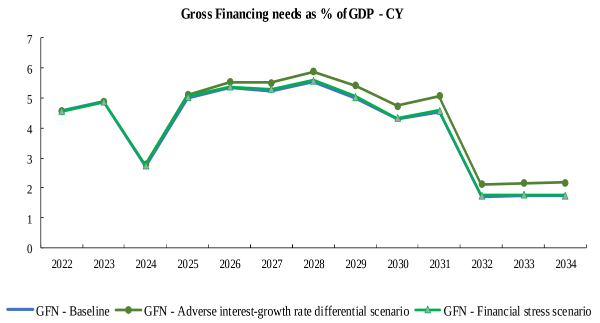












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)									Long term		
Overall (S0)	Overall		Deterministic scenarios: Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections		S2	S1	Overall (S1 + S2)
LOW	MEDIUM	Overall	LOW	LOW	LOW	LOW	LOW	MEDIUM		LOW	LOW	LOW
		Debt level (2034), % GDP	38.1	53.3	42.1	42.0	38.3					
		Debt peak year	2023	2023	2023	2023	2023					
		Fiscal consolidation space	20%	29%	22%	20%	20%					
		Probability of debt ratio exceeding in 2028 its 2023 level						9%				
		Difference between 90th and 10th percentiles (pps. GDP)						44.6				

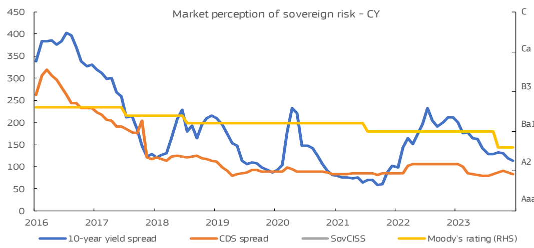
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.71**	**0.32**
Fiscal sub-index	0.36	0.56	0.11
Financial competitiveness sub-index	0.49	0.77	0.44

S2 indicator	DSM 2022	DSM 2023: Baseline	DSM 2023: Lower productivity scenario	DSM 2023: Non-demographic risk scenario
Overall index (pps. of GDP)	**-0.8**	**0.7**	**1.1**	**4.5**
of which				
Initial budgetary position	-1.9	-3.0	-2.8	-2.9
Ageing costs	1.0	3.7	3.9	7.4
of which *Pensions*	0.9	3.3	3.5	3.2
Health care	0.3	0.7	0.6	1.7
Long-term care	0.2	0.1	0.1	2.9
Others	-0.4	-0.4	-0.4	-0.4
Required structural primary balance related to S2	**1.5**	**4.2**	**4.5**	**7.9**

S1 indicator	DSM 2022	DSM 2023: Baseline	DSM 2023: Lower productivity scenario	DSM 2023: Non-demographic risk scenario
Overall index (pps. of GDP)	**-1.7**	**-0.4**	**-0.2**	**1.0**
of which				
Initial budgetary position	-2.7	-3.4	-3.3	-3.6
Debt requirement	0.4	0.2	0.2	0.2
Ageing costs	0.5	2.8	2.9	4.4
of which *Pensions*	0.6	2.6	2.7	2.6
Health care	0.2	0.5	0.4	1.2
Long-term care	0.1	0.1	0.1	0.9
Others	-0.4	-0.3	-0.3	-0.3
Required structural primary balance related to S1	**0.6**	**3.0**	**3.3**	**4.4**

3. Financial information



Financial market information CY - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	113.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - CY (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	1.3	0.0	93.2

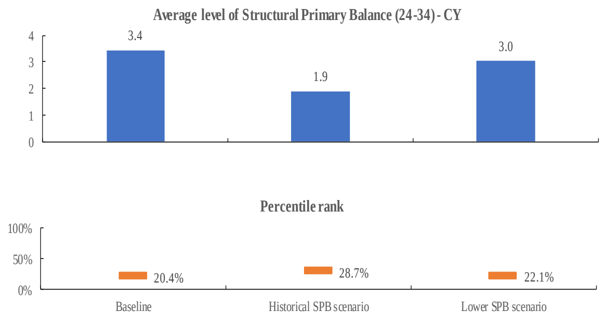
Net International Investment Position (IIP) - CY (2022)	Net IIP (% GDP):
	-96.2

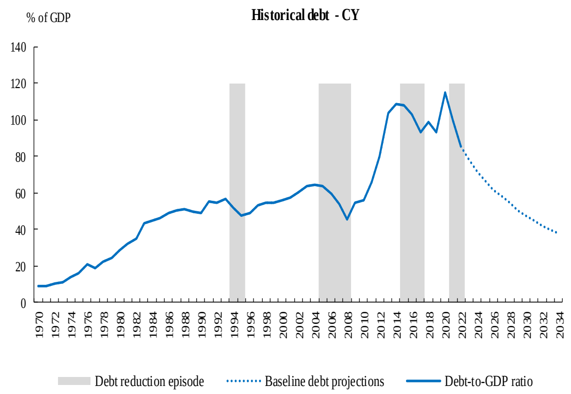
5. Risks related to government's contingent liabilities

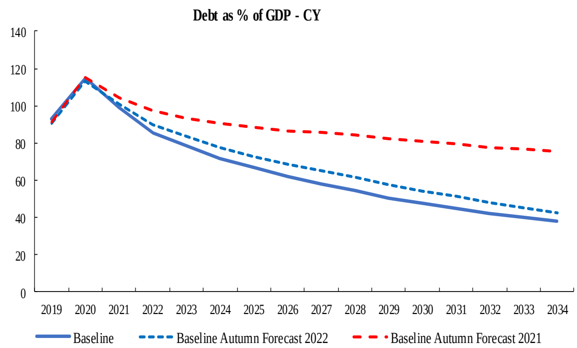
General government contingent liabilities		CY							EU
		2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)		8.9	8.3	7.2	4.3	4.5	3.8	3.3	7.1
of which	*One-off guarantees*	*8.7*	*8.1*	*7.2*	*4.3*	*4.5*	*3.8*	*3.3*	*5.6*
	Standardised guarantees	*0.3*	*0.2*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*1.5*
Public-private partnerships (PPPs) (% GDP)		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.0*	*0.0*
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	0.0	0.0	10.2	8.9	7.7	6.3	5.1	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	10.2	8.9	7.7	6.3	5.1	0.9

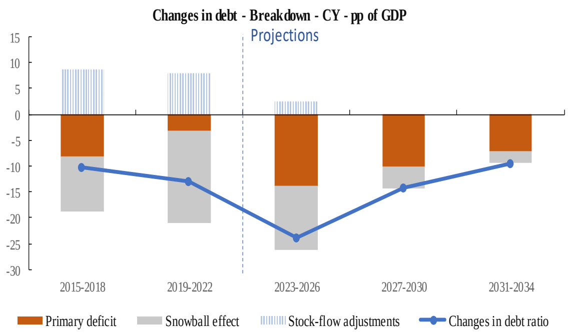
Government's contingent liability risks from banking sector - CY (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	-3.9	2.7	49.5	2.8	-0.7	34.2	0.04%	0.57%

6. Realism of baseline assumptions









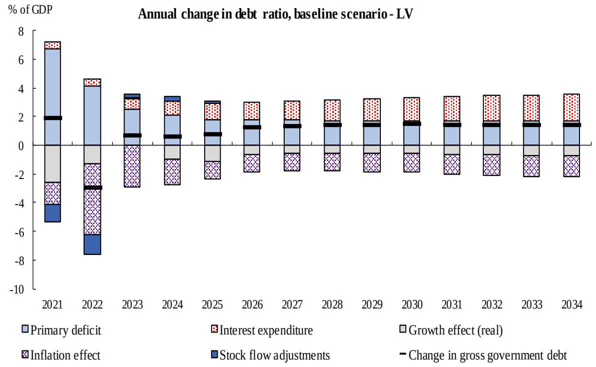
7. Underlying macro-fiscal assumptions

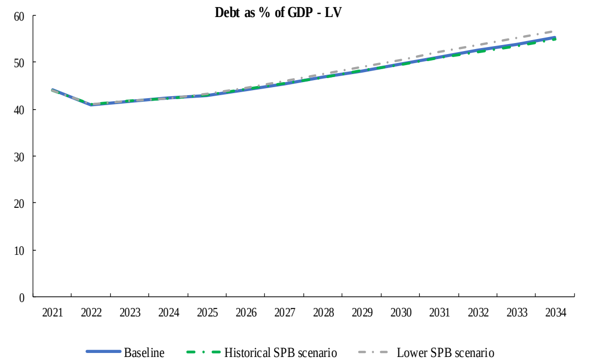
Macro-fiscal assumptions, Cyprus	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	78.4	71.5	66.6	47.5	42.2	38.1	72.2	48.6	54.5
Primary balance	3.7	3.5	3.6	2.4	1.9	1.5	3.6	2.3	2.6
Structural primary balance (before CoA)	2.6	3.4	3.4	3.4	3.4	3.4	3.2	3.4	3.4
Real GDP growth	2.2	2.6	2.9	1.7	1.6	1.6	2.6	1.6	1.9
Potential GDP growth	3.8	3.5	3.2	1.7	1.6	1.6	3.5	1.8	2.2
Inflation rate	5.8	3.3	2.8	2.8	2.8	2.8	4.0	2.8	3.1
Implicit interest rate (nominal)	1.7	1.9	2.1	2.8	3.1	3.3	1.9	2.8	2.6
Gross financing needs	4.9	2.7	5.0	4.3	1.7	1.7	4.2	3.9	4.0
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	78.4	71.5	67.1	54.5	53.4	53.3	72.3	56.0	60.1
Primary balance	3.7	3.5	3.1	0.5	-0.1	-0.5	3.4	0.6	1.3
Structural primary balance (before CoA)	2.6	3.4	2.9	1.4	1.4	1.4	3.0	1.6	1.9
Real GDP growth	2.2	2.6	2.9	1.3	1.6	1.6	2.6	1.6	1.9
Gross financing needs	4.9	2.7	5.5	6.9	4.6	5.1	4.4	6.2	5.8
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	78.4	71.5	66.7	47.7	42.5	38.3	72.2	48.8	54.6
Implicit interest rate (nominal)	1.7	2.0	2.1	2.9	3.2	3.3	1.9	2.8	2.6
Gross financing needs	4.9	2.8	5.0	4.3	1.7	1.8	4.2	3.9	4.0
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	78.4	71.5	67.0	49.9	45.5	42.1	72.3	51.0	56.3
Primary balance	3.7	3.2	3.3	2.0	1.5	1.1	3.4	1.9	2.3
Structural primary balance (before CoA)	2.6	3.0	3.0	3.0	3.0	3.0	2.9	3.0	3.0
Real GDP growth	2.2	2.9	2.8	1.7	1.6	1.6	2.6	1.6	1.9
Gross financing needs	4.9	2.9	5.3	5.0	2.4	2.5	4.4	4.6	4.5
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	78.4	71.9	67.4	50.1	45.5	42.0	72.6	51.1	56.5
Implicit interest rate (nominal)	1.7	1.9	2.1	3.1	3.4	3.6	1.9	3.0	2.7
Real GDP growth	2.2	2.1	2.4	1.2	1.1	1.1	2.2	1.1	1.4
Gross financing needs	4.9	2.8	5.1	4.7	2.1	2.2	4.3	4.3	4.3
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	78.4	71.5	66.6	47.5	42.2	38.1	72.2	48.6	54.5
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	4.9	2.7	5.0	4.3	1.7	1.7	4.2	3.9	4.0

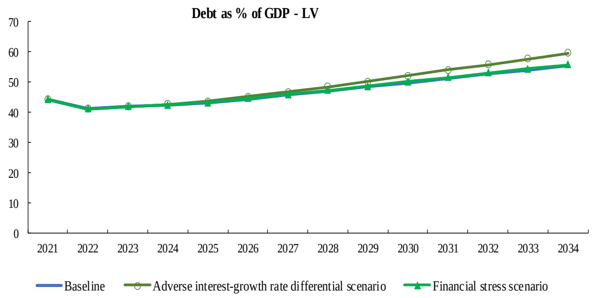
Latvia

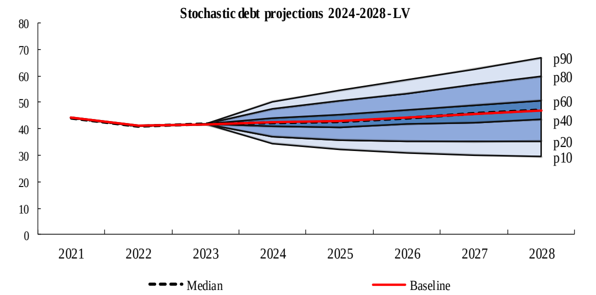
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

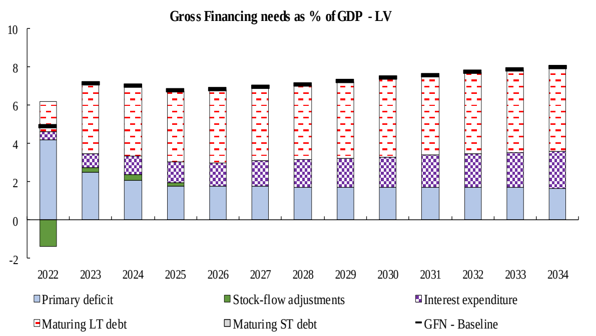
Latvia - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**44.0**	**41.0**	**41.7**	**42.3**	**43.0**	**44.2**	**45.5**	**46.8**	**48.3**	**49.7**	**51.1**	**52.5**	**53.9**	**55.2**
Changes in the ratio (-1+2+3)	*1.8*	*-3.0*	*0.7*	*0.6*	*0.7*	*1.2*	*1.3*	*1.3*	*1.4*	*1.4*	*1.4*	*1.4*	*1.4*	*1.4*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-6.7**	**-4.2**	**-2.5**	**-2.1**	**-1.8**	**-1.8**	**-1.7**	**-1.7**	**-1.7**	**-1.7**	**-1.7**	**-1.7**	**-1.7**	**-1.7**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-6.7***	***-4.6***	***-2.0***	***-1.7***	***-1.6***	***-1.7***	***-1.7***	***-1.7***	***-1.7***	***-1.7***	***-1.7***	***-1.7***	***-1.7***	***-1.7***
(1.1.1) Structural primary balance (bef. CoA)	*-6.7*	*-4.6*	*-2.0*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*
(1.1.2) Cost of ageing					*-0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*-0.1*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.2) Cyclical component	***-0.1***	***0.4***	***-0.5***	***-0.4***	***-0.2***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-3.6**	**-5.8**	**-2.1**	**-1.8**	**-1.2**	**-0.6**	**-0.5**	**-0.4**	**-0.3**	**-0.3**	**-0.3**	**-0.3**	**-0.3**	**-0.3**
(2.1) Interest expenditure	*0.5*	*0.4*	*0.7*	*1.0*	*1.1*	*1.2*	*1.3*	*1.4*	*1.5*	*1.6*	*1.7*	*1.8*	*1.8*	*1.9*
(2.2) Growth effect	*-2.6*	*-1.3*	*0.1*	*-0.9*	*-1.1*	*-0.6*	*-0.6*	*-0.5*	*-0.5*	*-0.6*	*-0.6*	*-0.7*	*-0.7*	*-0.7*
(2.3) Inflation effect	*-1.5*	*-5.0*	*-2.9*	*-1.8*	*-1.2*	*-1.2*	*-1.2*	*-1.3*	*-1.3*	*-1.3*	*-1.4*	*-1.4*	*-1.4*	*-1.5*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**-1.3**	**-1.4**	**0.3**	**0.3**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-1.3*	*-1.4*	*0.3*	*0.3*	*0.2*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-7.2	-5.0	-2.7	-2.7	-2.7	-2.9	-3.0	-3.1	-3.2	-3.3	-3.4	-3.5	-3.5	-3.6
Gross financing needs	10.1	4.9	7.1	7.0	6.8	6.8	6.9	7.1	7.2	7.4	7.5	7.7	7.8	8.0

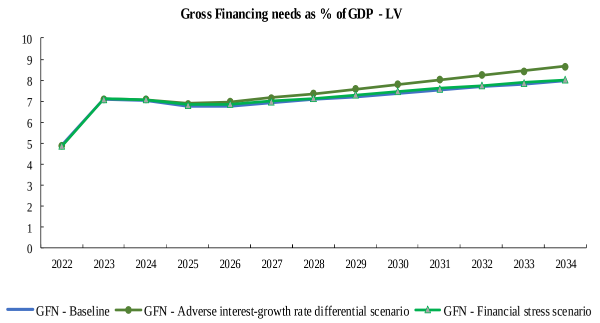












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
			Deterministic scenarios								
Overall (S0)	Overall		Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	LOW	Overall	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
		Debt level (2034), % GDP	55.2	54.8	56.7	59.4	55.6				
		Debt peak year	2034	2034	2034	2034	2034				
		Fiscal consolidation space	76%	74%	78%	76%	76%				
		Probability of debt ratio exceeding in 2028 its 2023 level						65%			
		Difference between 90th and 10th percentiles (pps. GDP)						37.3			

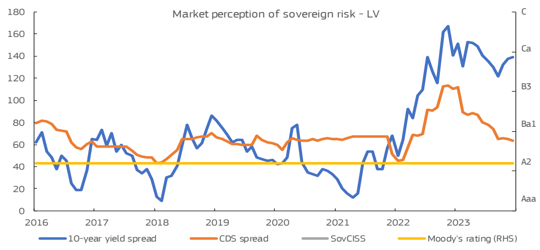
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.65**	**0.31**
Fiscal sub-index	0.36	0.45	0.22
Financial competitiveness sub-index	0.49	0.76	0.37

S2 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**-0.4**	**1.3**	**1.6**	**4.0**
of which					
Initial budgetary position		0.5	2.1	2.1	2.1
Ageing costs		-0.9	-0.8	-0.6	2.0
of which	*Pensions*	-1.1	-1.3	-1.1	-1.3
	Health care	0.2	0.5	0.4	1.5
	Long-term care	0.1	0.3	0.2	2.0
	Others	-0.1	-0.2	-0.2	-0.2
Required structural primary balance related to S2		**-0.7**	**-0.4**	**-0.2**	**2.3**

S1 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**-0.6**	**1.3**	**1.5**	**2.8**
of which					
Initial budgetary position		0.2	1.9	1.9	1.8
Debt requirement		-0.3	-0.3	-0.3	-0.3
Ageing costs		-0.5	-0.3	-0.1	1.3
of which	*Pensions*	-0.7	-0.7	-0.5	-0.7
	Health care	0.3	0.4	0.4	1.2
	Long-term care	0.1	0.2	0.2	0.9
	Others	-0.1	-0.2	-0.2	-0.2
Required structural primary balance related to S1		**-0.9**	**-0.4**	**-0.2**	**1.1**

3. Financial information



Financial market information LV - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	139.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - LV (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	1.3	0.0	64.0

Net International Investment Position (IIP) - LV (2022)	Net IIP (% GDP):
	-26.5

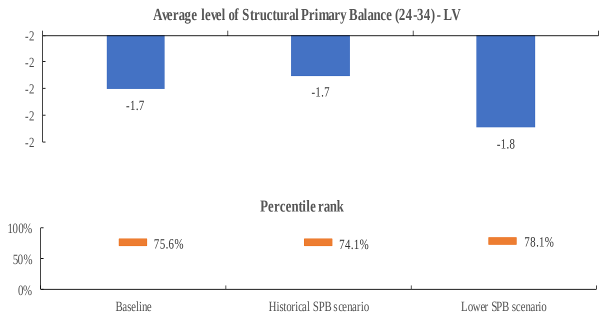
5. Risks related to government's contingent liabilities

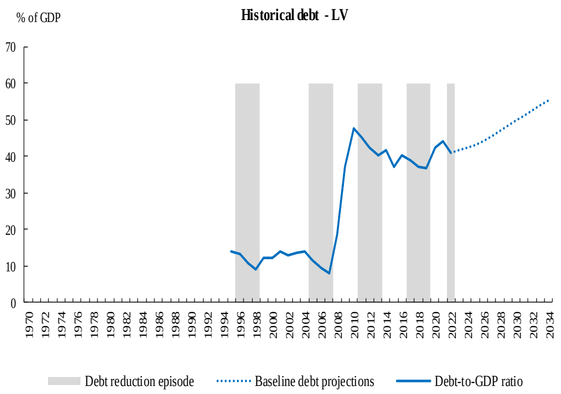
General government contingent liabilities	LV							EU
	2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)	1.2	1.2	1.2	1.3	1.7	1.6	1.6	7.1
of which One-off guarantees	*0.3*	*0.2*	*0.1*	*0.1*	*0.3*	*0.2*	*0.2*	*5.6*
Standardised guarantees	*1.0*	*1.0*	*1.1*	*1.2*	*1.4*	*1.4*	*1.4*	*1.5*
Public-private partnerships (PPPs) (% GDP)	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*

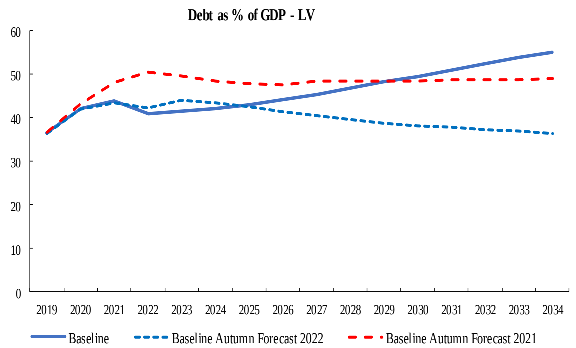
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9

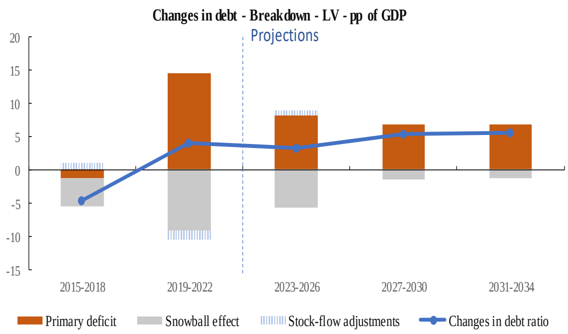
Government's contingent liability risks from banking sector - LV (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):	
							Stress	Severe Stress
	3.0	13.8	71.9	0.5	-0.1	36.8	0.00%	0.01%

6. Realism of baseline assumptions









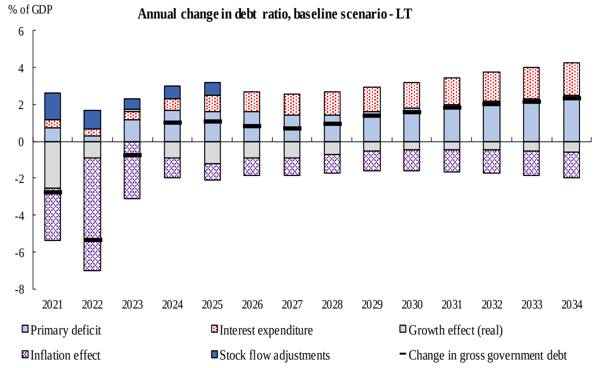
7. Underlying macro-fiscal assumptions

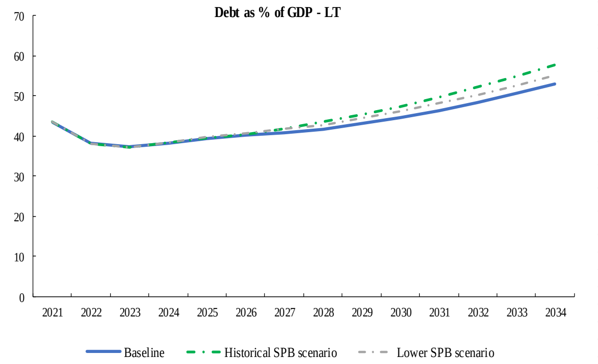
Macro-fiscal assumptions, Latvia	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	41.7	42.3	43.0	49.7	52.5	55.2	42.4	49.7	47.9
Primary balance	-2.5	-2.1	-1.8	-1.7	-1.7	-1.7	-2.1	-1.7	-1.8
Structural primary balance (before CoA)	-2.0	-1.7	-1.7	-1.7	-1.7	-1.7	-1.8	-1.7	-1.7
Real GDP growth	-0.2	2.4	2.9	1.2	1.4	1.4	1.7	1.3	1.4
Potential GDP growth	2.1	2.1	2.2	1.2	1.4	1.4	2.2	1.3	1.5
Inflation rate	7.7	4.5	2.8	2.8	2.8	2.8	5.0	2.8	3.4
Implicit interest rate (nominal)	1.9	2.5	2.8	3.5	3.6	3.7	2.4	3.4	3.1
Gross financing needs	7.1	7.0	6.8	7.4	7.7	8.0	7.0	7.4	7.3
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	41.7	42.3	43.0	49.6	52.2	54.8	42.3	49.5	47.7
Primary balance	-2.5	-2.1	-1.7	-1.7	-1.7	-1.6	-2.1	-1.7	-1.8
Structural primary balance (before CoA)	-2.0	-1.7	-1.7	-1.6	-1.6	-1.6	-1.8	-1.6	-1.7
Real GDP growth	-0.2	2.4	2.9	1.3	1.4	1.4	1.7	1.3	1.4
Gross financing needs	7.1	7.0	6.7	7.3	7.6	7.9	7.0	7.3	7.2
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	41.7	42.4	43.2	50.0	52.8	55.6	42.4	50.0	48.1
Implicit interest rate (nominal)	1.9	2.7	2.9	3.5	3.6	3.7	2.5	3.5	3.2
Gross financing needs	7.1	7.1	6.8	7.5	7.7	8.0	7.0	7.4	7.3
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	41.7	42.4	43.2	50.6	53.7	56.7	42.4	50.6	48.6
Primary balance	-2.5	-2.2	-1.9	-1.9	-1.9	-1.8	-2.2	-1.9	-1.9
Structural primary balance (before CoA)	-2.0	-1.8	-1.8	-1.8	-1.8	-1.8	-1.9	-1.8	-1.9
Real GDP growth	-0.2	2.5	2.8	1.2	1.4	1.4	1.7	1.3	1.4
Gross financing needs	7.1	7.1	6.9	7.6	8.0	8.3	7.0	7.6	7.5
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	41.7	42.5	43.5	51.9	55.6	59.4	42.6	52.0	49.7
Implicit interest rate (nominal)	1.9	2.6	3.0	3.8	4.0	4.1	2.5	3.7	3.4
Real GDP growth	-0.2	1.9	2.4	0.7	0.9	0.9	1.3	0.8	1.0
Gross financing needs	7.1	7.1	6.9	7.8	8.2	8.6	7.0	7.8	7.6
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	41.7	42.4	43.1	49.7	52.6	55.3	42.4	49.8	47.9
Exchange rate depreciation	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Gross financing needs	7.1	7.0	6.8	7.4	7.7	8.0	7.0	7.4	7.3

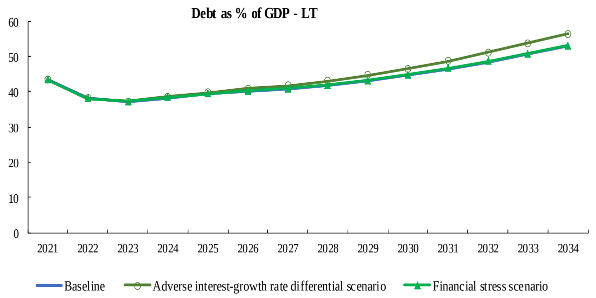
Lithuania

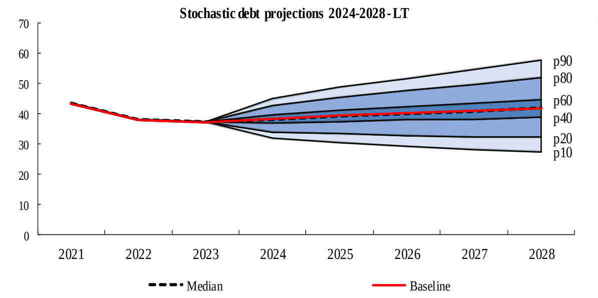
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

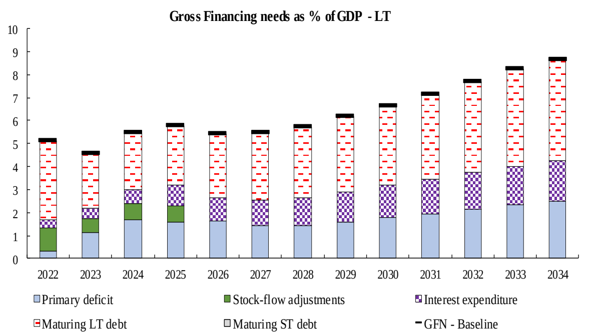
Lithuania - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**43.4**	**38.1**	**37.3**	**38.3**	**39.4**	**40.2**	**40.8**	**41.8**	**43.1**	**44.7**	**46.4**	**48.4**	**50.6**	**52.8**
Changes in the ratio (-1+2+3)	*-2.8*	*-5.4*	*-0.8*	*1.0*	*1.1*	*0.8*	*0.7*	*0.9*	*1.3*	*1.6*	*1.8*	*2.0*	*2.1*	*2.3*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-0.7**	**-0.3**	**-1.1**	**-1.7**	**-1.6**	**-1.6**	**-1.4**	**-1.4**	**-1.6**	**-1.8**	**-2.0**	**-2.1**	**-2.3**	**-2.5**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-1.4***	***-0.8***	***-0.1***	***-0.5***	***-0.9***	***-1.1***	***-1.3***	***-1.4***	***-1.6***	***-1.8***	***-2.0***	***-2.1***	***-2.3***	***-2.5***
(1.1.1) Structural primary balance (bef. CoA)	*-1.4*	*-0.8*	*-0.1*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*
(1.1.2) Cost of ageing					*0.3*	*0.6*	*0.7*	*0.9*	*1.1*	*1.3*	*1.4*	*1.6*	*1.8*	*2.0*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.2) Cyclical component	***0.7***	***0.5***	***-1.0***	***-1.1***	***-0.7***	***-0.5***	***-0.2***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-5.0**	**-6.7**	**-2.5**	**-1.4**	**-1.2**	**-0.8**	**-0.7**	**-0.5**	**-0.3**	**-0.2**	**-0.2**	**-0.2**	**-0.2**	**-0.2**
(2.1) Interest expenditure	*0.4*	*0.4*	*0.5*	*0.6*	*0.9*	*1.0*	*1.1*	*1.2*	*1.3*	*1.4*	*1.5*	*1.6*	*1.7*	*1.8*
(2.2) Growth effect	*-2.6*	*-0.9*	*0.1*	*-0.9*	*-1.2*	*-0.9*	*-0.9*	*-0.7*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.6*
(2.3) Inflation effect	*-2.8*	*-6.2*	*-3.1*	*-1.1*	*-0.9*	*-0.9*	*-1.0*	*-1.0*	*-1.1*	*-1.1*	*-1.2*	*-1.2*	*-1.3*	*-1.4*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**1.5**	**1.0**	**0.6**	**0.7**	**0.7**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*1.5*	*1.0*	*0.6*	*0.7*	*0.7*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-1.9	-1.1	-0.6	-1.2	-1.8	-2.2	-2.4	-2.7	-2.9	-3.2	-3.5	-3.7	-4.0	-4.3
Gross financing needs	6.0	5.1	4.5	5.4	5.8	5.4	5.5	5.7	6.2	6.6	7.1	7.7	8.2	8.7

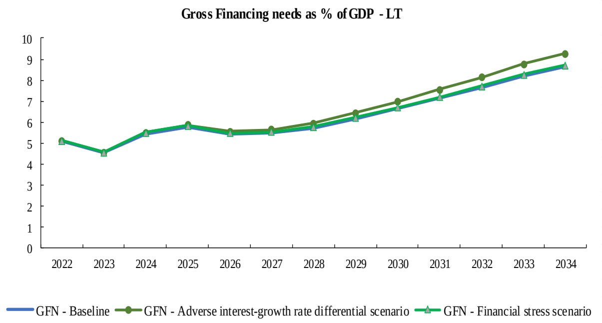












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)									Long term		
Overall (S0)	Overall		Deterministic scenarios: Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	MEDIUM	Overall	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM
		Debt level (2034), % GDP	52.8	57.8	55.2	56.4	53.1				
		Debt peak year	2034	2034	2034	2034	2034				
		Fiscal consolidation space	43%	60%	46%	43%	43%				
		Probability of debt ratio exceeding in 2028 its 2023 level						65%			
		Difference between 90th and 10th percentiles (pps. GDP)						30.2			

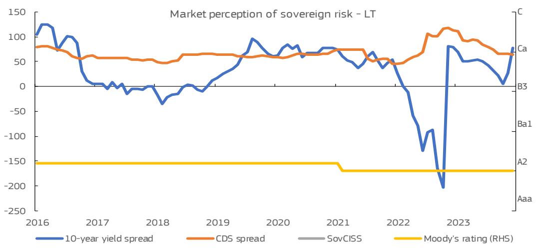
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.58**	**0.27**
Fiscal sub-index	0.36	0.58	0.12
Financial competitiveness sub-index	0.49	0.57	0.35

S2 indicator	DSM 2022	DSM 2023: Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)	**1.8**	**4.4**	**4.6**	**10.5**
of which				
Initial budgetary position	0.5	0.8	0.9	0.9
Ageing costs	1.3	3.6	3.7	9.6
of which *Pensions*	0.2	2.5	2.7	2.5
Health care	0.5	0.7	0.6	1.6
Long-term care	0.6	0.7	0.7	5.8
Others	0.0	-0.3	-0.3	-0.3
Required structural primary balance related to S2	**1.5**	**3.9**	**4.1**	**9.9**

S1 indicator	DSM 2022	DSM 2023: Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)	**1.3**	**3.3**	**3.4**	**6.2**
of which				
Initial budgetary position	0.2	0.6	0.7	0.7
Debt requirement	-0.4	-0.4	-0.4	-0.4
Ageing costs	1.5	3.0	3.0	5.9
of which *Pensions*	0.6	2.3	2.4	2.3
Health care	0.4	0.5	0.5	1.2
Long-term care	0.4	0.5	0.5	2.7
Others	0.0	-0.3	-0.3	-0.3
Required structural primary balance related to S1	**1.0**	**2.7**	**2.8**	**5.7**

3. Financial information



Financial market information LT - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	78.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - LT (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	0.0	0.0	61.4

Net International Investment Position (IIP) - LT (2022)	Net IIP (% GDP):
	-7.0

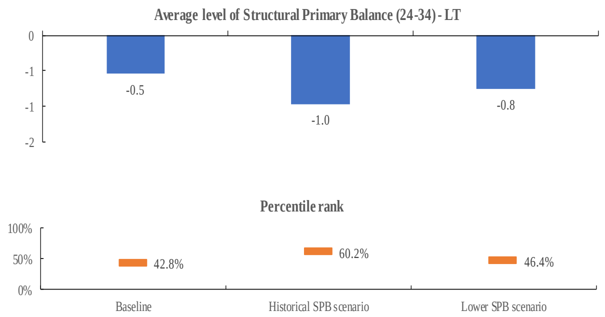
5. Risks related to government's contingent liabilities

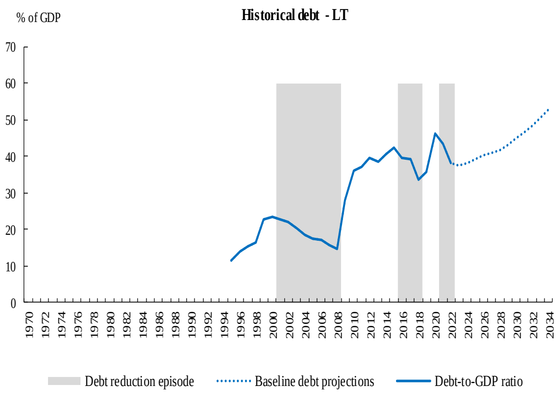
General government contingent liabilities	LT							EU
	2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)	1.0	1.0	0.9	0.8	1.3	1.3	1.2	7.1
of which One-off guarantees	*0.2*	*0.3*	*0.2*	*0.3*	*0.6*	*0.6*	*0.5*	*5.6*
Standardised guarantees	*0.8*	*0.8*	*0.7*	*0.5*	*0.7*	*0.7*	*0.7*	*1.5*
Public-private partnerships (PPPs) (% GDP)	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.0*	*0.0*

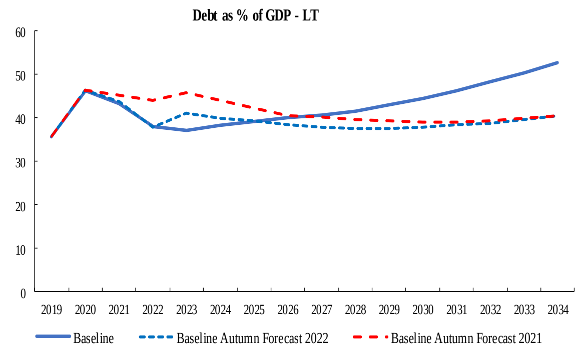
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)		2016	2017	2018	2019	2020	2021	2022	2022
	Liabilities and assets outside gen. gov. under guarantee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9

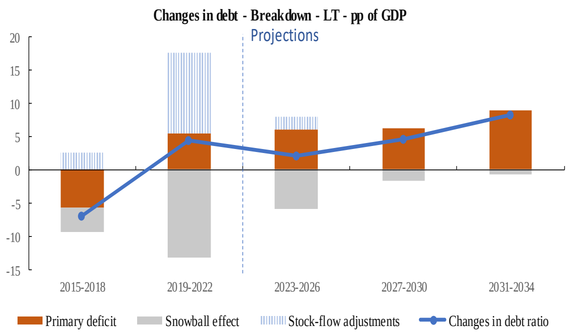
Government's contingent liability risks from banking sector - LT (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	6.8	19.0	45.2	0.6	-0.4	40.4	0.00%	0.02%

6. Realism of baseline assumptions









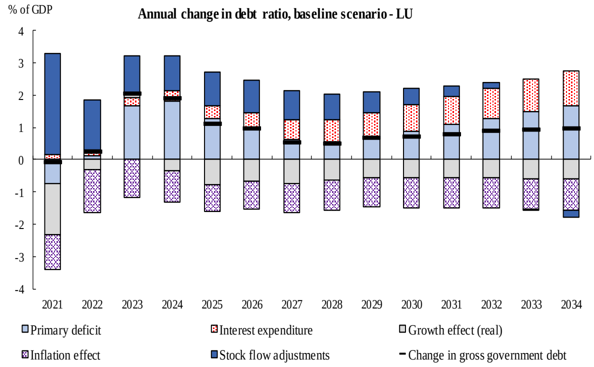
7. Underlying macro-fiscal assumptions

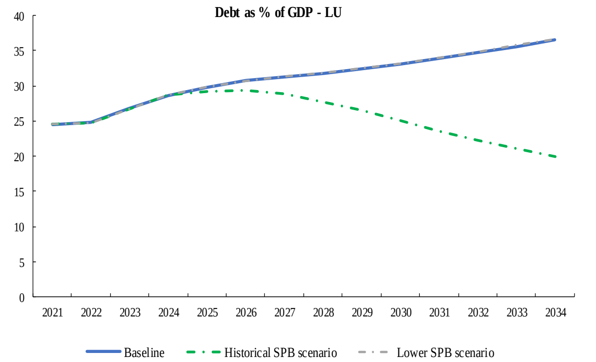
Macro-fiscal assumptions, Lithuania	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	37.3	38.3	39.4	44.7	48.4	52.8	38.3	45.4	43.6
Primary balance	-1.1	-1.7	-1.6	-1.8	-2.1	-2.5	-1.5	-1.9	-1.8
Structural primary balance (before CoA)	-0.1	-0.5	-0.5	-0.5	-0.5	-0.5	-0.4	-0.5	-0.5
Real GDP growth	-0.4	2.5	3.4	1.2	1.1	1.2	1.8	1.5	1.6
Potential GDP growth	3.5	2.8	2.3	1.2	1.1	1.2	2.9	1.3	1.7
Inflation rate	8.9	3.1	2.3	2.6	2.8	2.8	4.8	2.6	3.2
Implicit interest rate (nominal)	1.3	1.8	2.5	3.4	3.5	3.6	1.9	3.3	2.9
Gross financing needs	4.5	5.4	5.8	6.6	7.7	8.7	5.3	6.8	6.4
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	37.3	38.3	39.5	47.5	52.3	57.8	38.4	48.2	45.7
Primary balance	-1.1	-1.7	-1.7	-2.4	-2.7	-3.0	-1.5	-2.4	-2.2
Structural primary balance (before CoA)	-0.1	-0.5	-0.7	-1.1	-1.1	-1.1	-0.4	-1.0	-0.9
Real GDP growth	-0.4	2.5	3.4	1.3	1.1	1.2	1.8	1.5	1.6
Gross financing needs	4.5	5.4	5.9	7.5	8.6	9.8	5.3	7.6	7.0
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	37.3	38.4	39.5	44.9	48.7	53.1	38.4	45.6	43.8
Implicit interest rate (nominal)	1.3	1.9	2.6	3.4	3.6	3.7	1.9	3.4	3.0
Gross financing needs	4.5	5.5	5.8	6.7	7.7	8.7	5.3	6.8	6.4
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	37.3	38.4	39.7	46.1	50.3	55.2	38.5	46.9	44.8
Primary balance	-1.1	-1.8	-1.8	-2.0	-2.4	-2.7	-1.6	-2.1	-2.0
Structural primary balance (before CoA)	-0.1	-0.8	-0.8	-0.8	-0.8	-0.8	-0.5	-0.8	-0.7
Real GDP growth	-0.4	2.7	3.4	1.2	1.1	1.2	1.9	1.5	1.6
Gross financing needs	4.5	5.6	6.0	7.0	8.1	9.1	5.4	7.2	6.7
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	37.3	38.5	39.8	46.6	51.1	56.4	38.5	47.4	45.2
Implicit interest rate (nominal)	1.3	1.9	2.6	3.7	3.9	4.1	1.9	3.6	3.2
Real GDP growth	-0.4	2.0	2.9	0.7	0.6	0.7	1.5	1.0	1.2
Gross financing needs	4.5	5.5	5.9	7.0	8.1	9.3	5.3	7.1	6.7
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	37.3	38.3	39.4	44.7	48.4	52.8	38.3	45.4	43.6
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	4.5	5.4	5.8	6.6	7.7	8.7	5.3	6.8	6.4

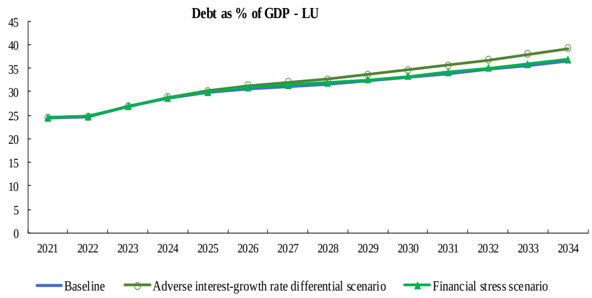
Luxembourg

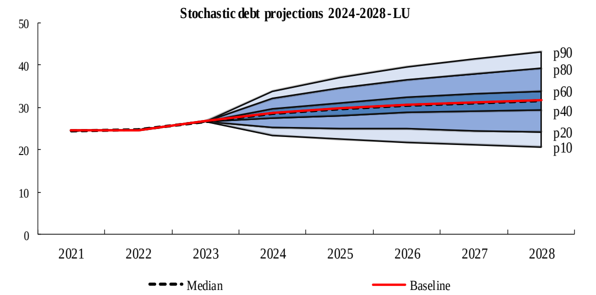
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

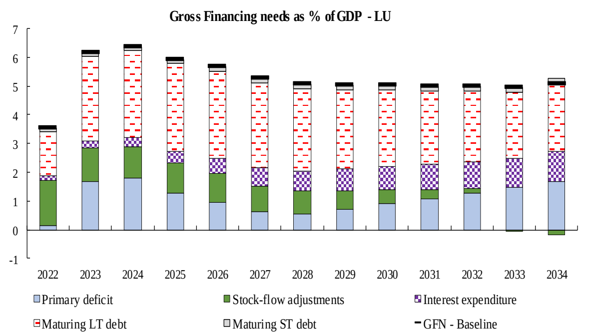
Luxembourg - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**24.5**	**24.7**	**26.8**	**28.7**	**29.8**	**30.7**	**31.2**	**31.7**	**32.4**	**33.1**	**33.9**	**34.7**	**35.6**	**36.6**
Changes in the ratio (-1+2+3)	*-0.1*	*0.2*	*2.0*	*1.9*	*1.1*	*0.9*	*0.5*	*0.5*	*0.6*	*0.7*	*0.8*	*0.9*	*0.9*	*1.0*
of which														
(1) Primary balance (1.1+1.2+1.3)	**0.7**	**-0.1**	**-1.7**	**-1.8**	**-1.3**	**-1.0**	**-0.6**	**-0.6**	**-0.7**	**-0.9**	**-1.1**	**-1.3**	**-1.5**	**-1.7**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***0.4***	***-0.2***	***-0.6***	***-0.6***	***-0.5***	***-0.5***	***-0.5***	***-0.6***	***-0.7***	***-0.9***	***-1.1***	***-1.3***	***-1.5***	***-1.7***
(1.1.1) Structural primary balance (bef. CoA)	*0.4*	*-0.2*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*
(1.1.2) Cost of ageing					*-0.1*	*-0.2*	*-0.2*	*-0.1*	*0.1*	*0.3*	*0.6*	*0.8*	*1.0*	*1.2*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.1*
(1.2) Cyclical component	***0.4***	***0.0***	***-1.1***	***-1.2***	***-0.7***	***-0.5***	***-0.2***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-2.5**	**-1.5**	**-0.8**	**-1.0**	**-1.2**	**-1.0**	**-1.0**	**-0.9**	**-0.7**	**-0.7**	**-0.6**	**-0.6**	**-0.5**	**-0.5**
(2.1) Interest expenditure	*0.2*	*0.2*	*0.3*	*0.3*	*0.4*	*0.5*	*0.6*	*0.7*	*0.8*	*0.8*	*0.9*	*0.9*	*1.0*	*1.1*
(2.2) Growth effect	*-1.6*	*-0.3*	*0.1*	*-0.3*	*-0.8*	*-0.7*	*-0.7*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*
(2.3) Inflation effect	*-1.1*	*-1.3*	*-1.2*	*-1.0*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-1.0*	*-1.0*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**3.1**	**1.6**	**1.2**	**1.1**	**1.1**	**1.0**	**0.9**	**0.8**	**0.7**	**0.5**	**0.3**	**0.2**	**0.0**	**-0.2**
(3.1) Base	*3.1*	*1.6*	*1.2*	*1.1*	*1.1*	*1.0*	*0.9*	*0.8*	*0.7*	*0.5*	*0.3*	*0.2*	*0.0*	*-0.2*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	0.2	-0.3	-0.9	-0.9	-0.9	-1.0	-1.1	-1.2	-1.5	-1.7	-2.0	-2.2	-2.5	-2.7
Gross financing needs	2.7	3.5	6.2	6.4	5.9	5.7	5.3	5.1	5.0	5.0	5.0	5.0	4.9	5.1

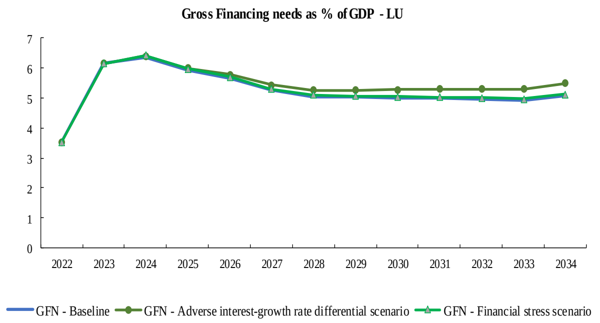












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios: Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	LOW	Overall	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	MEDIUM	HIGH
		Debt level (2034), % GDP	36.6	19.9	36.7	39.3	36.9				
		Debt peak year	2034	2026	2034	2034	2034				
		Fiscal consolidation space	100%	81%	100%	100%	100%				
		Probability of debt ratio exceeding in 2028 its 2023 level						71%			
		Difference between 90th and 10th percentiles (pps. GDP)						22.4			

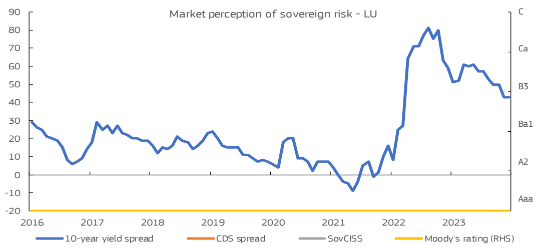
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.23**	**0.19**
Fiscal sub-index	0.36	0.26	0.18
Financial competitiveness sub-index	0.49	0.22	0.20

S2 indicator	DSM 2022	DSM 2023: Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)	**7.2**	**8.6**	**8.5**	**10.1**
of which				
Initial budgetary position	-0.4	1.0	1.0	1.0
Ageing costs	7.7	7.7	7.7	9.2
of which *Pensions*	6.0	5.7	5.8	5.7
Health care	0.9	0.9	0.8	1.3
Long-term care	1.2	1.3	1.3	2.5
Others	-0.4	-0.2	-0.2	-0.2
Required structural primary balance related to S2	**7.8**	**8.0**	**7.9**	**9.5**

S1 indicator	DSM 2022	DSM 2023: Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)	**3.0**	**3.5**	**3.7**	**4.3**
of which				
Initial budgetary position	-0.8	0.3	0.3	0.3
Debt requirement	-0.7	-0.7	-0.6	-0.7
Ageing costs	4.6	3.9	4.0	4.6
of which *Pensions*	3.7	2.9	3.0	2.8
Health care	0.6	0.5	0.5	0.8
Long-term care	0.7	0.7	0.7	1.2
Others	-0.4	-0.2	-0.2	-0.2
Required structural primary balance related to S1	**3.6**	**2.9**	**3.1**	**3.7**

3. Financial information



Financial market information LU - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	43.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - LU (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	2.1	0.0	52.1

Net International Investment Position (IIP) - LU (2022)	Net IIP (% GDP):
	47.0

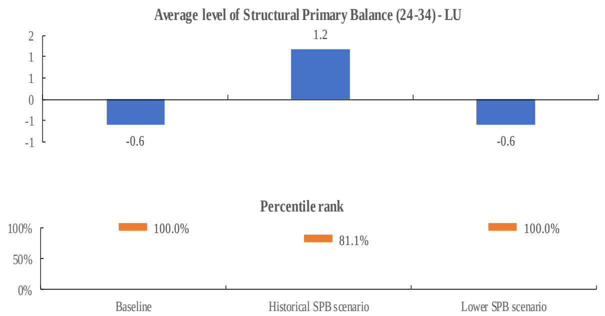
5. Risks related to government's contingent liabilities

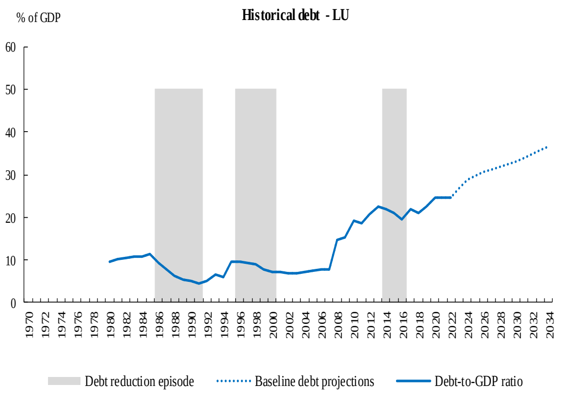
General government contingent liabilities	LU							EU
	2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)	12.2	11.6	11.1	10.6	11.1	8.8	8.4	7.1
of which *One-off guarantees*	*11.3*	*10.7*	*10.3*	*9.7*	*9.7*	*7.5*	*7.0*	*5.6*
Standardised guarantees	*0.8*	*0.8*	*0.9*	*0.9*	*1.4*	*1.2*	*1.5*	*1.5*
Public-private partnerships (PPPs) (% GDP)	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*

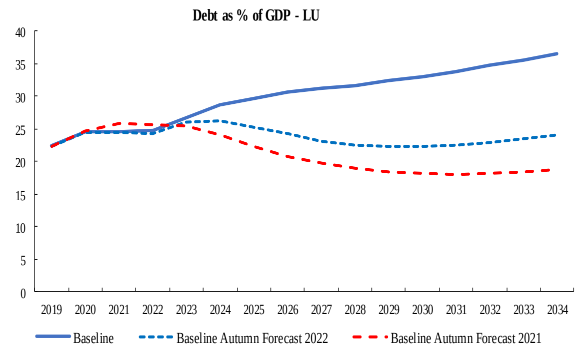
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)		2016	2017	2018	2019	2020	2021	2022	2022
	Liabilities and assets outside gen. gov. under guarantee	3.8	3.5	3.3	2.9	2.6	2.0	1.2	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	3.8	3.5	3.3	2.9	2.6	2.0	1.2	0.9

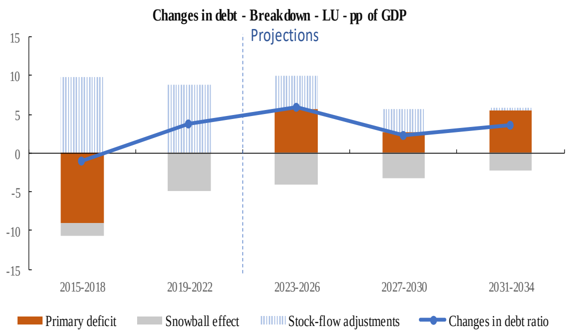
Government's contingent liability risks from banking sector - LU (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	-19.5	9.6	147.4	1.4	0.1	40.6	3.72%	11.88%

6. Realism of baseline assumptions









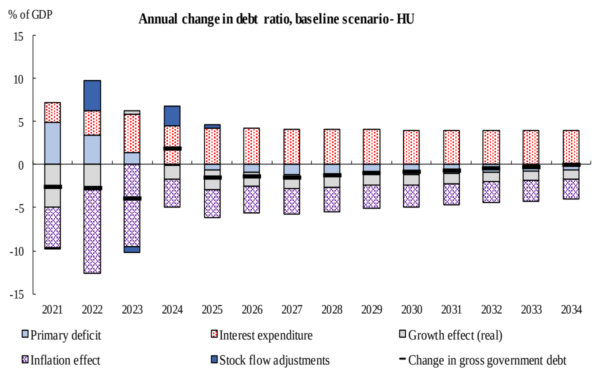
7. Underlying macro-fiscal assumptions

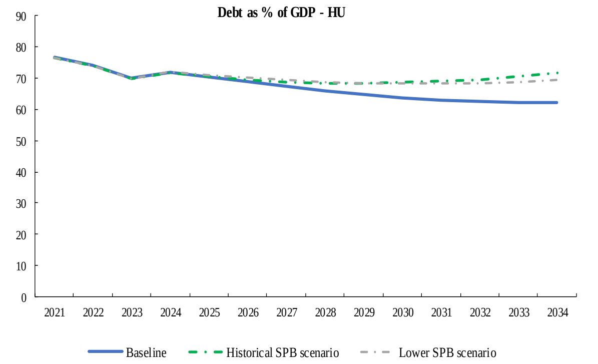
Macro-fiscal assumptions, Luxembourg	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	26.8	28.7	29.8	33.1	34.7	36.6	28.4	33.3	32.1
Primary balance	-1.7	-1.8	-1.3	-0.9	-1.3	-1.7	-1.6	-1.0	-1.2
Structural primary balance (before CoA)	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
Real GDP growth	-0.6	1.4	2.8	1.9	1.8	1.8	1.2	2.0	1.8
Potential GDP growth	1.9	1.7	1.7	1.9	1.8	1.8	1.8	1.8	1.8
Inflation rate	5.0	3.8	3.1	2.9	2.9	2.8	4.0	2.9	3.2
Implicit interest rate (nominal)	1.1	1.3	1.4	2.7	2.9	3.1	1.3	2.6	2.3
Gross financing needs	6.2	6.4	5.9	5.0	5.0	5.1	6.1	5.1	5.4
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	26.8	28.7	29.2	25.1	22.3	19.9	28.2	24.9	25.7
Primary balance	-1.7	-1.8	-0.7	1.2	1.0	0.6	-1.4	0.8	0.3
Structural primary balance (before CoA)	-0.6	-0.6	0.0	1.7	1.7	1.7	-0.4	1.5	1.0
Real GDP growth	-0.6	1.4	2.8	2.3	1.8	1.8	1.2	2.0	1.8
Gross financing needs	6.2	6.4	5.3	2.2	1.6	1.3	6.0	2.5	3.4
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	26.8	28.7	29.9	33.3	35.0	36.9	28.5	33.5	32.3
Implicit interest rate (nominal)	1.1	1.6	1.6	2.7	3.0	3.1	1.4	2.7	2.4
Gross financing needs	6.2	6.4	6.0	5.1	5.0	5.1	6.2	5.2	5.4
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	26.8	28.7	29.8	33.2	34.8	36.7	28.4	33.4	32.2
Primary balance	-1.7	-1.8	-1.3	-0.9	-1.3	-1.7	-1.6	-1.0	-1.2
Structural primary balance (before CoA)	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
Real GDP growth	-0.6	1.4	2.8	1.9	1.8	1.8	1.2	2.0	1.8
Gross financing needs	6.2	6.4	5.9	5.0	5.0	5.1	6.1	5.1	5.4
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	26.8	28.8	30.1	34.6	36.8	39.3	28.6	34.9	33.3
Implicit interest rate (nominal)	1.1	1.4	1.7	3.0	3.3	3.5	1.4	3.0	2.6
Real GDP growth	-0.6	0.9	2.3	1.4	1.3	1.3	0.9	1.5	1.3
Gross financing needs	6.2	6.4	6.0	5.3	5.3	5.5	6.2	5.4	5.6
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	26.8	28.7	29.8	33.1	34.7	36.6	28.4	33.3	32.1
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	6.2	6.4	5.9	5.0	5.0	5.1	6.1	5.1	5.4

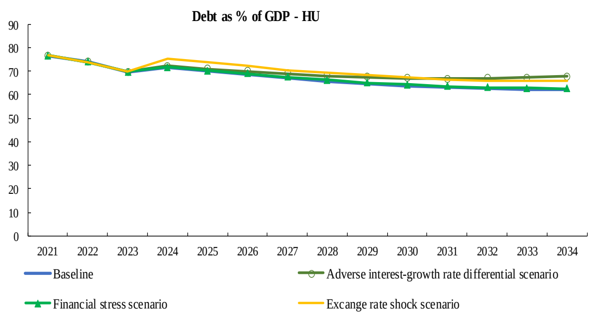
Hungary

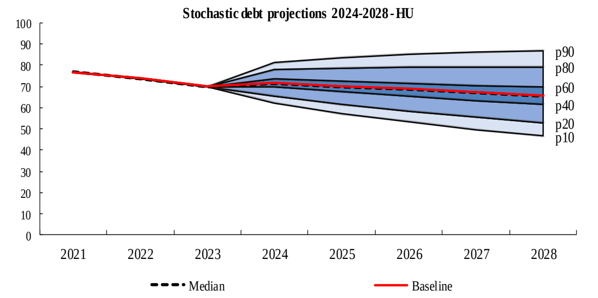
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

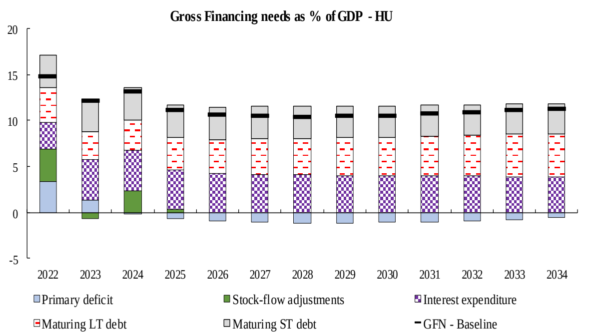
Hungary - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**76.7**	**73.9**	**69.9**	**71.7**	**70.2**	**68.8**	**67.2**	**65.8**	**64.8**	**63.8**	**63.1**	**62.5**	**62.3**	**62.2**
Changes in the ratio (-1+2+3)	*-2.6*	*-2.8*	*-4.0*	*1.9*	*-1.6*	*-1.4*	*-1.6*	*-1.3*	*-1.1*	*-0.9*	*-0.8*	*-0.5*	*-0.3*	*-0.1*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-4.9**	**-3.4**	**-1.4**	**0.1**	**0.7**	**0.9**	**1.1**	**1.2**	**1.2**	**1.1**	**1.0**	**0.9**	**0.7**	**0.6**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-4.5***	***-3.7***	***-0.4***	***1.0***	***1.1***	***1.2***	***1.2***	***1.2***	***1.2***	***1.1***	***1.0***	***0.9***	***0.7***	***0.6***
(1.1.1) Structural primary balance (bef. CoA)	*-4.5*	*-3.7*	*-0.4*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*
(1.1.2) Cost of ageing					*-0.1*	*-0.2*	*-0.3*	*-0.3*	*-0.2*	*-0.2*	*-0.1*	*0.0*	*0.1*	*0.3*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.2*
(1.2) Cyclical component	***-0.3***	***0.3***	***-1.0***	***-0.9***	***-0.4***	***-0.3***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-7.5**	**-9.7**	**-4.7**	**-0.3**	**-1.3**	**-0.5**	**-0.5**	**-0.2**	**0.1**	**0.2**	**0.2**	**0.4**	**0.5**	**0.5**
(2.1) Interest expenditure	*2.3*	*2.8*	*4.4*	*4.4*	*4.2*	*4.2*	*4.1*	*4.1*	*4.0*	*4.0*	*4.0*	*3.9*	*3.9*	*3.9*
(2.2) Growth effect	*-4.9*	*-2.9*	*0.4*	*-1.6*	*-2.2*	*-1.6*	*-1.6*	*-1.4*	*-1.3*	*-1.2*	*-1.2*	*-1.1*	*-1.1*	*-1.1*
(2.3) Inflation effect	*-4.8*	*-9.7*	*-9.6*	*-3.2*	*-3.2*	*-3.1*	*-3.0*	*-2.8*	*-2.7*	*-2.6*	*-2.5*	*-2.4*	*-2.4*	*-2.3*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**0.0**	**3.5**	**-0.7**	**2.3**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-0.1*	*1.0*	*-0.2*	*1.9*	*0.4*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*2.5*	*-0.5*	*0.4*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-6.8	-6.7	-4.8	-3.5	-3.1	-3.0	-3.0	-2.9	-2.9	-2.9	-3.0	-3.1	-3.2	-3.3
Gross financing needs	17.1	14.7	12.0	13.1	11.1	10.6	10.4	10.3	10.4	10.5	10.6	10.8	11.1	11.2

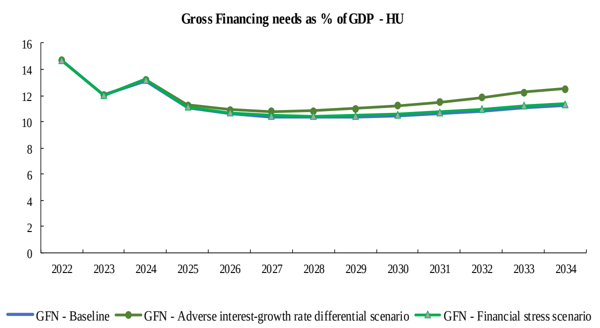












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)									Long term		
			Deterministic scenarios									
Overall (S0)	Overall		Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections		S2	S1	Overall (S1 + S2)
LOW	MEDIUM	Overall	MEDIUM	LOW	LOW	MEDIUM	MEDIUM	MEDIUM		MEDIUM	MEDIUM	MEDIUM
		Debt level (2034), % GDP	62.2	71.6	69.5	67.8	62.7					
		Debt peak year	2024	2024	2024	2024	2024					
		Fiscal consolidation space	47%	52%	50%	47%	47%					
		Probability of debt ratio exceeding in 2028 its 2023 level						40%				
		Difference between 90th and 10th percentiles (pps. GDP)						40.3				

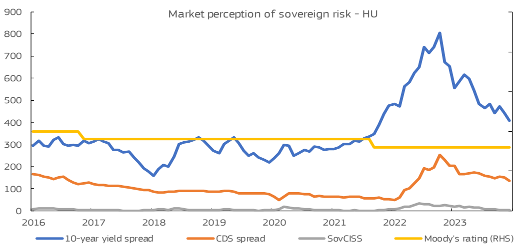
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.74**	**0.46**
Fiscal sub-index	0.36	0.56	0.41
Financial competitiveness sub-index	0.49	0.84	0.48

S2 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**6.1**	**4.3**	**4.6**	**7.5**
of which					
Initial budgetary position		1.6	-0.1	0.1	-0.1
Ageing costs		4.4	4.4	4.5	7.6
of which	*Pensions*	3.2	3.5	3.7	3.5
	Health care	0.6	0.4	0.4	1.3
	Long-term care	0.5	0.3	0.3	2.7
	Others	0.1	0.1	0.1	0.1
Required structural primary balance related to S2		**4.9**	**5.3**	**5.6**	**8.5**

S1 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**4.2**	**2.5**	**2.7**	**4.0**
of which					
Initial budgetary position		1.6	-0.3	-0.1	-0.2
Debt requirement		0.3	0.2	0.2	0.2
Ageing costs		2.4	2.5	2.6	4.0
of which	*Pensions*	1.7	1.9	2.1	1.9
	Health care	0.5	0.3	0.3	1.0
	Long-term care	0.3	0.2	0.2	1.1
	Others	0.0	0.1	0.0	0.1
Required structural primary balance related to S1		**3.1**	**3.4**	**3.7**	**5.0**

3. Financial information



Financial market information HU - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	407.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - HU (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	9.9	28.5	34.1

Net International Investment Position (IIP) - HU (2022)	Net IIP (% GDP):
	-50.8

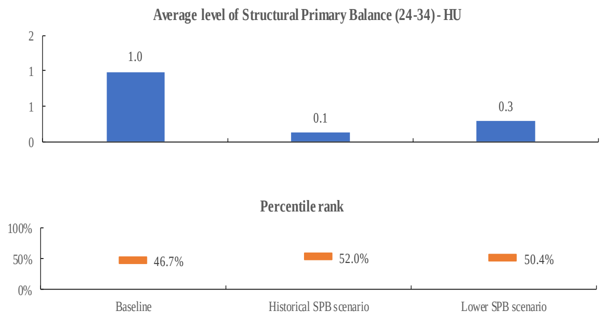
5. Risks related to government's contingent liabilities

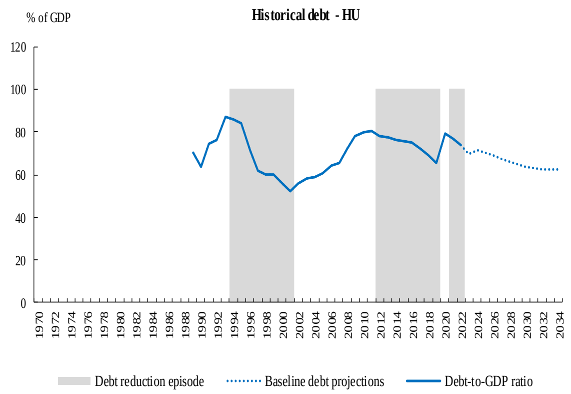
General government contingent liabilities	HU							EU
	2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)	5.8	5.0	5.1	6.4	9.1	11.3	12.4	7.1
of which One-off guarantees	*5.6*	*4.8*	*5.0*	*5.4*	*6.9*	*8.5*	*9.5*	*5.6*
Standardised guarantees	*0.2*	*0.1*	*0.1*	*1.0*	*2.2*	*2.7*	*2.9*	*1.5*
Public-private partnerships (PPPs) (% GDP)	*1.6*	*1.5*	*1.3*	*1.1*	*1.1*	*0.9*	*0.0*	*0.0*

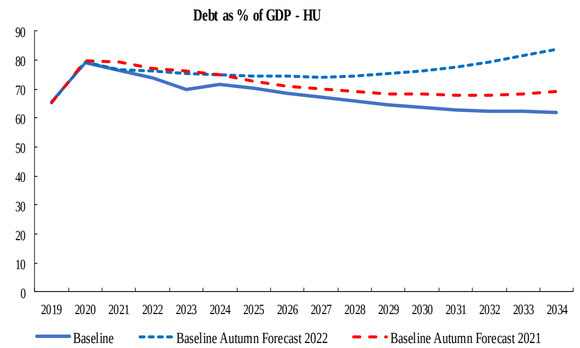
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9

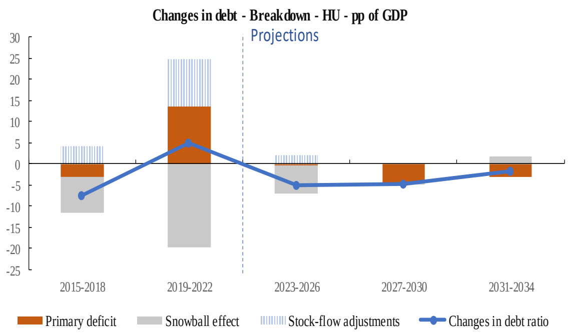
Government's contingent liability risks from banking sector - HU (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	9.2	22.3	80.7	3.1	-0.6	57.7	0.03%	0.19%

6. Realism of baseline assumptions









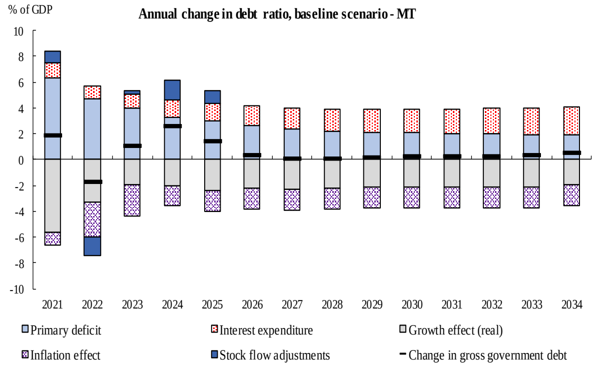
7. Underlying macro-fiscal assumptions

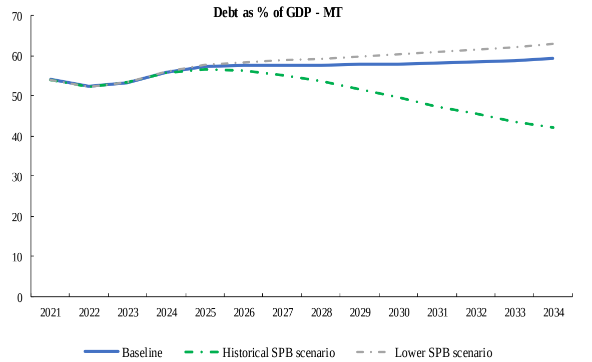
Macro-fiscal assumptions, Hungary	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	69.9	71.7	70.2	63.8	62.5	62.2	70.6	64.5	66.0
Primary balance	-1.4	0.1	0.7	1.1	0.9	0.6	-0.2	1.0	0.7
Structural primary balance (before CoA)	-0.4	1.0	1.0	1.0	1.0	1.0	0.5	1.0	0.9
Real GDP growth	-0.7	2.4	3.4	2.0	1.9	1.8	1.7	2.1	2.0
Potential GDP growth	2.2	2.2	2.3	2.0	1.9	1.8	2.2	2.0	2.1
Inflation rate	14.9	4.8	4.7	4.2	4.0	3.9	8.1	4.2	5.2
Implicit interest rate (nominal)	6.8	6.8	6.4	6.6	6.6	6.6	6.7	6.6	6.6
Gross financing needs	12.0	13.1	11.1	10.5	10.8	11.2	12.1	10.7	11.0
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	69.9	71.7	70.4	68.5	69.6	71.6	70.7	69.3	69.6
Primary balance	-1.4	0.1	0.4	0.0	-0.2	-0.5	-0.3	0.0	-0.1
Structural primary balance (before CoA)	-0.4	1.0	0.7	-0.1	-0.1	-0.1	0.4	0.0	0.1
Real GDP growth	-0.7	2.4	3.4	2.0	1.9	1.8	1.7	2.1	2.0
Gross financing needs	12.0	13.1	11.3	12.2	13.1	13.9	12.2	12.4	12.3
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	69.9	71.8	70.3	64.2	63.0	62.7	70.7	64.9	66.3
Implicit interest rate (nominal)	6.8	7.0	6.5	6.6	6.7	6.7	6.8	6.6	6.7
Gross financing needs	12.0	13.2	11.1	10.6	10.9	11.3	12.1	10.8	11.1
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	69.9	71.8	70.9	68.2	68.4	69.5	70.9	68.9	69.4
Primary balance	-1.4	-0.3	0.1	0.4	0.2	-0.1	-0.5	0.3	0.1
Structural primary balance (before CoA)	-0.4	0.3	0.3	0.3	0.3	0.3	0.1	0.3	0.2
Real GDP growth	-0.7	3.0	3.2	2.0	1.9	1.8	1.8	2.1	2.0
Gross financing needs	12.0	13.5	11.6	11.9	12.5	13.2	12.4	12.0	12.1
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	69.9	72.1	71.0	67.1	67.0	67.8	71.0	67.8	68.6
Implicit interest rate (nominal)	6.8	6.9	6.5	6.9	7.0	7.0	6.8	6.9	6.8
Real GDP growth	-0.7	1.9	2.9	1.5	1.4	1.3	1.4	1.6	1.5
Gross financing needs	12.0	13.2	11.3	11.2	11.8	12.5	12.2	11.4	11.6
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	69.9	75.2	73.6	67.2	66.0	65.7	72.9	67.9	69.2
Exchange rate depreciation	0.0%	9.0%	0.0%	0.0%	0.0%	0.0%	3.0%	0.0%	0.8%
Gross financing needs	12.0	13.7	11.6	11.1	11.5	11.9	12.4	11.3	11.6

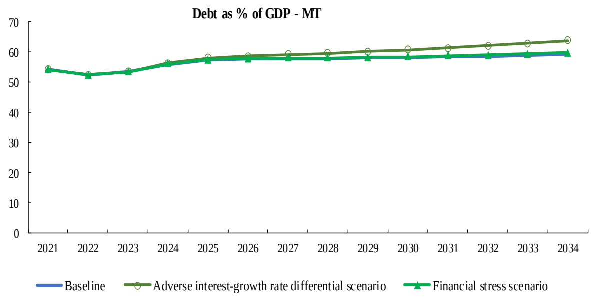
Malta

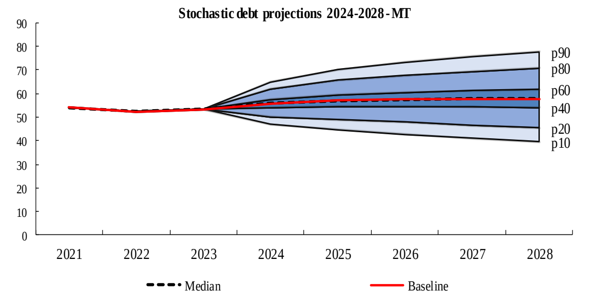
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

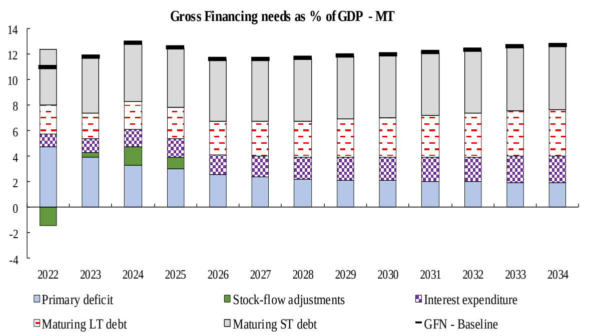
Malta - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	54.0	52.3	53.3	55.8	57.2	57.5	57.6	57.7	57.9	58.0	58.2	58.5	58.8	59.3
Changes in the ratio (-1+2+3)	*1.8*	*-1.7*	*1.0*	*2.6*	*1.4*	*0.3*	*0.1*	*0.1*	*0.2*	*0.2*	*0.2*	*0.3*	*0.3*	*0.5*
of which														
(1) Primary balance (1.1+1.2+1.3)	-6.4	-4.8	-4.0	-3.3	-3.0	-2.6	-2.4	-2.2	-2.1	-2.1	-2.0	-2.0	-2.0	-2.0
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	*-5.7*	*-4.5*	*-3.5*	*-2.7*	*-2.6*	*-2.4*	*-2.3*	*-2.2*	*-2.1*	*-2.1*	*-2.0*	*-2.0*	*-2.0*	*-2.0*
(1.1.1) Structural primary balance (bef. CoA)	*-5.7*	*-4.5*	*-3.5*	*-2.7*	*-2.7*	*-2.7*	*-2.7*	*-2.7*	*-2.7*	*-2.7*	*-2.7*	*-2.7*	*-2.7*	*-2.7*
(1.1.2) Cost of ageing					*-0.1*	*-0.3*	*-0.4*	*-0.5*	*-0.6*	*-0.6*	*-0.7*	*-0.7*	*-0.7*	*-0.8*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.2) Cyclical component	*-0.6*	*-0.2*	*-0.5*	*-0.6*	*-0.3*	*-0.2*	*-0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.3) One-off and other temporary measures	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(2) Snowball effect (2.1+2.2+2.3+2.4)	-5.5	-5.1	-3.3	-2.2	-2.6	-2.3	-2.3	-2.1	-2.0	-1.9	-1.8	-1.7	-1.7	-1.5
(2.1) Interest expenditure	*1.1*	*1.0*	*1.1*	*1.3*	*1.4*	*1.6*	*1.6*	*1.7*	*1.8*	*1.8*	*1.9*	*2.0*	*2.0*	*2.1*
(2.2) Growth effect	*-5.6*	*-3.3*	*-1.9*	*-2.0*	*-2.4*	*-2.2*	*-2.3*	*-2.2*	*-2.1*	*-2.1*	*-2.1*	*-2.1*	*-2.1*	*-2.0*
(2.3) Inflation effect	*-1.0*	*-2.7*	*-2.5*	*-1.6*	*-1.6*	*-1.7*	*-1.7*	*-1.6*	*-1.6*	*-1.6*	*-1.6*	*-1.6*	*-1.6*	*-1.6*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	1.0	-1.4	0.3	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(3.1) Base	*1.0*	*-1.4*	*0.3*	*1.5*	*1.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-6.8	-5.5	-4.6	-4.0	-4.1	-3.9	-3.9	-3.9	-3.9	-3.9	-3.9	-4.0	-4.0	-4.1
Gross financing needs	15.3	10.9	11.7	12.8	12.5	11.6	11.6	11.6	11.8	12.0	12.1	12.3	12.5	12.6

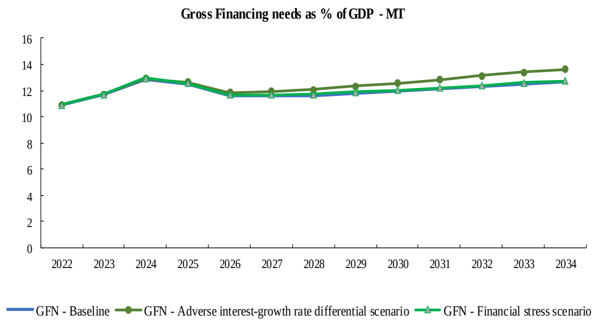












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios					Stochastic projections	S2	S1	Overall (S1 + S2)
			Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress				
LOW	MEDIUM	Overall	LOW	LOW	MEDIUM	MEDIUM	LOW	MEDIUM	HIGH	MEDIUM	HIGH
		Debt level (2034), % GDP	59.3	42.1	62.8	63.6	59.7				
		Debt peak year	2034	2025	2034	2034	2034				
		Fiscal consolidation space	73%	56%	76%	73%	73%				
		Probability of debt ratio exceeding in 2028 its 2023 level						62%			
		Difference between 90th and 10th percentiles (pps. GDP)						38.2			

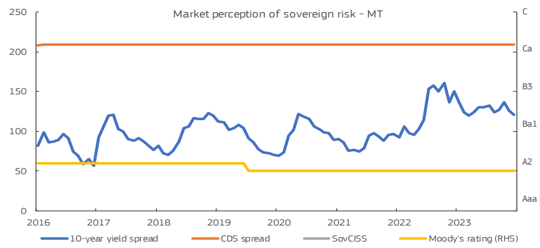
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.45**	**0.17**
Fiscal sub-index	0.36	0.20	0.22
Financial competitiveness sub-index	0.49	0.58	0.14

S2 indicator	DSM 2022	DSM 2023		
		Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)	**9.4**	**9.4**	**9.2**	**12.5**
of which				
Initial budgetary position	2.7	3.1	3.2	3.1
Ageing costs	6.7	6.3	6.1	9.4
of which *Pensions*	3.1	3.1	3.1	3.1
Health care	2.2	1.6	1.5	2.5
Long-term care	1.4	1.7	1.6	3.9
Others	-0.1	-0.1	-0.1	-0.1
Required structural primary balance related to S2	**6.9**	**6.7**	**6.5**	**9.8**

S1 indicator	DSM 2022	DSM 2023		
		Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)	**4.8**	**4.4**	**4.6**	**5.8**
of which				
Initial budgetary position	2.1	2.4	2.6	2.5
Debt requirement	0.0	-0.1	-0.1	-0.1
Ageing costs	2.7	2.1	2.1	3.4
of which *Pensions*	1.1	0.8	0.9	0.8
Health care	1.2	0.8	0.7	1.4
Long-term care	0.7	0.8	0.8	1.5
Others	-0.3	-0.3	-0.3	-0.3
Required structural primary balance related to S1	**2.3**	**1.7**	**1.9**	**3.1**

3. Financial information



Financial market information MT - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	121.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - MT (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	10.3	0.0	22.0

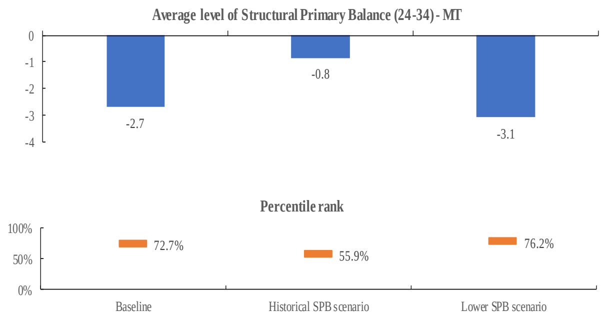
Net International Investment Position (IIP) - MT (2022)	Net IIP (% GDP):
	80.6

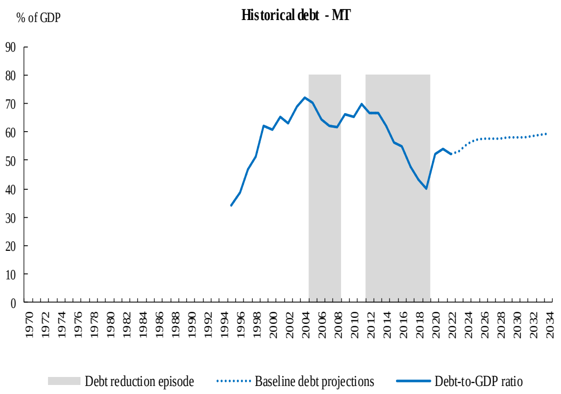
5. Risks related to government's contingent liabilities

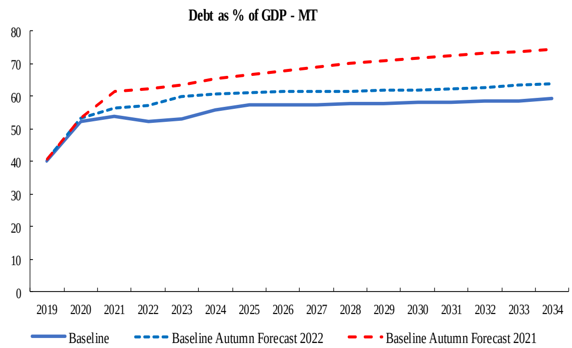
General government contingent liabilities		MT							EU
		2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)		13.2	8.9	8.2	6.9	8.9	7.9	6.7	7.1
of which	*One-off guarantees*	*13.1*	*8.8*	*8.1*	*6.8*	*8.8*	*6.6*	*5.8*	*5.6*
	Standardised guarantees	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*1.3*	*1.0*	*1.5*
Public-private partnerships (PPPs) (% GDP)		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.0*	*0.0*	*0.0*
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.9
	Securities issued under liquidity schemes	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.0
	Special purpose entity	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.0
	Total	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.9

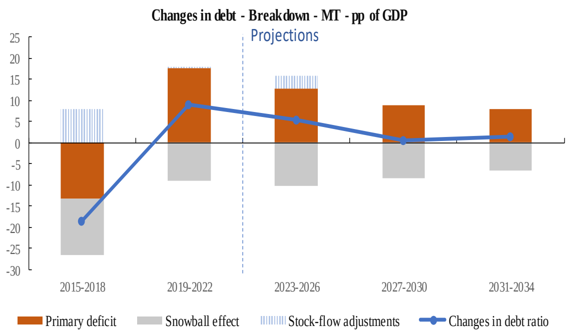
Government's contingent liability risks from banking sector - MT (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):	
							Stress	Severe Stress
	6.4	6.7	56.4	2.3	-0.3	31.3	0.02%	0.23%

6. Realism of baseline assumptions









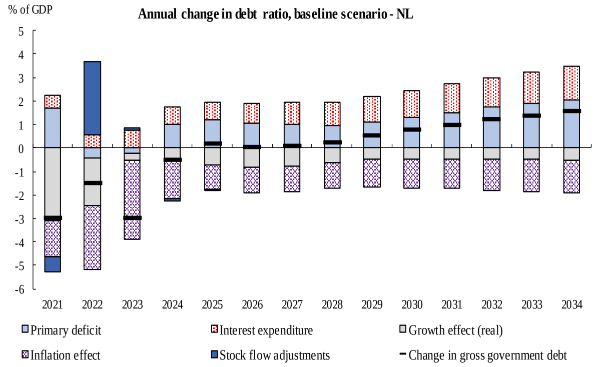
7. Underlying macro-fiscal assumptions

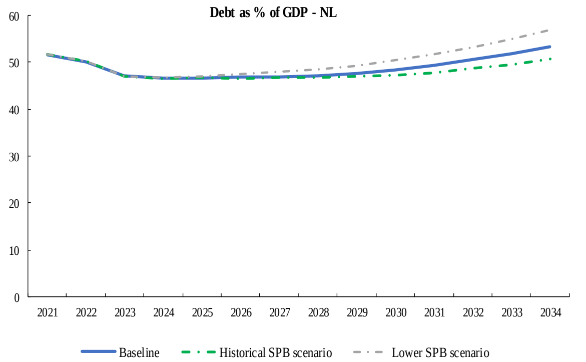
Macro-fiscal assumptions, Malta	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	53.3	55.8	57.2	58.0	58.5	59.3	55.5	58.2	57.5
Primary balance	-4.0	-3.3	-3.0	-2.1	-2.0	-2.0	-3.4	-2.1	-2.5
Structural primary balance (before CoA)	-3.5	-2.7	-2.7	-2.7	-2.7	-2.7	-3.0	-2.7	-2.8
Real GDP growth	4.0	4.0	4.5	3.9	3.9	3.6	4.2	3.9	4.0
Potential GDP growth	4.6	4.2	4.0	3.9	3.9	3.6	4.3	3.9	4.0
Inflation rate	5.0	3.1	3.0	2.9	2.8	2.8	3.7	2.9	3.1
Implicit interest rate (nominal)	2.3	2.7	2.7	3.4	3.6	3.8	2.6	3.4	3.2
Gross financing needs	11.7	12.8	12.5	12.0	12.3	12.6	12.3	12.0	12.1
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	53.3	55.8	56.6	49.5	45.5	42.1	55.3	49.4	50.9
Primary balance	-4.0	-3.3	-2.4	0.1	0.4	0.4	-3.2	-0.1	-0.9
Structural primary balance (before CoA)	-3.5	-2.7	-2.1	-0.3	-0.3	-0.3	-2.8	-0.5	-1.1
Real GDP growth	4.0	4.0	4.5	4.3	3.9	3.6	4.2	3.9	4.0
Gross financing needs	11.7	12.8	11.9	8.6	7.9	7.4	12.1	8.7	9.6
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	53.3	56.0	57.4	58.4	58.8	59.7	55.6	58.5	57.8
Implicit interest rate (nominal)	2.3	3.0	2.8	3.5	3.7	3.8	2.7	3.4	3.3
Gross financing needs	11.7	12.9	12.6	12.0	12.4	12.7	12.4	12.1	12.2
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	53.3	55.9	57.7	60.3	61.4	62.8	55.6	60.4	59.2
Primary balance	-4.0	-3.5	-3.3	-2.5	-2.4	-2.3	-3.6	-2.5	-2.8
Structural primary balance (before CoA)	-3.5	-3.1	-3.1	-3.1	-3.1	-3.1	-3.2	-3.1	-3.1
Real GDP growth	4.0	4.3	4.4	3.9	3.9	3.6	4.2	3.9	4.0
Gross financing needs	11.7	13.0	12.8	12.7	13.2	13.6	12.5	12.7	12.7
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	53.3	56.2	57.9	60.6	61.9	63.6	55.8	60.8	59.5
Implicit interest rate (nominal)	2.3	2.8	2.9	3.8	4.0	4.2	2.7	3.7	3.5
Real GDP growth	4.0	3.5	4.0	3.4	3.4	3.1	3.8	3.4	3.5
Gross financing needs	11.7	12.9	12.7	12.6	13.1	13.6	12.4	12.6	12.6
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	53.3	55.8	57.2	58.0	58.5	59.3	55.5	58.2	57.5
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	11.7	12.8	12.5	12.0	12.3	12.6	12.3	12.0	12.1

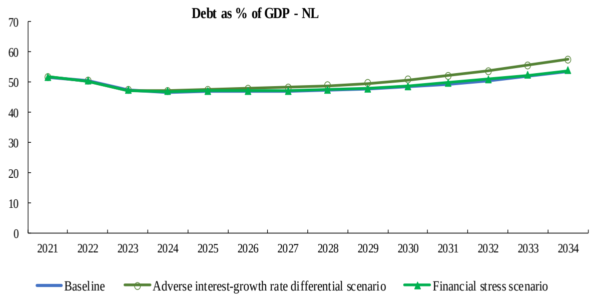
Netherlands

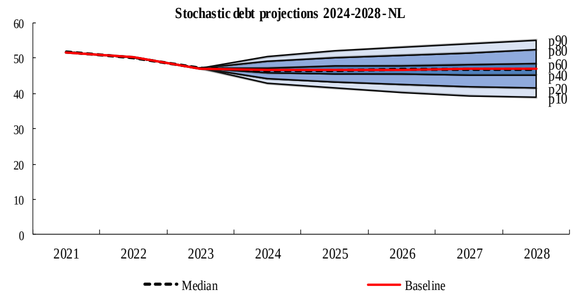
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

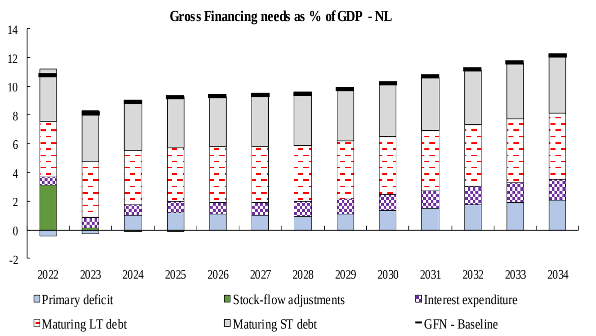
Netherlands - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**51.7**	**50.1**	**47.1**	**46.6**	**46.8**	**46.8**	**46.9**	**47.1**	**47.6**	**48.3**	**49.3**	**50.5**	**51.9**	**53.4**
Changes in the ratio (-1+2+3)	*-3.0*	*-1.5*	*-3.0*	*-0.5*	*0.2*	*0.0*	*0.1*	*0.2*	*0.5*	*0.7*	*1.0*	*1.2*	*1.4*	*1.6*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-1.7**	**0.4**	**0.2**	**-1.0**	**-1.2**	**-1.1**	**-1.0**	**-0.9**	**-1.1**	**-1.3**	**-1.5**	**-1.7**	**-1.9**	**-2.1**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-1.4***	***-0.6***	***0.2***	***-0.5***	***-0.5***	***-0.6***	***-0.9***	***-0.9***	***-1.1***	***-1.3***	***-1.5***	***-1.7***	***-1.9***	***-2.1***
(1.1.1) Structural primary balance (bef. CoA)	*-1.4*	*-0.6*	*0.2*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*
(1.1.2) Cost of ageing					*0.0*	*0.1*	*0.3*	*0.4*	*0.5*	*0.7*	*0.9*	*1.0*	*1.2*	*1.4*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.2*	*-0.2*	*-0.2*
(1.2) Cyclical component	***-0.2***	***1.0***	***0.0***	***-0.5***	***-0.7***	***-0.4***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-4.1**	**-4.2**	**-2.9**	**-1.4**	**-1.0**	**-1.0**	**-0.9**	**-0.7**	**-0.6**	**-0.6**	**-0.5**	**-0.5**	**-0.5**	**-0.5**
(2.1) Interest expenditure	*0.5*	*0.5*	*0.7*	*0.7*	*0.8*	*0.9*	*0.9*	*1.0*	*1.1*	*1.1*	*1.2*	*1.3*	*1.3*	*1.4*
(2.2) Growth effect	*-3.1*	*-2.0*	*-0.3*	*-0.5*	*-0.7*	*-0.8*	*-0.8*	*-0.6*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*
(2.3) Inflation effect	*-1.6*	*-2.7*	*-3.4*	*-1.7*	*-1.0*	*-1.1*	*-1.1*	*-1.1*	*-1.2*	*-1.2*	*-1.3*	*-1.3*	*-1.4*	*-1.4*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**-0.6**	**3.1**	**0.1**	**-0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-0.6*	*3.1*	*0.1*	*-0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-1.9	-1.1	-0.5	-1.3	-1.3	-1.5	-1.8	-1.9	-2.2	-2.4	-2.7	-3.0	-3.2	-3.5
Gross financing needs	11.3	10.7	8.0	8.9	9.2	9.2	9.3	9.4	9.8	10.1	10.6	11.1	11.6	12.1

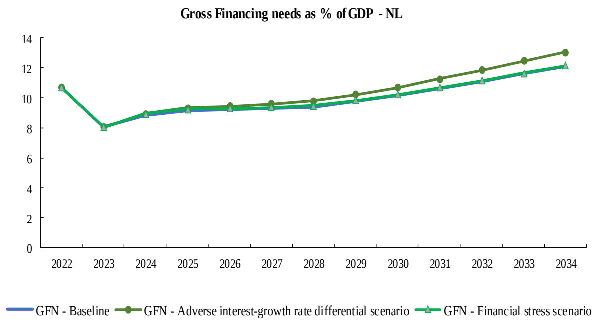












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios: Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	LOW	Overall	LOW	LOW	LOW	LOW	LOW	LOW	MEDIUM	MEDIUM	MEDIUM
		Debt level (2034), % GDP	53.4	50.8	56.9	57.4	53.7				
		Debt peak year	2034	2034	2034	2034	2034				
		Fiscal consolidation space	94%	88%	100%	94%	94%				
		Probability of debt ratio exceeding in 2028 its 2023 level						48%			
		Difference between 90th and 10th percentiles (pps. GDP)						16.4			

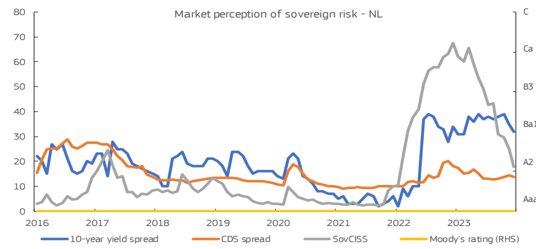
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.41**	**0.12**
Fiscal sub-index	0.36	0.57	0.00
Financial competitiveness sub-index	0.49	0.33	0.18

S2 indicator		DSM 2022	DSM 2023: Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**6.5**	**4.5**	**4.3**	**6.6**
of which					
Initial budgetary position		2.7	1.7	1.7	1.7
Ageing costs		3.7	2.8	2.6	4.8
of which	*Pensions*	1.1	1.2	1.1	1.2
	Health care	0.6	0.6	0.6	1.1
	Long-term care	2.1	1.6	1.6	3.2
	Others	-0.1	-0.7	-0.6	-0.7
Required structural primary balance related to S2		**4.0**	**4.0**	**3.8**	**6.1**

S1 indicator		DSM 2022	DSM 2023: Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**4.8**	**2.8**	**2.8**	**4.0**
of which					
Initial budgetary position		2.0	1.1	1.1	1.0
Debt requirement		-0.2	-0.3	-0.3	-0.3
Ageing costs		2.9	2.0	2.0	3.2
of which	*Pensions*	0.9	0.9	0.9	0.9
	Health care	0.5	0.4	0.4	0.8
	Long-term care	1.6	1.2	1.2	2.0
	Others	-0.1	-0.5	-0.5	-0.5
Required structural primary balance related to S1		**2.3**	**2.3**	**2.3**	**3.5**

3. Financial information



Financial market information NL - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	32.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - NL (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	11.0	0.0	39.7

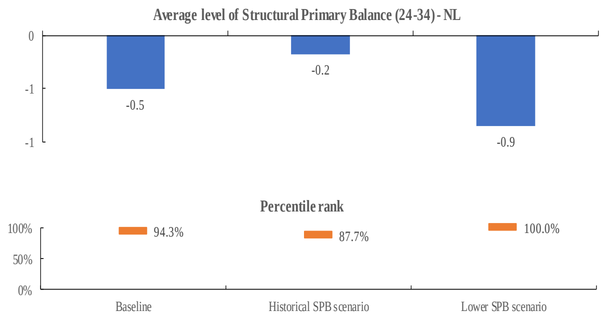
Net International Investment Position (IIP) - NL (2022)	Net IIP (% GDP):
	75.2

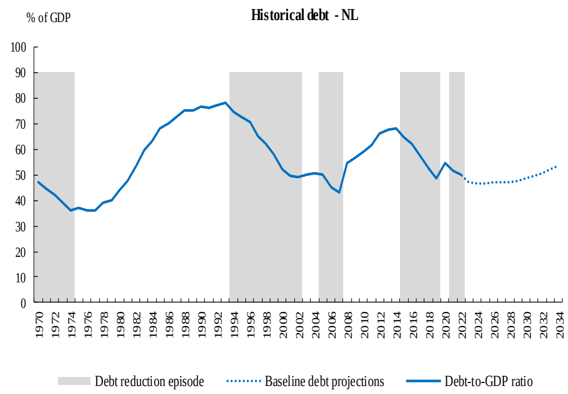
5. Risks related to government's contingent liabilities

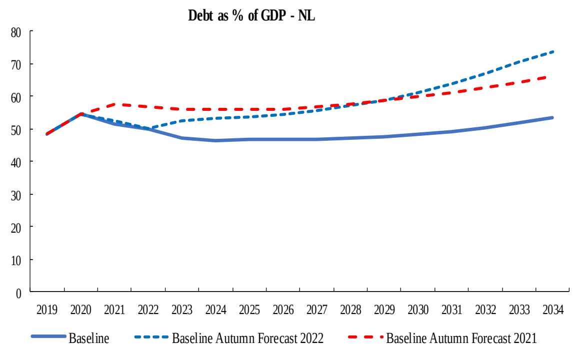
General government contingent liabilities		NL							EU
		2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)		3.6	3.4	3.2	3.0	5.9	4.4	3.5	7.1
of which	*One-off guarantees*	*3.6*	*3.4*	*3.2*	*3.0*	*5.9*	*4.4*	*3.5*	*5.6*
	Standardised guarantees	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*1.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9

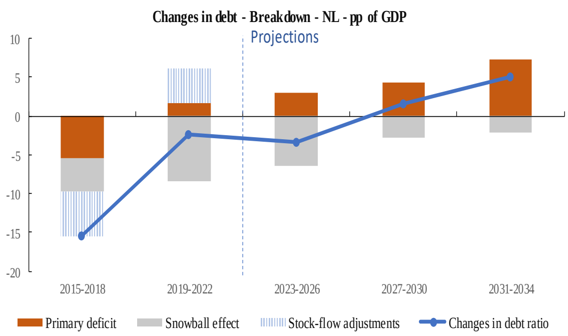
Government's contingent liability risks from banking sector - NL (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):	
							Stress	Severe Stress
	6.9	13.4	111.2	1.3	0.0	25.9	0.05%	0.46%

6. Realism of baseline assumptions









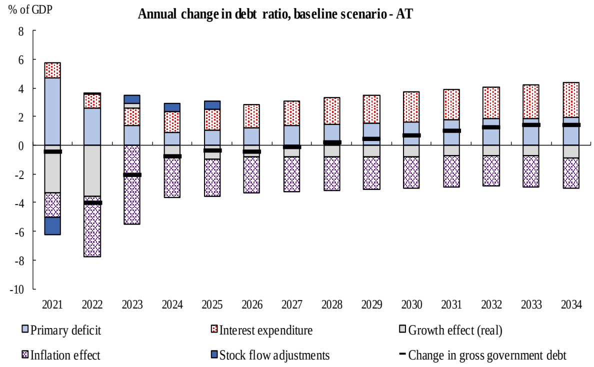
7. Underlying macro-fiscal assumptions

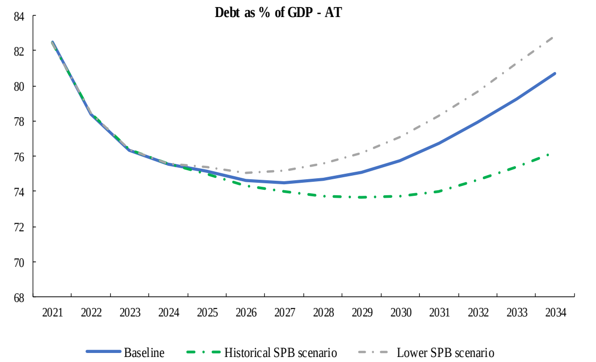
Macro-fiscal assumptions, Netherlands	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	47.1	46.6	46.8	48.3	50.5	53.4	46.8	49.1	48.5
Primary balance	0.2	-1.0	-1.2	-1.3	-1.7	-2.1	-0.7	-1.4	-1.2
Structural primary balance (before CoA)	0.2	-0.5	-0.5	-0.5	-0.5	-0.5	-0.3	-0.5	-0.4
Real GDP growth	0.6	1.1	1.6	1.1	1.0	1.0	1.1	1.2	1.2
Potential GDP growth	2.2	2.0	1.9	1.1	1.0	1.0	2.1	1.1	1.3
Inflation rate	7.3	3.7	2.3	2.6	2.8	2.8	4.4	2.6	3.0
Implicit interest rate (nominal)	1.6	1.7	1.7	2.5	2.7	2.8	1.7	2.4	2.2
Gross financing needs	8.0	8.9	9.2	10.1	11.1	12.1	8.7	10.4	9.9
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	47.1	46.6	46.7	47.4	48.6	50.8	46.8	47.9	47.6
Primary balance	0.2	-1.0	-1.1	-1.0	-1.3	-1.6	-0.6	-1.1	-1.0
Structural primary balance (before CoA)	0.2	-0.5	-0.4	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1
Real GDP growth	0.6	1.1	1.6	1.2	1.0	1.0	1.1	1.2	1.2
Gross financing needs	8.0	8.9	9.1	9.7	10.4	11.2	8.7	9.9	9.6
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	47.1	46.7	46.9	48.5	50.8	53.7	46.9	49.3	48.7
Implicit interest rate (nominal)	1.6	1.8	1.8	2.5	2.7	2.9	1.7	2.5	2.3
Gross financing needs	8.0	8.9	9.2	10.2	11.2	12.1	8.7	10.4	10.0
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	47.1	46.7	47.1	50.4	53.3	56.9	47.0	51.2	50.1
Primary balance	0.2	-1.2	-1.4	-1.7	-2.1	-2.4	-0.8	-1.8	-1.5
Structural primary balance (before CoA)	0.2	-0.9	-0.9	-0.9	-0.9	-0.9	-0.5	-0.9	-0.8
Real GDP growth	0.6	1.4	1.5	1.1	1.0	1.0	1.2	1.2	1.2
Gross financing needs	8.0	9.0	9.5	10.8	11.9	13.1	8.8	11.1	10.5
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	47.1	46.9	47.3	50.6	53.6	57.4	47.1	51.4	50.3
Implicit interest rate (nominal)	1.6	1.8	1.8	2.8	3.1	3.3	1.7	2.7	2.5
Real GDP growth	0.6	0.6	1.1	0.6	0.5	0.5	0.8	0.7	0.7
Gross financing needs	8.0	8.9	9.3	10.7	11.9	13.0	8.8	10.9	10.4
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	47.1	46.6	46.8	48.3	50.5	53.4	46.8	49.1	48.5
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	8.0	8.9	9.2	10.1	11.1	12.1	8.7	10.4	9.9

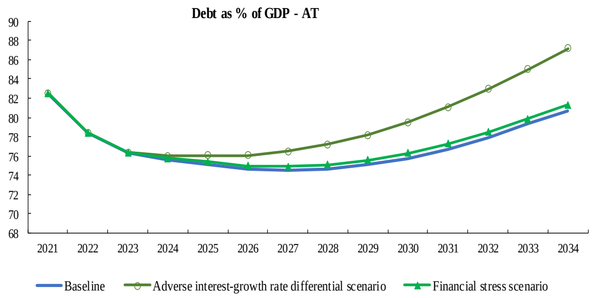
Austria

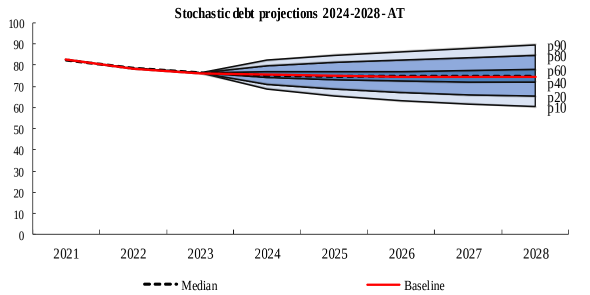
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

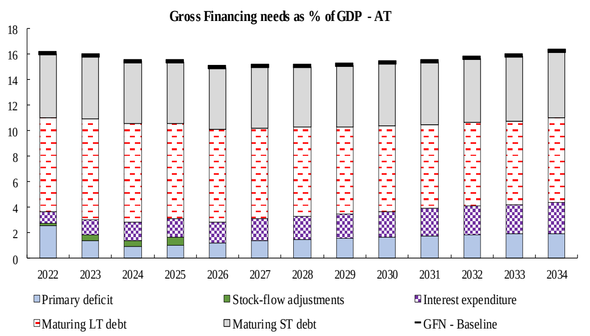
Austria - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**82.5**	**78.4**	**76.3**	**75.6**	**75.1**	**74.6**	**74.5**	**74.7**	**75.1**	**75.8**	**76.7**	**77.9**	**79.3**	**80.7**
Changes in the ratio (-1+2+3)	*-0.5*	*-4.1*	*-2.1*	*-0.8*	*-0.4*	*-0.5*	*-0.1*	*0.2*	*0.4*	*0.7*	*1.0*	*1.2*	*1.3*	*1.4*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-4.7**	**-2.6**	**-1.3**	**-0.9**	**-1.1**	**-1.2**	**-1.4**	**-1.5**	**-1.6**	**-1.7**	**-1.8**	**-1.8**	**-1.9**	**-2.0**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-3.4***	***-3.3***	***-1.1***	***-0.7***	***-1.0***	***-1.1***	***-1.4***	***-1.5***	***-1.6***	***-1.7***	***-1.8***	***-1.8***	***-1.9***	***-2.0***
(1.1.1) Structural primary balance (bef. CoA)	*-3.4*	*-3.3*	*-1.1*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*
(1.1.2) Cost of ageing					*0.3*	*0.5*	*0.8*	*0.9*	*1.0*	*1.1*	*1.2*	*1.2*	*1.3*	*1.4*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.0*	*0.0*
(1.2) Cyclical component	***-1.3***	***0.7***	***-0.2***	***-0.3***	***-0.1***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-3.9**	**-6.8**	**-3.9**	**-2.2**	**-2.1**	**-1.7**	**-1.5**	**-1.3**	**-1.1**	**-1.0**	**-0.8**	**-0.6**	**-0.6**	**-0.6**
(2.1) Interest expenditure	*1.1*	*0.9*	*1.2*	*1.4*	*1.4*	*1.6*	*1.7*	*1.8*	*1.9*	*2.0*	*2.1*	*2.2*	*2.3*	*2.4*
(2.2) Growth effect	*-3.3*	*-3.6*	*0.4*	*-0.7*	*-1.0*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.7*	*-0.7*	*-0.8*	*-0.9*
(2.3) Inflation effect	*-1.7*	*-4.1*	*-5.5*	*-2.9*	*-2.6*	*-2.5*	*-2.4*	*-2.3*	*-2.3*	*-2.2*	*-2.2*	*-2.2*	*-2.1*	*-2.1*
(2.4) Exchange rate effect linked to the interest rate	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(3) Stock-flow adjustments	**-1.3**	**0.1**	**0.5**	**0.5**	**0.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-1.3*	*0.1*	*0.5*	*0.5*	*0.6*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-4.5	-4.2	-2.3	-2.1	-2.4	-2.7	-3.1	-3.3	-3.5	-3.7	-3.9	-4.1	-4.2	-4.4
Gross financing needs	16.0	16.0	15.9	15.4	15.4	14.9	15.0	15.0	15.1	15.2	15.4	15.6	15.8	16.2

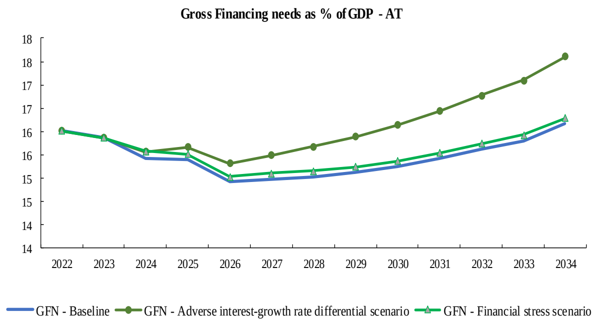












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
			Deterministic scenarios								
Overall (S0)	Overall		Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	MEDIUM	Overall	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM
		Debt level (2034), % GDP	80.7	76.2	82.9	87.1	81.3				
		Debt peak year	2034	2023	2034	2034	2034				
		Fiscal consolidation space	96%	91%	97%	96%	96%				
		Probability of debt ratio exceeding in 2028 its 2023 level						45%			
		Difference between 90th and 10th percentiles (pps. GDP)						29.3			

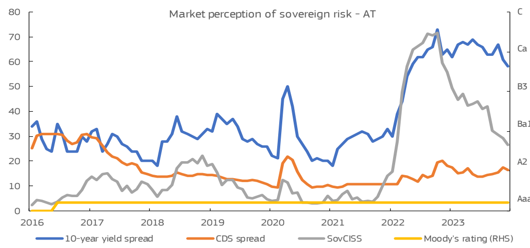
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.31**	**0.09**
Fiscal sub-index	0.36	0.64	0.15
Financial competitiveness sub-index	0.49	0.16	0.06

S2 indicator	DSM 2022	DSM 2023		
		Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)	**3.2**	**3.3**	**3.5**	**5.3**
of which				
Initial budgetary position	0.8	1.1	1.2	1.1
Ageing costs	2.4	2.2	2.2	4.2
of which *Pensions*	-0.1	0.1	0.3	0.1
Health care	1.0	1.1	1.0	1.9
Long-term care	1.5	1.3	1.2	2.4
Others	0.0	-0.3	-0.3	-0.3
Required structural primary balance related to S2	**2.6**	**2.7**	**2.8**	**4.7**

S1 indicator	DSM 2022	DSM 2023		
		Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)	**2.4**	**2.5**	**2.7**	**3.7**
of which				
Initial budgetary position	0.1	0.5	0.7	0.5
Debt requirement	0.3	0.3	0.3	0.3
Ageing costs	2.0	1.6	1.7	2.8
of which *Pensions*	0.3	0.3	0.4	0.3
Health care	0.7	0.8	0.8	1.4
Long-term care	1.0	0.8	0.8	1.4
Others	0.0	-0.3	-0.3	-0.3
Required structural primary balance related to S1	**1.8**	**1.8**	**2.0**	**3.0**

3. Financial information



Financial market information AT - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	58.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - AT (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	7.1	0.3	61.4

Net International Investment Position (IIP) - AT (2022)	Net IIP (% GDP):
	17.6

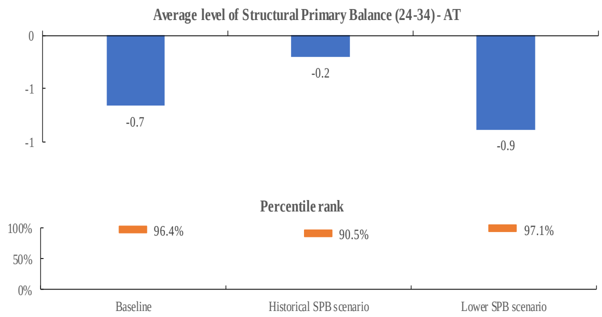
5. Risks related to government's contingent liabilities

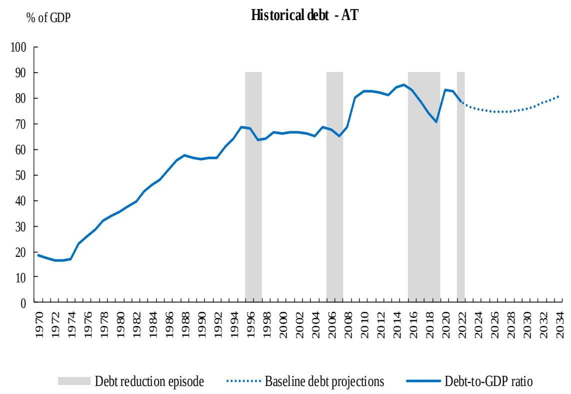
General government contingent liabilities	AT							EU
	2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)	17.2	16.3	16.3	16.1	19.0	17.1	15.2	7.1
of which One-off guarantees	*17.2*	*16.3*	*16.3*	*16.1*	*19.0*	*17.1*	*15.2*	*5.6*
Standardised guarantees	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*1.5*
Public-private partnerships (PPPs) (% GDP)	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.0*	*0.0*

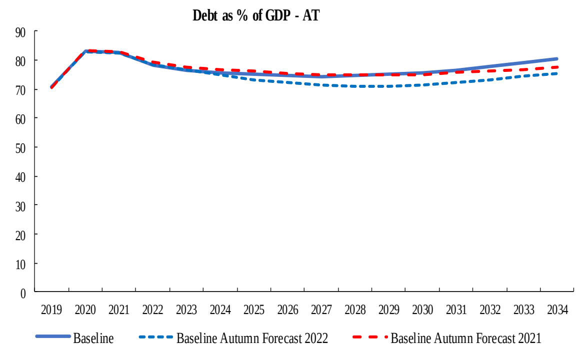
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)		2016	2017	2018	2019	2020	2021	2022	2022
	Liabilities and assets outside gen. gov. under guarantee	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.9

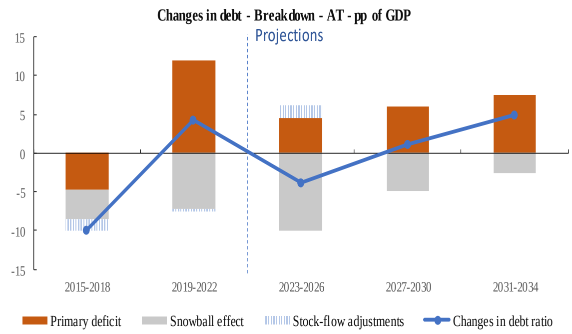
Government's contingent liability risks from banking sector - AT (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	5.0	11.4	98.8	1.8	0.0	47.8	0.01%	0.15%

6. Realism of baseline assumptions









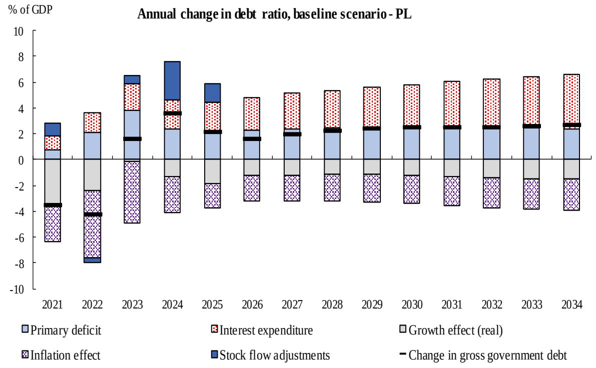
7. Underlying macro-fiscal assumptions

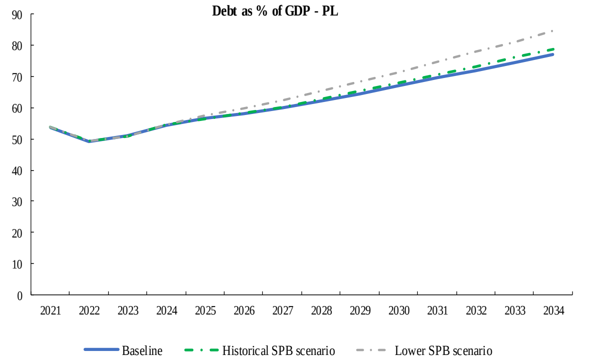
Macro-fiscal assumptions, Austria	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	76.3	75.6	75.1	75.8	77.9	80.7	75.7	76.6	76.4
Primary balance	-1.3	-0.9	-1.1	-1.7	-1.8	-2.0	-1.1	-1.6	-1.5
Structural primary balance (before CoA)	-1.1	-0.7	-0.7	-0.7	-0.7	-0.7	-0.8	-0.7	-0.7
Real GDP growth	-0.5	1.0	1.3	1.1	0.9	1.1	0.6	1.1	1.0
Potential GDP growth	1.1	1.1	1.1	1.1	0.9	1.1	1.1	1.1	1.1
Inflation rate	7.6	4.0	3.5	3.1	2.9	2.8	5.0	3.1	3.6
Implicit interest rate (nominal)	1.6	2.0	2.0	2.8	3.0	3.2	1.9	2.8	2.6
Gross financing needs	15.9	15.4	15.4	15.2	15.6	16.2	15.6	15.4	15.4
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	76.3	75.6	75.0	73.7	74.6	76.2	75.6	74.4	74.7
Primary balance	-1.3	-0.9	-0.9	-1.1	-1.3	-1.4	-1.1	-1.2	-1.1
Structural primary balance (before CoA)	-1.1	-0.7	-0.5	-0.1	-0.1	-0.1	-0.8	-0.1	-0.3
Real GDP growth	-0.5	1.0	1.3	1.2	0.9	1.1	0.6	1.1	1.0
Gross financing needs	15.9	15.4	15.2	14.4	14.5	14.9	15.5	14.6	14.8
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	76.3	75.7	75.4	76.3	78.5	81.3	75.8	77.1	76.7
Implicit interest rate (nominal)	1.6	2.2	2.1	2.9	3.1	3.2	2.0	2.8	2.6
Gross financing needs	15.9	15.6	15.5	15.4	15.7	16.3	15.6	15.5	15.5
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	76.3	75.6	75.4	77.1	79.7	82.9	75.8	77.9	77.4
Primary balance	-1.3	-1.1	-1.2	-1.9	-2.1	-2.2	-1.2	-1.9	-1.7
Structural primary balance (before CoA)	-1.1	-0.9	-0.9	-0.9	-0.9	-0.9	-1.0	-0.9	-0.9
Real GDP growth	-0.5	1.2	1.3	1.1	0.9	1.1	0.6	1.1	1.0
Gross financing needs	15.9	15.5	15.6	15.7	16.1	16.7	15.6	15.8	15.8
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	76.3	76.0	76.1	79.5	83.0	87.1	76.1	80.4	79.3
Implicit interest rate (nominal)	1.6	2.1	2.2	3.2	3.4	3.6	2.0	3.1	2.8
Real GDP growth	-0.5	0.5	0.8	0.6	0.4	0.6	0.3	0.6	0.5
Gross financing needs	15.9	15.6	15.7	16.1	16.8	17.6	15.7	16.3	16.1
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	76.3	75.6	75.2	75.8	78.0	80.7	75.7	76.6	76.4
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	15.9	15.4	15.4	15.2	15.6	16.2	15.6	15.4	15.4

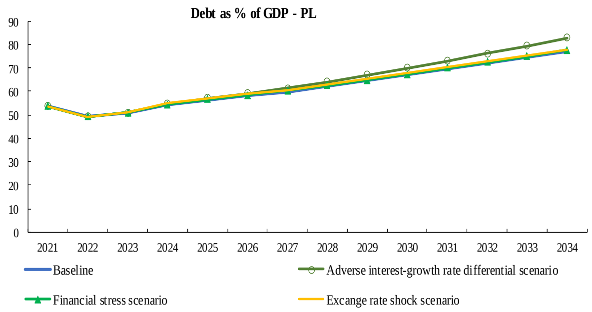
Poland

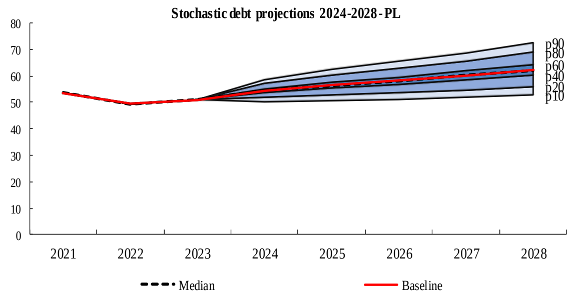
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

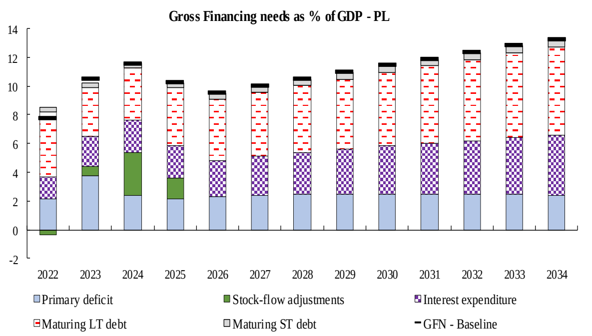
Poland - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**53.6**	**49.3**	**50.9**	**54.4**	**56.5**	**58.1**	**60.0**	**62.2**	**64.5**	**67.0**	**69.4**	**71.9**	**74.4**	**77.1**
Changes in the ratio (-1+2+3)	*-3.6*	*-4.3*	*1.6*	*3.5*	*2.1*	*1.6*	*1.9*	*2.2*	*2.4*	*2.4*	*2.5*	*2.5*	*2.5*	*2.6*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-0.7**	**-2.1**	**-3.8**	**-2.4**	**-2.2**	**-2.3**	**-2.4**	**-2.5**	**-2.5**	**-2.5**	**-2.5**	**-2.5**	**-2.4**	**-2.4**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-1.3***	***-3.1***	***-3.2***	***-1.8***	***-2.0***	***-2.2***	***-2.4***	***-2.5***	***-2.5***	***-2.5***	***-2.5***	***-2.5***	***-2.4***	***-2.4***
(1.1.1) Structural primary balance (bef. CoA)	*-1.3*	*-3.1*	*-3.2*	*-1.8*	*-1.8*	*-1.8*	*-1.8*	*-1.8*	*-1.8*	*-1.8*	*-1.8*	*-1.8*	*-1.8*	*-1.8*
(1.1.2) Cost of ageing					*0.2*	*0.4*	*0.6*	*0.7*	*0.7*	*0.7*	*0.6*	*0.6*	*0.5*	*0.5*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*-0.1*	*-0.1*	*-0.1*	*-0.1*
(1.2) Cyclical component	***0.4***	***0.7***	***-0.6***	***-0.6***	***-0.2***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.2***	***0.3***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-5.3**	**-6.1**	**-2.9**	**-1.8**	**-1.5**	**-0.7**	**-0.5**	**-0.3**	**-0.1**	**-0.1**	**0.0**	**0.0**	**0.1**	**0.2**
(2.1) Interest expenditure	*1.1*	*1.5*	*2.1*	*2.2*	*2.3*	*2.5*	*2.7*	*2.9*	*3.1*	*3.3*	*3.5*	*3.7*	*4.0*	*4.2*
(2.2) Growth effect	*-3.5*	*-2.4*	*-0.2*	*-1.3*	*-1.8*	*-1.2*	*-1.2*	*-1.1*	*-1.1*	*-1.2*	*-1.3*	*-1.4*	*-1.5*	*-1.5*
(2.3) Inflation effect	*-2.9*	*-5.2*	*-4.7*	*-2.8*	*-2.0*	*-2.0*	*-2.0*	*-2.1*	*-2.2*	*-2.2*	*-2.3*	*-2.3*	*-2.4*	*-2.4*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**1.0**	**-0.4**	**0.7**	**3.0**	**1.5**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*0.7*	*-0.8*	*0.9*	*2.9*	*1.5*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.3*	*0.4*	*-0.2*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-2.4	-4.7	-5.3	-4.0	-4.3	-4.7	-5.1	-5.4	-5.6	-5.8	-6.0	-6.2	-6.4	-6.6
Gross financing needs	7.6	7.7	10.4	11.5	10.2	9.5	10.0	10.4	10.9	11.4	11.9	12.3	12.8	13.2

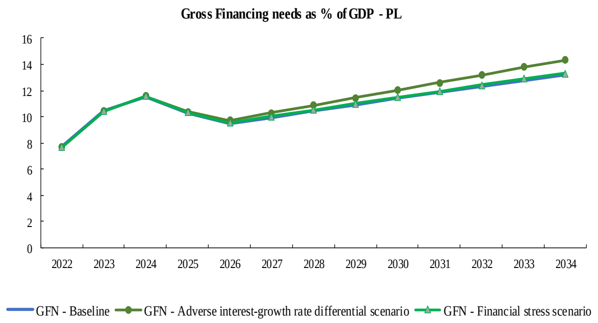












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios					Stochastic projections	S2	S1	Overall (S1 + S2)
			Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress				
LOW	MEDIUM	Overall	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM
		Debt level (2034), % GDP	77.1	78.8	84.5	82.8	77.6				
		Debt peak year	2034	2034	2034	2034	2034				
		Fiscal consolidation space	77%	79%	90%	77%	77%				
		Probability of debt ratio exceeding in 2028 its 2023 level						95%			
		Difference between 90th and 10th percentiles (pps. GDP)						19.5			

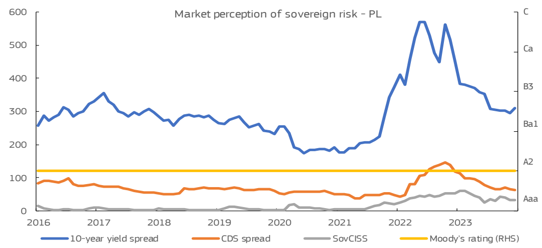
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.55**	**0.39**
Fiscal sub-index	0.36	0.22	0.28
Financial competitiveness sub-index	0.49	0.73	0.45

S2 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**3.7**	**3.8**	**4.1**	**7.1**
of which					
Initial budgetary position		2.1	2.7	2.8	2.6
Ageing costs		1.6	1.1	1.2	4.4
of which	*Pensions*	-0.7	-0.6	-0.3	-0.6
	Health care	1.2	0.9	0.8	1.9
	Long-term care	1.2	0.7	0.6	3.1
	Others	0.0	0.1	0.1	0.1
Required structural primary balance related to S2		**2.3**	**2.0**	**2.3**	**5.3**

S1 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**2.8**	**3.2**	**3.5**	**4.9**
of which					
Initial budgetary position		2.0	2.5	2.6	2.5
Debt requirement		-0.1	-0.1	-0.1	-0.1
Ageing costs		0.9	0.8	1.0	2.6
of which	*Pensions*	-0.6	-0.2	-0.1	-0.2
	Health care	0.8	0.7	0.6	1.4
	Long-term care	0.7	0.4	0.4	1.4
	Others	-0.1	0.0	0.0	0.0
Required structural primary balance related to S1		**1.4**	**1.5**	**1.7**	**3.1**

3. Financial information



Financial market information PL - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	311.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - PL (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	1.8	24.2	35.7

Net International Investment Position (IIP) - PL (2022)	Net IIP (% GDP):
	-33.4

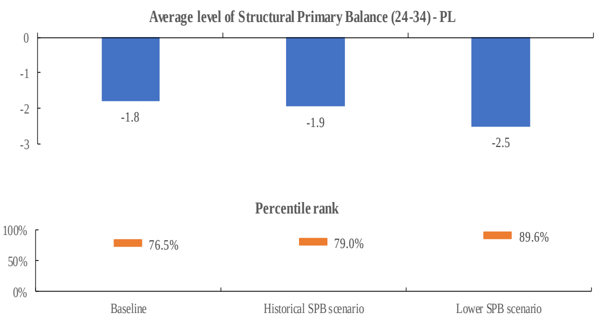
5. Risks related to government's contingent liabilities

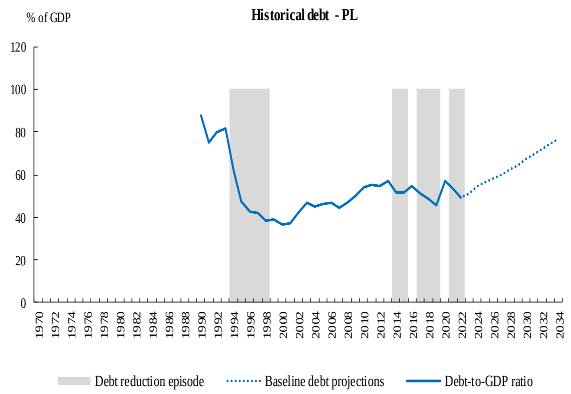
General government contingent liabilities	PL							EU
	2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)	1.7	1.4	1.2	1.2	2.5	3.9	5.2	7.1
of which *One-off guarantees*	*1.0*	*0.7*	*0.6*	*0.6*	*1.4*	*2.3*	*3.7*	*5.6*
Standardised guarantees	*0.7*	*0.7*	*0.6*	*0.6*	*1.1*	*1.6*	*1.5*	*1.5*
Public-private partnerships (PPPs) (% GDP)	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*

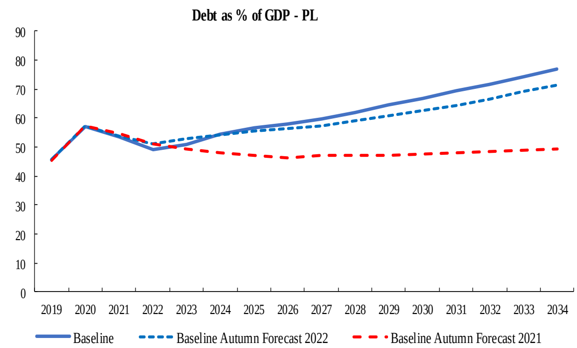
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)		2016	2017	2018	2019	2020	2021	2022	2022
	Liabilities and assets outside gen. gov. under guarantee	n.a.	n.a.	n.a.	n.a.	n.a.	0.5	0.2	0.9
	Securities issued under liquidity schemes	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.0	0.0
	Special purpose entity	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.0	0.0
	Total	n.a.	n.a.	n.a.	n.a.	n.a.	0.5	0.2	0.9

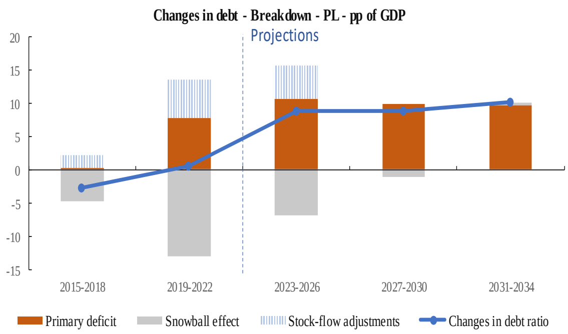
Government's contingent liability risks from banking sector - PL (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	2.0	11.8	72.4	4.4	0.1	63.5	0.00%	0.11%

6. Realism of baseline assumptions









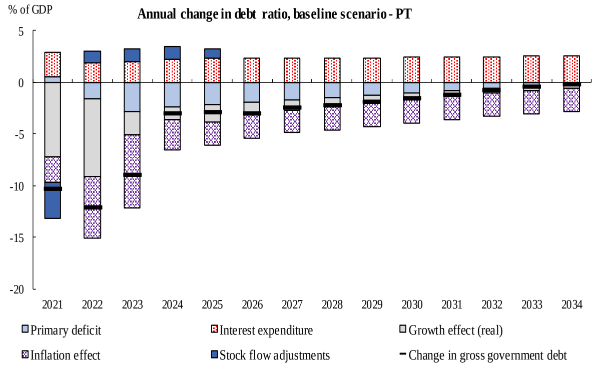
7. Underlying macro-fiscal assumptions

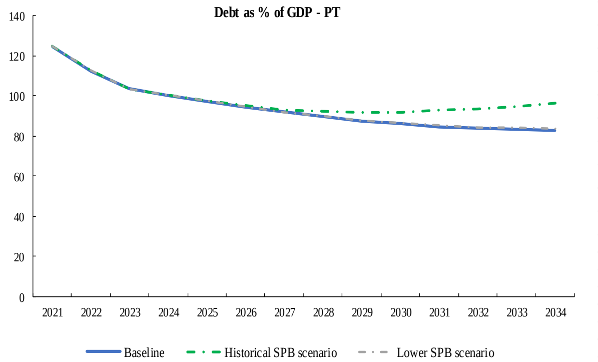
Macro-fiscal assumptions, Poland	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	50.9	54.4	56.5	67.0	71.9	77.1	53.9	67.2	63.9
Primary balance	-3.8	-2.4	-2.2	-2.5	-2.5	-2.4	-2.8	-2.4	-2.5
Structural primary balance (before CoA)	-3.2	-1.8	-1.8	-1.8	-1.8	-1.8	-2.3	-1.8	-1.9
Real GDP growth	0.4	2.7	3.6	1.9	2.1	2.1	2.2	2.1	2.1
Potential GDP growth	3.0	2.9	2.6	1.9	2.1	2.1	2.8	2.0	2.2
Inflation rate	10.7	5.8	3.7	3.6	3.5	3.4	6.7	3.5	4.3
Implicit interest rate (nominal)	4.7	4.8	4.5	5.4	5.7	5.9	4.7	5.4	5.2
Gross financing needs	10.4	11.5	10.2	11.4	12.3	13.2	10.7	11.4	11.2
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	50.9	54.4	56.6	67.9	73.2	78.8	53.9	68.1	64.6
Primary balance	-3.8	-2.4	-2.2	-2.7	-2.7	-2.6	-2.8	-2.6	-2.7
Structural primary balance (before CoA)	-3.2	-1.8	-1.8	-2.0	-2.0	-2.0	-2.3	-2.0	-2.0
Real GDP growth	0.4	2.7	3.6	1.9	2.1	2.1	2.2	2.1	2.1
Gross financing needs	10.4	11.5	10.3	11.7	12.7	13.7	10.7	11.7	11.4
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	50.9	54.5	56.7	67.4	72.4	77.6	54.0	67.6	64.2
Implicit interest rate (nominal)	4.7	5.0	4.7	5.5	5.8	5.9	4.8	5.5	5.3
Gross financing needs	10.4	11.6	10.3	11.5	12.4	13.3	10.8	11.5	11.3
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	50.9	54.6	57.3	71.4	77.9	84.5	54.3	71.7	67.3
Primary balance	-3.8	-2.9	-2.7	-3.2	-3.2	-3.1	-3.1	-3.1	-3.1
Structural primary balance (before CoA)	-3.2	-2.5	-2.5	-2.5	-2.5	-2.5	-2.7	-2.5	-2.6
Real GDP growth	0.4	3.3	3.4	1.9	2.1	2.1	2.4	2.0	2.1
Gross financing needs	10.4	11.9	10.8	12.7	13.8	14.9	11.1	12.6	12.2
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	50.9	54.7	57.1	70.0	76.2	82.8	54.2	70.3	66.3
Implicit interest rate (nominal)	4.7	4.9	4.7	5.8	6.1	6.4	4.7	5.8	5.5
Real GDP growth	0.4	2.2	3.1	1.4	1.6	1.6	1.9	1.6	1.7
Gross financing needs	10.4	11.6	10.4	12.0	13.2	14.3	10.8	12.0	11.7
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	50.9	55.2	57.3	67.7	72.6	77.8	54.4	67.9	64.5
Exchange rate depreciation	0.0%	4.3%	0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	0.4%
Gross financing needs	10.4	11.6	10.3	11.5	12.4	13.3	10.8	11.5	11.3

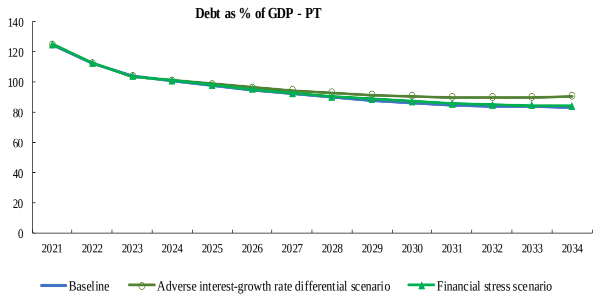
Portugal

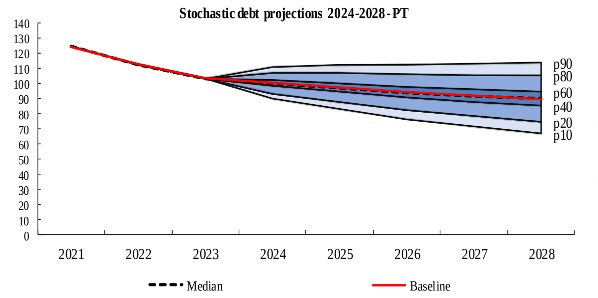
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

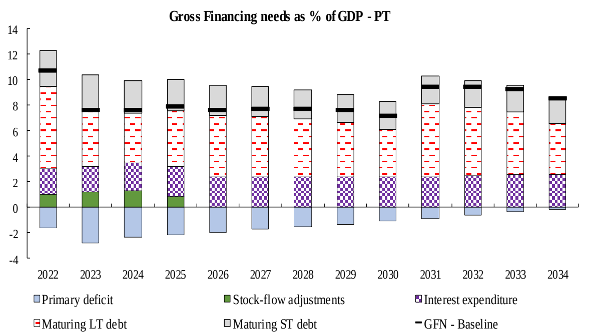
Portugal - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**124.5**	**112.4**	**103.4**	**100.3**	**97.4**	**94.3**	**91.8**	**89.6**	**87.6**	**86.0**	**84.7**	**83.9**	**83.3**	**83.0**
Changes in the ratio (-1+2+3)	*-10.3*	*-12.1*	*-9.0*	*-3.1*	*-2.9*	*-3.1*	*-2.5*	*-2.2*	*-2.0*	*-1.6*	*-1.3*	*-0.9*	*-0.5*	*-0.3*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-0.5**	**1.6**	**2.8**	**2.4**	**2.2**	**2.0**	**1.7**	**1.5**	**1.3**	**1.1**	**0.8**	**0.6**	**0.4**	**0.1**
***(1.1) Structural primary balance** (1.1.1-1.1.2+1.1.3)*	***1.0***	***1.0***	***2.0***	***2.1***	***1.9***	***1.8***	***1.7***	***1.5***	***1.3***	***1.1***	***0.8***	***0.6***	***0.4***	***0.1***
(1.1.1) Structural primary balance (bef. CoA)	*1.0*	*1.0*	*2.0*	*2.1*	*2.1*	*2.1*	*2.1*	*2.1*	*2.1*	*2.1*	*2.1*	*2.1*	*2.1*	*2.1*
(1.1.2) Cost of ageing					*0.2*	*0.3*	*0.5*	*0.6*	*0.8*	*1.1*	*1.4*	*1.6*	*1.9*	*2.1*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
(1.2) Cyclical component	***-1.8***	***0.7***	***0.8***	***0.4***	***0.3***	***0.2***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.3***	***-0.1***	***0.0***	***-0.2***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-7.3**	**-11.6**	**-7.4**	**-2.0**	**-1.6**	**-1.1**	**-0.8**	**-0.7**	**-0.6**	**-0.5**	**-0.4**	**-0.3**	**-0.2**	**-0.1**
(2.1) Interest expenditure	*2.4*	*1.9*	*2.0*	*2.2*	*2.3*	*2.4*	*2.4*	*2.4*	*2.4*	*2.4*	*2.4*	*2.5*	*2.5*	*2.6*
(2.2) Growth effect	*-7.2*	*-7.6*	*-2.3*	*-1.3*	*-1.7*	*-1.3*	*-0.9*	*-0.9*	*-0.8*	*-0.7*	*-0.6*	*-0.5*	*-0.4*	*-0.5*
(2.3) Inflation effect	*-2.5*	*-5.9*	*-7.1*	*-2.9*	*-2.2*	*-2.2*	*-2.2*	*-2.2*	*-2.2*	*-2.2*	*-2.2*	*-2.3*	*-2.3*	*-2.3*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**-3.5**	**1.1**	**1.2**	**1.3**	**0.8**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-3.5*	*1.1*	*1.2*	*1.3*	*0.8*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-1.4	-0.9	0.0	-0.1	-0.4	-0.5	-0.7	-0.8	-1.0	-1.3	-1.6	-1.9	-2.2	-2.5
Gross financing needs	12.1	10.7	7.6	7.5	7.8	7.6	7.7	7.6	7.5	7.2	9.4	9.4	9.2	8.5

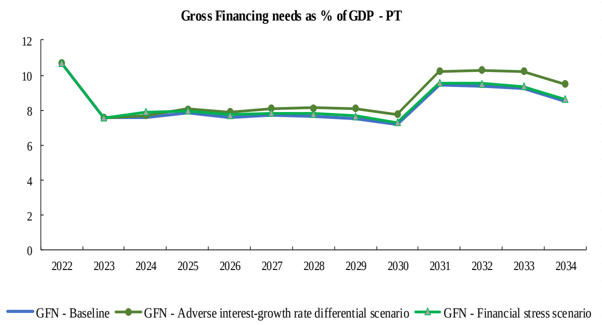












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios: Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	HIGH	Overall	MEDIUM	HIGH	MEDIUM	HIGH	MEDIUM	MEDIUM	LOW	LOW	LOW
		Debt level (2034), % GDP	83.0	96.2	83.8	90.3	84.0				
		Debt peak year	2023	2023	2023	2023	2023				
		Fiscal consolidation space	20%	43%	21%	20%	20%				
		Probability of debt ratio exceeding in 2028 its 2023 level						23%			
		Difference between 90th and 10th percentiles (pps. GDP)						46.7			

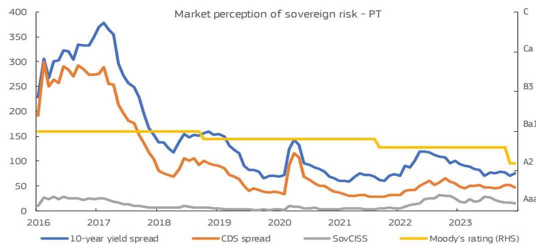
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.82**	**0.32**
Fiscal sub-index	0.36	1.00	0.31
Financial competitiveness sub-index	0.49	0.72	0.33

S2 indicator		DSM 2022	DSM 2023: Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**-2.1**	**-1.4**	**-0.4**	**5.9**
of which					
Initial budgetary position		-1.0	-1.6	-1.4	-1.5
Ageing costs		-1.1	0.2	1.0	7.4
of which	*Pensions*	-2.9	-1.5	-0.6	-1.2
	Health care	1.3	1.2	1.2	2.0
	Long-term care	0.4	0.4	0.4	6.6
	Others	0.2	0.1	0.1	0.1
Required structural primary balance related to S2		**-0.7**	**0.7**	**1.8**	**8.1**

S1 indicator		DSM 2022	DSM 2023: Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**0.1**	**0.6**	**1.1**	**3.6**
of which					
Initial budgetary position		-1.6	-2.1	-2.0	-2.2
Debt requirement		1.0	0.8	0.8	0.8
Ageing costs		0.8	1.9	2.3	5.0
of which	*Pensions*	-0.7	0.6	1.0	0.6
	Health care	1.1	1.0	0.9	1.5
	Long-term care	0.3	0.3	0.3	2.9
	Others	0.1	0.0	0.0	0.0
Required structural primary balance related to S1		**1.6**	**2.7**	**3.2**	**5.8**

3. Financial information



Financial market information PT - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	76.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - PT (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	17.5	0.0	44.7

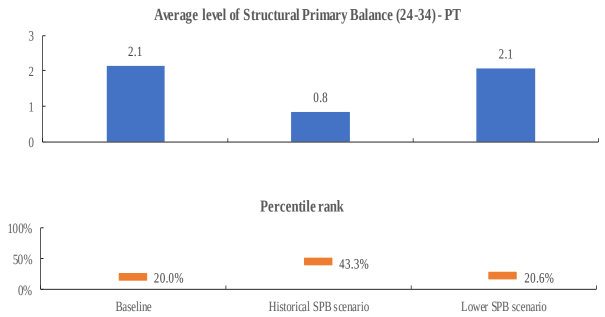
Net International Investment Position (IIP) - PT (2022)	Net IIP (% GDP):
	-83.6

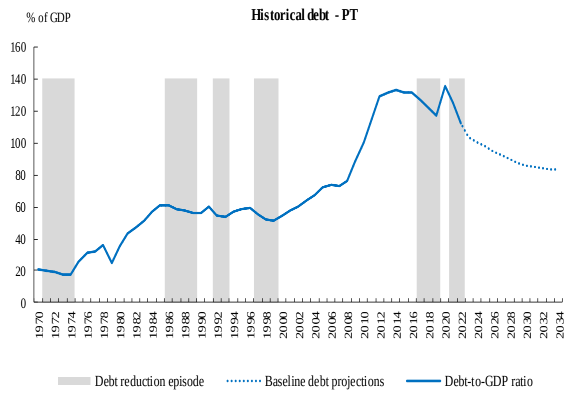
5. Risks related to government's contingent liabilities

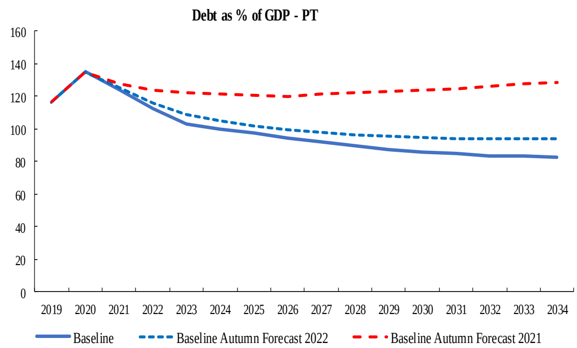
General government contingent liabilities		PT							EU
		2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)		5.6	6.4	5.6	4.8	6.4	6.0	4.5	7.1
of which	*One-off guarantees*	*5.6*	*6.4*	*5.6*	*4.8*	*3.2*	*2.8*	*2.2*	*5.6*
	Standardised guarantees	*0.0*	*0.0*	*0.0*	*0.0*	*3.2*	*3.2*	*2.2*	*1.5*
Public-private partnerships (PPPs) (% GDP)		*3.0*	*2.7*	*2.5*	*2.2*	*2.3*	*2.0*	*0.0*	*0.0*
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	2.5	3.4	2.9	2.2	0.5	0.2	0.2	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	2.5	3.4	2.9	2.2	0.5	0.2	0.2	0.9

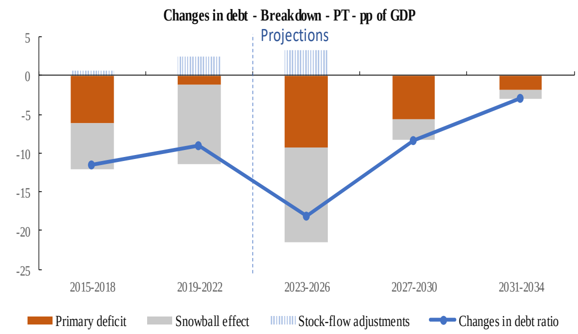
Government's contingent liability risks from banking sector - PT (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	2.9	12.6	73.3	3.0	-0.3	59.1	0.02%	0.37%

6. Realism of baseline assumptions









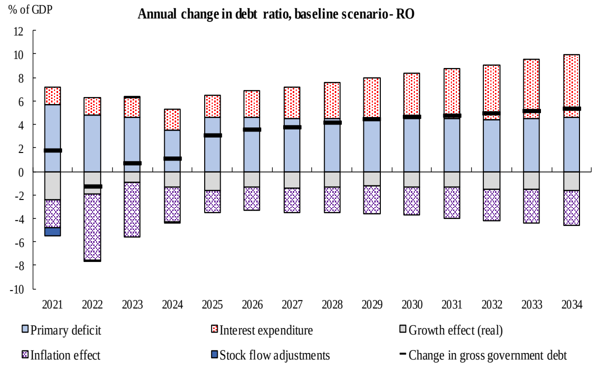
7. Underlying macro-fiscal assumptions

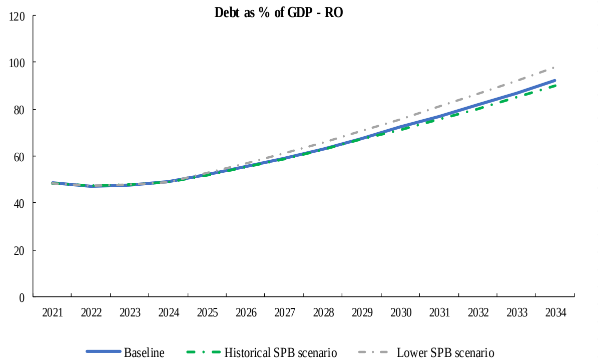
Macro-fiscal assumptions, Portugal	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	103.4	100.3	97.4	86.0	83.9	83.0	100.4	87.1	90.4
Primary balance	2.8	2.4	2.2	1.1	0.6	0.1	2.5	1.1	1.4
Structural primary balance (before CoA)	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Real GDP growth	2.2	1.3	1.8	0.8	0.6	0.6	1.8	0.8	1.1
Potential GDP growth	2.0	2.1	2.0	0.8	0.6	0.6	2.1	0.9	1.2
Inflation rate	6.8	2.9	2.3	2.6	2.7	2.8	4.0	2.6	2.9
Implicit interest rate (nominal)	2.0	2.2	2.4	2.8	3.0	3.2	2.2	2.8	2.7
Gross financing needs	7.6	7.5	7.8	7.2	9.4	8.5	7.6	8.2	8.1
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	103.4	100.3	97.8	92.0	93.5	96.2	100.5	93.5	95.2
Primary balance	2.8	2.4	1.8	-0.4	-1.1	-1.5	2.3	-0.3	0.3
Structural primary balance (before CoA)	2.0	2.1	1.7	0.4	0.4	0.4	1.9	0.6	0.9
Real GDP growth	2.2	1.3	1.8	0.5	0.6	0.6	1.8	0.8	1.1
Gross financing needs	7.6	7.5	8.2	9.1	12.0	11.4	7.8	10.2	9.6
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	103.4	100.7	97.9	86.8	84.8	84.0	100.7	87.9	91.1
Implicit interest rate (nominal)	2.0	2.6	2.5	2.9	3.1	3.3	2.4	2.9	2.8
Gross financing needs	7.6	7.9	7.9	7.3	9.5	8.6	7.8	8.4	8.2
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	103.4	100.3	97.5	86.4	84.4	83.8	100.4	87.5	90.8
Primary balance	2.8	2.3	2.1	1.0	0.5	0.1	2.4	1.0	1.4
Structural primary balance (before CoA)	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.0
Real GDP growth	2.2	1.4	1.7	0.8	0.6	0.6	1.8	0.8	1.1
Gross financing needs	7.6	7.6	7.9	7.3	9.5	8.6	7.7	8.3	8.2
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	103.4	100.9	98.6	90.4	89.6	90.3	101.0	91.6	93.9
Implicit interest rate (nominal)	2.0	2.3	2.6	3.1	3.3	3.6	2.3	3.1	2.9
Real GDP growth	2.2	0.8	1.3	0.3	0.1	0.1	1.4	0.3	0.6
Gross financing needs	7.6	7.7	8.1	7.8	10.3	9.5	7.8	8.9	8.6
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	103.4	100.3	97.4	86.0	83.9	83.0	100.4	87.1	90.4
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	7.6	7.5	7.8	7.2	9.4	8.5	7.6	8.2	8.1

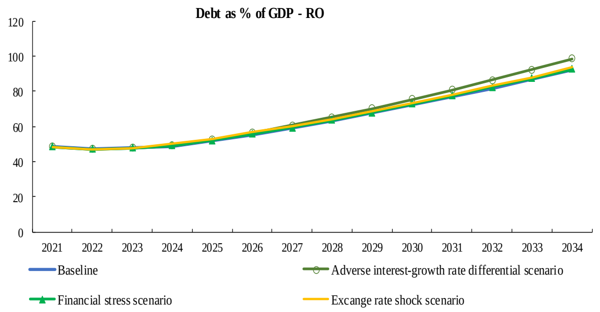
Romania

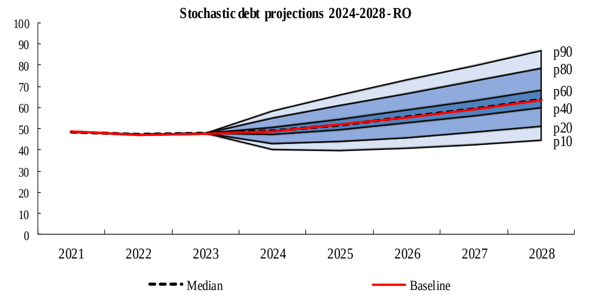
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

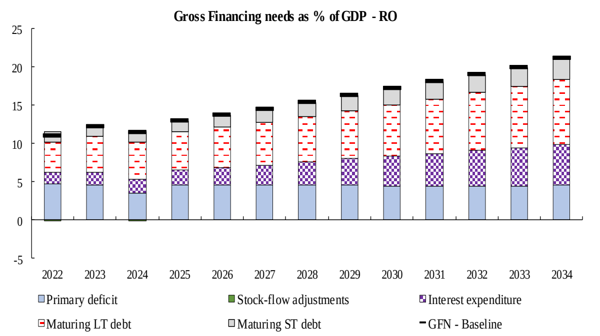
Romania - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**48.5**	**47.2**	**47.9**	**48.9**	**51.9**	**55.5**	**59.2**	**63.3**	**67.7**	**72.3**	**77.0**	**81.9**	**87.0**	**92.3**
Changes in the ratio (-1+2+3)	*1.7*	*-1.3*	*0.7*	*1.0*	*3.0*	*3.6*	*3.7*	*4.1*	*4.4*	*4.6*	*4.7*	*4.9*	*5.1*	*5.3*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-5.7**	**-4.8**	**-4.6**	**-3.5**	**-4.6**	**-4.6**	**-4.5**	**-4.5**	**-4.5**	**-4.5**	**-4.5**	**-4.4**	**-4.5**	**-4.6**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-4.7***	***-4.4***	***-4.1***	***-3.0***	***-4.3***	***-4.4***	***-4.5***	***-4.5***	***-4.5***	***-4.5***	***-4.5***	***-4.4***	***-4.5***	***-4.6***
(1.1.1) Structural primary balance (bef. CoA)	*-4.7*	*-4.4*	*-4.1*	*-3.0*	*-3.0*	*-3.0*	*-3.0*	*-3.0*	*-3.0*	*-3.0*	*-3.0*	*-3.0*	*-3.0*	*-3.0*
(1.1.2) Cost of ageing					*1.3*	*1.4*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.4*	*1.5*	*1.5*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.2) Cyclical component	***-0.9***	***-0.3***	***-0.5***	***-0.5***	***-0.3***	***-0.2***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-3.3**	**-6.1**	**-4.0**	**-2.5**	**-1.6**	**-1.0**	**-0.8**	**-0.4**	**-0.1**	**0.1**	**0.3**	**0.4**	**0.6**	**0.8**
(2.1) Interest expenditure	*1.5*	*1.5*	*1.6*	*1.8*	*1.9*	*2.3*	*2.7*	*3.1*	*3.5*	*3.9*	*4.2*	*4.6*	*5.0*	*5.4*
(2.2) Growth effect	*-2.4*	*-1.9*	*-0.9*	*-1.3*	*-1.6*	*-1.3*	*-1.4*	*-1.3*	*-1.3*	*-1.3*	*-1.4*	*-1.5*	*-1.6*	*-1.6*
(2.3) Inflation effect	*-2.4*	*-5.7*	*-4.7*	*-2.9*	*-1.9*	*-2.0*	*-2.1*	*-2.2*	*-2.3*	*-2.5*	*-2.6*	*-2.7*	*-2.9*	*-3.0*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**-0.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-0.9*	*-0.5*	*0.0*	*-0.2*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.3*	*0.5*	*0.0*	*0.2*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-6.2	-5.9	-5.7	-4.8	-6.2	-6.7	-7.2	-7.6	-8.0	-8.4	-8.7	-9.1	-9.5	-10.0
Gross financing needs	10.5	11.0	12.2	11.3	12.9	13.7	14.5	15.3	16.2	17.1	18.0	18.9	19.9	21.0

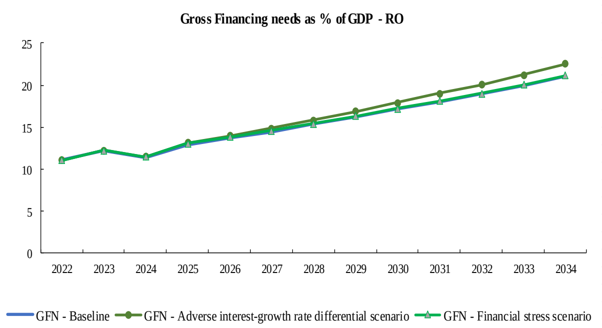












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios					Stochastic projections	S2	S1	Overall (S1 + S2)
			Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress				
LOW	HIGH	Overall	HIGH	MEDIUM	HIGH	HIGH	HIGH	MEDIUM	MEDIUM	MEDIUM	MEDIUM
		Debt level (2034), % GDP	92.3	89.9	98.1	98.6	92.8				
		Debt peak year	2034	2034	2034	2034	2034				
		Fiscal consolidation space	78%	77%	84%	78%	78%				
		Probability of debt ratio exceeding in 2028 its 2023 level						85%			
		Difference between 90th and 10th percentiles (pps. GDP)						42.3			

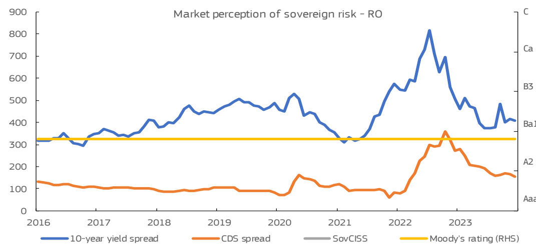
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.70**	**0.31**
Fiscal sub-index	0.36	0.46	0.22
Financial competitiveness sub-index	0.49	0.81	0.37

S2 indicator	DSM 2022	DSM 2023		
		Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)	**3.0**	**3.7**	**4.3**	**6.8**
of which				
Initial budgetary position	2.7	3.5	3.6	3.5
Ageing costs	0.3	0.2	0.7	3.3
of which *Pensions*	-0.7	-0.8	-0.3	-0.8
Health care	0.7	0.6	0.6	1.7
Long-term care	0.3	0.3	0.3	2.4
Others	-0.1	0.0	0.0	0.0
Required structural primary balance related to S2	**0.8**	**0.7**	**1.3**	**3.8**

S1 indicator	DSM 2022	DSM 2023		
		Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)	**3.6**	**4.7**	**5.0**	**6.3**
of which				
Initial budgetary position	2.6	3.4	3.5	3.4
Debt requirement	-0.2	-0.2	-0.2	-0.2
Ageing costs	1.2	1.5	1.7	3.1
of which *Pensions*	0.5	0.8	1.0	0.8
Health care	0.6	0.5	0.5	1.3
Long-term care	0.2	0.2	0.2	1.0
Others	-0.1	0.1	0.1	0.1
Required structural primary balance related to S1	**1.5**	**1.7**	**2.0**	**3.3**

3. Financial information



Financial market information RO - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	409.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - RO (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	6.1	53.8	49.6

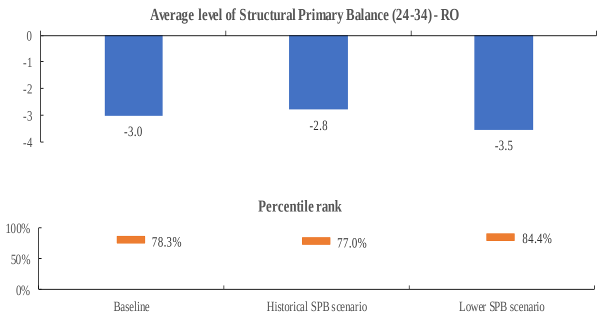
Net International Investment Position (IIP) - RO (2022)	Net IIP (% GDP):
	-40.6

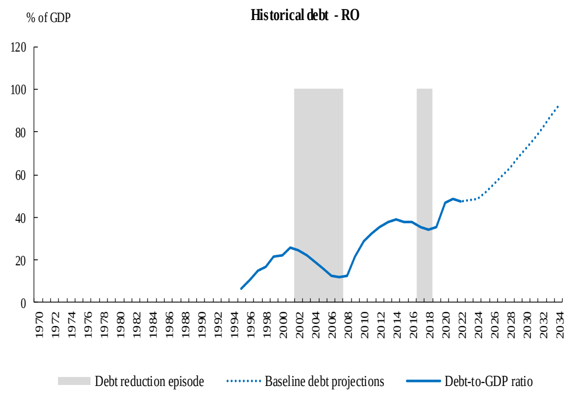
5. Risks related to government's contingent liabilities

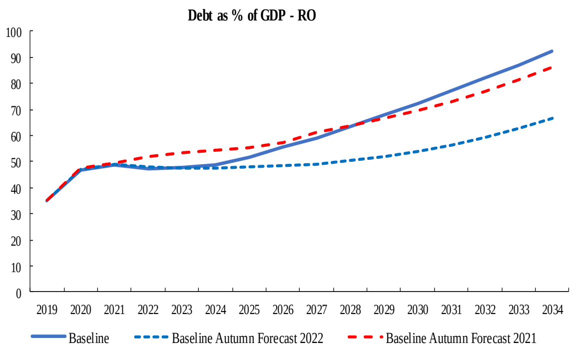
General government contingent liabilities		RO							EU
		2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)		2.4	2.3	2.1	2.0	3.4	4.1	4.4	7.1
of which	*One-off guarantees*	*0.5*	*0.4*	*0.4*	*0.3*	*0.6*	*0.7*	*0.7*	*5.6*
	Standardised guarantees	*1.9*	*1.9*	*1.7*	*1.7*	*2.8*	*3.4*	*3.7*	*1.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.9
	Securities issued under liquidity schemes	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.0
	Special purpose entity	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.0
	Total	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.9

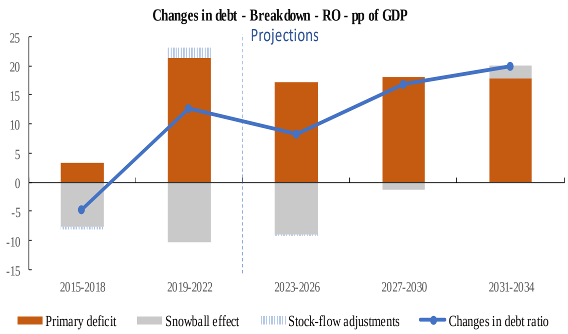
Government's contingent liability risks from banking sector - RO (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	3.3	7.2	61.3	2.5	-0.5	67.4	0.00%	0.00%

6. Realism of baseline assumptions









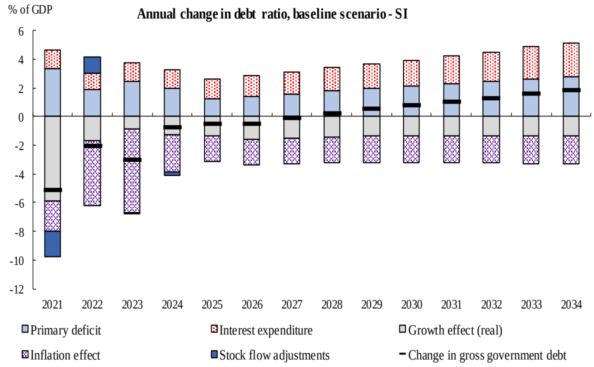
7. Underlying macro-fiscal assumptions

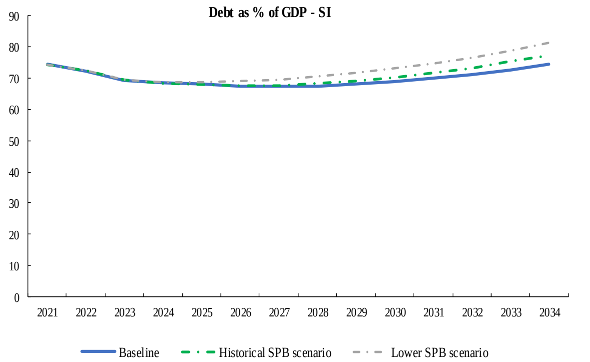
Macro-fiscal assumptions, Romania	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	47.9	48.9	51.9	72.3	81.9	92.3	49.6	72.9	67.1
Primary balance	-4.6	-3.5	-4.6	-4.5	-4.4	-4.6	-4.2	-4.5	-4.4
Structural primary balance (before CoA)	-4.1	-3.0	-3.0	-3.0	-3.0	-3.0	-3.4	-3.0	-3.1
Real GDP growth	2.2	3.1	3.5	2.0	2.1	2.0	2.9	2.2	2.4
Potential GDP growth	2.9	2.9	2.9	2.0	2.1	2.0	2.9	2.1	2.3
Inflation rate	11.0	6.5	4.0	3.8	3.7	3.6	7.2	3.8	4.6
Implicit interest rate (nominal)	4.0	4.1	4.2	6.0	6.4	6.6	4.1	5.9	5.4
Gross financing needs	12.2	11.3	12.9	17.1	18.9	21.0	12.2	17.2	15.9
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	47.9	48.9	51.8	71.3	80.2	89.9	49.5	71.8	66.2
Primary balance	-4.6	-3.5	-4.5	-4.2	-4.1	-4.2	-4.2	-4.3	-4.3
Structural primary balance (before CoA)	-4.1	-3.0	-2.9	-2.7	-2.7	-2.7	-3.3	-2.7	-2.9
Real GDP growth	2.2	3.1	3.5	2.2	2.1	2.0	2.9	2.2	2.4
Gross financing needs	12.2	11.3	12.8	16.7	18.3	20.3	12.1	16.8	15.6
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	47.9	49.0	52.1	72.7	82.4	92.8	49.7	73.3	67.4
Implicit interest rate (nominal)	4.0	4.4	4.4	6.1	6.4	6.6	4.2	5.9	5.5
Gross financing needs	12.2	11.5	13.0	17.2	19.0	21.1	12.2	17.3	16.0
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	47.9	49.1	52.6	75.8	86.5	98.1	49.9	76.4	69.8
Primary balance	-4.6	-3.9	-5.1	-5.0	-5.0	-5.1	-4.5	-5.0	-4.9
Structural primary balance (before CoA)	-4.1	-3.5	-3.5	-3.5	-3.5	-3.5	-3.7	-3.5	-3.6
Real GDP growth	2.2	3.5	3.4	2.0	2.1	2.0	3.0	2.2	2.4
Gross financing needs	12.2	11.7	13.4	18.2	20.2	22.5	12.4	18.3	16.8
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	47.9	49.2	52.5	75.4	86.5	98.6	49.9	76.2	69.6
Implicit interest rate (nominal)	4.0	4.3	4.4	6.5	6.8	7.0	4.2	6.3	5.8
Real GDP growth	2.2	2.6	3.0	1.5	1.6	1.5	2.6	1.7	1.9
Gross financing needs	12.2	11.4	13.1	17.9	20.1	22.5	12.3	18.0	16.6
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	47.9	50.2	53.2	73.5	83.1	93.5	50.4	74.1	68.2
Exchange rate depreciation	0.0%	2.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.2%
Gross financing needs	12.2	11.6	13.1	17.3	19.1	21.2	12.3	17.4	16.1

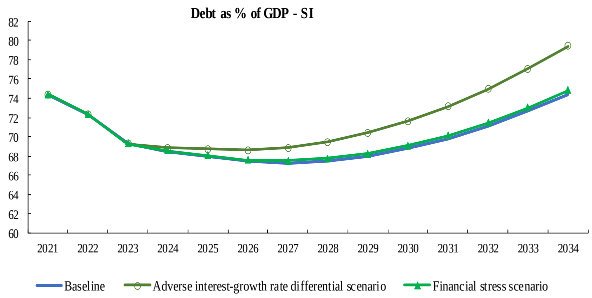
Slovenia

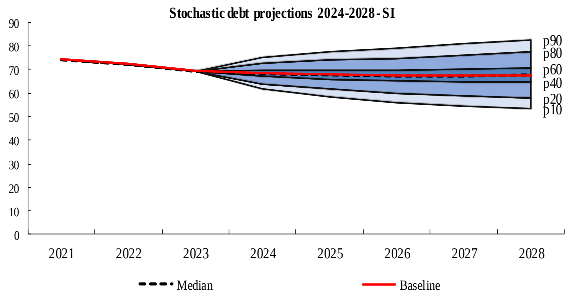
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

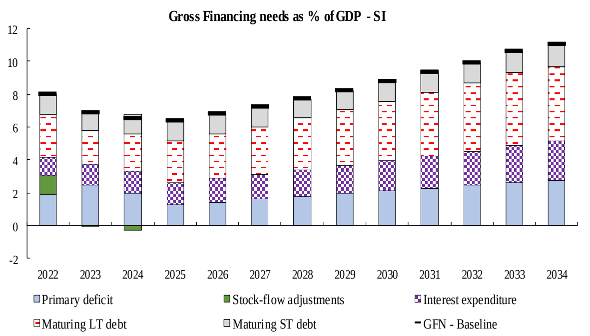
Slovenia - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**74.4**	**72.3**	**69.3**	**68.4**	**67.9**	**67.4**	**67.3**	**67.5**	**68.0**	**68.8**	**69.8**	**71.1**	**72.6**	**74.4**
Changes in the ratio (-1+2+3)	*-5.2*	*-2.1*	*-3.0*	*-0.8*	*-0.5*	*-0.5*	*-0.2*	*0.2*	*0.5*	*0.8*	*1.0*	*1.3*	*1.5*	*1.8*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-3.4**	**-1.9**	**-2.5**	**-2.0**	**-1.3**	**-1.4**	**-1.6**	**-1.8**	**-2.0**	**-2.1**	**-2.3**	**-2.4**	**-2.6**	**-2.8**
***(1.1) Structural primary balance** (1.1.1-1.1.2+1.1.3)*	***-4.8***	***-3.3***	***-2.5***	***-1.1***	***-1.2***	***-1.4***	***-1.6***	***-1.8***	***-2.0***	***-2.1***	***-2.3***	***-2.4***	***-2.6***	***-2.8***
(1.1.1) Structural primary balance (bef. CoA)	*-4.8*	*-3.3*	*-2.5*	*-1.1*	*-1.1*	*-1.1*	*-1.1*	*-1.1*	*-1.1*	*-1.1*	*-1.1*	*-1.1*	*-1.1*	*-1.1*
(1.1.2) Cost of ageing					*0.2*	*0.3*	*0.5*	*0.7*	*0.9*	*1.0*	*1.2*	*1.4*	*1.5*	*1.7*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.2) Cyclical component	***1.5***	***1.5***	***0.7***	***0.3***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***-0.7***	***-1.2***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-6.7**	**-5.1**	**-5.4**	**-2.5**	**-1.8**	**-1.9**	**-1.7**	**-1.6**	**-1.5**	**-1.4**	**-1.3**	**-1.2**	**-1.1**	**-1.0**
(2.1) Interest expenditure	*1.2*	*1.1*	*1.3*	*1.3*	*1.4*	*1.4*	*1.5*	*1.6*	*1.7*	*1.8*	*1.9*	*2.1*	*2.2*	*2.4*
(2.2) Growth effect	*-5.9*	*-1.7*	*-0.9*	*-1.3*	*-1.4*	*-1.6*	*-1.5*	*-1.4*	*-1.4*	*-1.4*	*-1.3*	*-1.3*	*-1.4*	*-1.4*
(2.3) Inflation effect	*-2.1*	*-4.5*	*-5.8*	*-2.5*	*-1.8*	*-1.8*	*-1.8*	*-1.8*	*-1.8*	*-1.8*	*-1.9*	*-1.9*	*-1.9*	*-2.0*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**-1.8**	**1.1**	**-0.1**	**-0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-1.8*	*1.1*	*-0.1*	*-0.3*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-6.1	-4.5	-3.7	-2.4	-2.6	-2.9	-3.1	-3.4	-3.7	-4.0	-4.2	-4.5	-4.9	-5.1
Gross financing needs	10.4	8.0	6.9	6.5	6.3	6.8	7.2	7.7	8.2	8.8	9.3	9.9	10.6	11.0

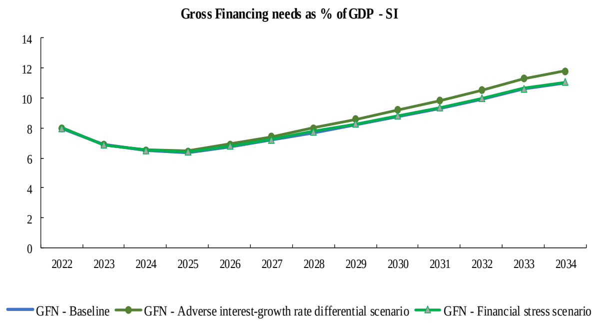












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios: Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	MEDIUM	Overall	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	HIGH
		Debt level (2034), % GDP	74.4	77.4	81.3	79.4	74.8				
		Debt peak year	2034	2034	2034	2034	2034				
		Fiscal consolidation space	52%	63%	73%	52%	52%				
		Probability of debt ratio exceeding in 2028 its 2023 level						45%			
		Difference between 90th and 10th percentiles (pps. GDP)						29.4			

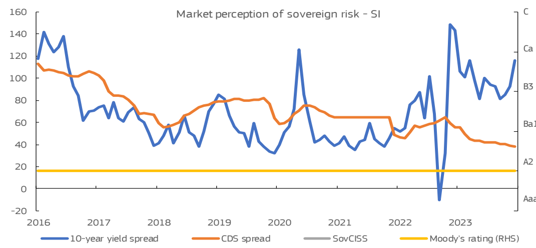
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.64**	**0.20**
Fiscal sub-index	0.36	0.56	0.29
Financial competitiveness sub-index	0.49	0.68	0.14

S2 indicator	DSM 2022	DSM 2023: Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)	**10.0**	**6.2**	**6.3**	**9.1**
of which				
Initial budgetary position	2.6	1.5	1.6	1.6
Ageing costs	7.4	4.7	4.7	7.6
of which *Pensions*	5.4	3.1	3.3	3.1
Health care	1.0	0.9	0.8	2.0
Long-term care	1.0	0.9	0.8	2.6
Others	0.1	-0.2	-0.2	-0.2
Required structural primary balance related to S2	**7.8**	**5.1**	**5.3**	**8.1**

S1 indicator	DSM 2022	DSM 2023: Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)	**7.7**	**4.7**	**4.8**	**6.5**
of which				
Initial budgetary position	2.0	0.8	0.9	0.8
Debt requirement	0.2	0.2	0.2	0.2
Ageing costs	5.6	3.7	3.8	5.5
of which *Pensions*	4.1	2.5	2.6	2.5
Health care	0.8	0.7	0.7	1.7
Long-term care	0.6	0.6	0.6	1.5
Others	0.0	-0.2	-0.2	-0.2
Required structural primary balance related to S1	**5.5**	**3.6**	**3.8**	**5.4**

3. Financial information



Financial market information SI - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	116.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - SI (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	3.4	0.1	54.8

Net International Investment Position (IIP) - SI (2022)	Net IIP (% GDP):
	-1.5

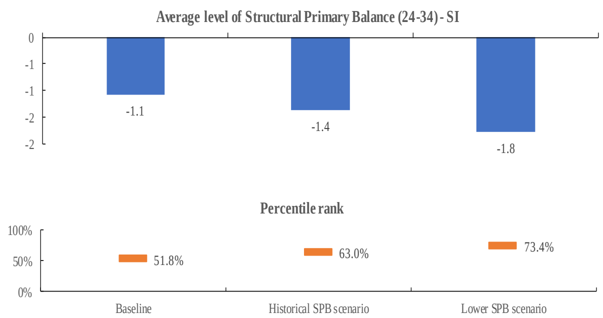
5. Risks related to government's contingent liabilities

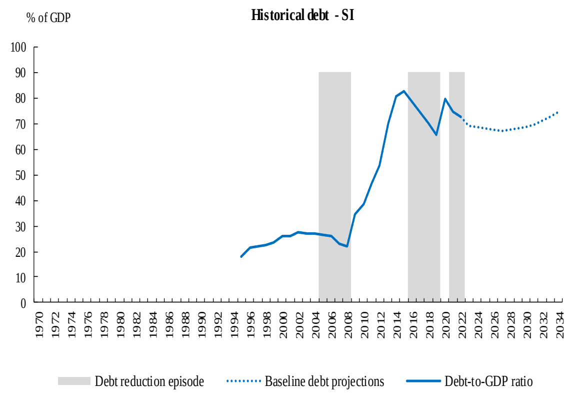
General government contingent liabilities	SI							EU
	2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)	9.6	8.6	7.5	6.4	6.4	5.5	5.1	7.1
of which *One-off guarantees*	*9.6*	*8.6*	*7.5*	*6.4*	*6.2*	*5.4*	*5.0*	*5.6*
Standardised guarantees	*0.0*	*0.0*	*0.0*	*0.0*	*0.2*	*0.1*	*0.1*	*1.5*
Public-private partnerships (PPPs) (% GDP)	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*

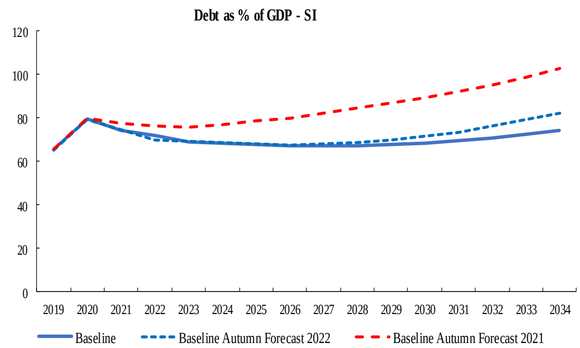
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0				0.0	0.0
	Special purpose entity	0.0	0.0	0.0				0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9

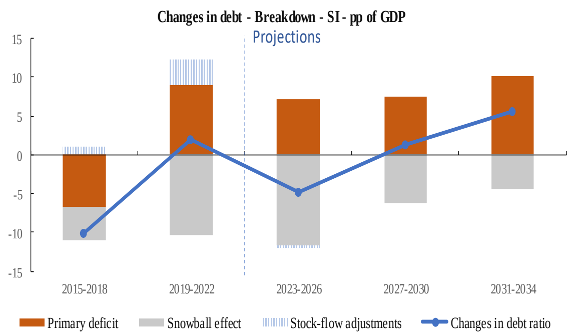
Government's contingent liability risks from banking sector - SI (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	5.2	14.8	66.4	1.6	-0.6	56.2	0.00%	0.08%

6. Realism of baseline assumptions









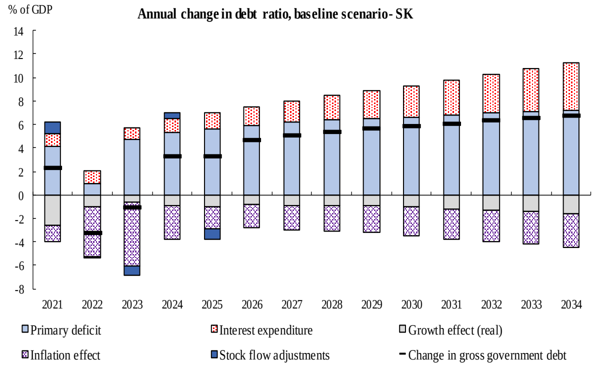
7. Underlying macro-fiscal assumptions

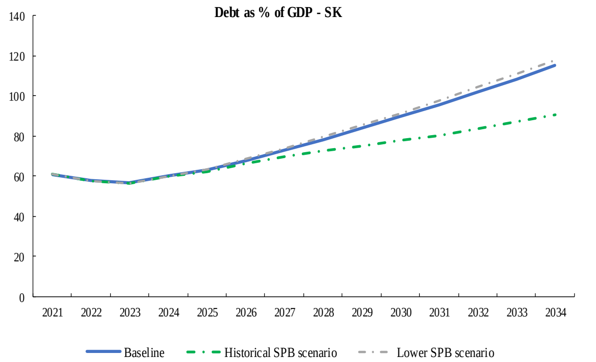
Macro-fiscal assumptions, Slovenia	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	69.3	68.4	67.9	68.8	71.1	74.4	68.5	69.6	69.4
Primary balance	-2.5	-2.0	-1.3	-2.1	-2.4	-2.8	-1.9	-2.1	-2.1
Structural primary balance (before CoA)	-2.5	-1.1	-1.1	-1.1	-1.1	-1.1	-1.5	-1.1	-1.2
Real GDP growth	1.3	2.0	2.1	2.1	2.0	2.0	1.8	2.1	2.1
Potential GDP growth	2.9	2.9	2.8	2.1	2.0	2.0	2.9	2.1	2.3
Inflation rate	8.7	3.8	2.6	2.8	2.8	2.8	5.1	2.7	3.3
Implicit interest rate (nominal)	1.9	2.0	2.1	2.8	3.1	3.4	2.0	2.8	2.6
Gross financing needs	6.9	6.5	6.3	8.8	9.9	11.0	6.6	8.8	8.3
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	69.3	68.4	68.0	70.2	73.3	77.4	68.6	71.1	70.5
Primary balance	-2.5	-2.0	-1.4	-2.5	-2.8	-3.1	-1.9	-2.4	-2.3
Structural primary balance (before CoA)	-2.5	-1.1	-1.2	-1.5	-1.5	-1.5	-1.6	-1.4	-1.5
Real GDP growth	1.3	2.0	2.1	2.1	2.0	2.0	1.8	2.1	2.1
Gross financing needs	6.9	6.5	6.4	9.2	10.5	11.7	6.6	9.3	8.6
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	69.3	68.5	68.1	69.0	71.4	74.8	68.6	69.9	69.6
Implicit interest rate (nominal)	1.9	2.1	2.2	2.9	3.2	3.4	2.1	2.9	2.7
Gross financing needs	6.9	6.5	6.4	8.8	10.0	11.1	6.6	8.9	8.3
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	69.3	68.6	68.7	73.0	76.6	81.3	68.8	73.9	72.6
Primary balance	-2.5	-2.4	-1.8	-2.8	-3.1	-3.5	-2.2	-2.8	-2.7
Structural primary balance (before CoA)	-2.5	-1.8	-1.8	-1.8	-1.8	-1.8	-2.0	-1.8	-1.8
Real GDP growth	1.3	2.5	2.0	2.1	2.0	2.0	1.9	2.1	2.1
Gross financing needs	6.9	6.9	6.9	9.8	11.2	12.5	6.9	9.9	9.2
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	69.3	68.8	68.7	71.6	74.9	79.4	68.9	72.6	71.7
Implicit interest rate (nominal)	1.9	2.1	2.2	3.1	3.4	3.8	2.1	3.1	2.8
Real GDP growth	1.3	1.5	1.6	1.6	1.5	1.5	1.5	1.6	1.6
Gross financing needs	6.9	6.5	6.5	9.2	10.5	11.8	6.6	9.3	8.6
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	69.3	68.4	67.9	68.8	71.1	74.4	68.5	69.6	69.4
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	6.9	6.5	6.3	8.8	9.9	11.0	6.6	8.8	8.3

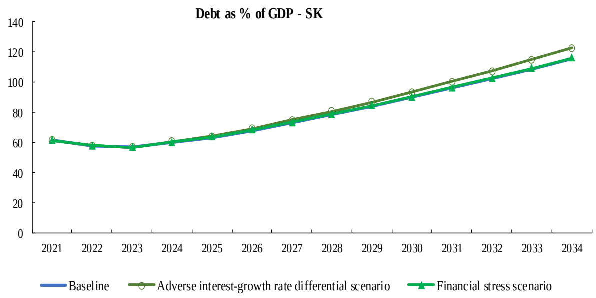
Slovakia

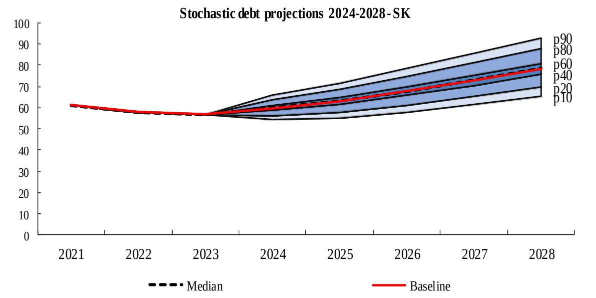
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

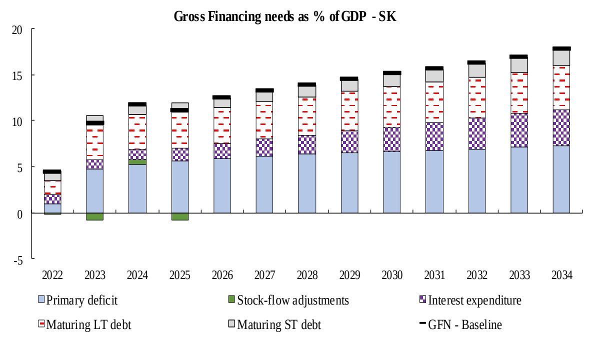
Slovakia - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**61.1**	**57.8**	**56.7**	**59.9**	**63.2**	**67.8**	**72.8**	**78.2**	**83.8**	**89.6**	**95.7**	**101.9**	**108.5**	**115.2**
Changes in the ratio (-1+2+3)	*2.2*	*-3.3*	*-1.1*	*3.2*	*3.2*	*4.7*	*5.0*	*5.4*	*5.6*	*5.8*	*6.0*	*6.3*	*6.5*	*6.7*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-4.1**	**-1.0**	**-4.7**	**-5.3**	**-5.6**	**-5.9**	**-6.2**	**-6.4**	**-6.5**	**-6.6**	**-6.8**	**-7.0**	**-7.1**	**-7.2**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-4.2***	***-1.2***	***-4.6***	***-5.1***	***-5.4***	***-5.8***	***-6.1***	***-6.4***	***-6.5***	***-6.6***	***-6.8***	***-7.0***	***-7.1***	***-7.2***
(1.1.1) Structural primary balance (bef. CoA)	*-4.2*	*-1.2*	*-4.6*	*-5.1*	*-5.1*	*-5.1*	*-5.1*	*-5.1*	*-5.1*	*-5.1*	*-5.1*	*-5.1*	*-5.1*	*-5.1*
(1.1.2) Cost of ageing					*0.3*	*0.7*	*1.0*	*1.2*	*1.4*	*1.5*	*1.7*	*1.8*	*2.0*	*2.1*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.2) Cyclical component	***0.1***	***0.2***	***-0.2***	***-0.2***	***-0.2***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-2.9**	**-4.2**	**-5.0**	**-2.6**	**-1.6**	**-1.3**	**-1.2**	**-1.0**	**-0.9**	**-0.8**	**-0.8**	**-0.7**	**-0.6**	**-0.5**
(2.1) Interest expenditure	*1.1*	*1.0*	*1.0*	*1.2*	*1.3*	*1.6*	*1.8*	*2.1*	*2.4*	*2.7*	*3.0*	*3.3*	*3.7*	*4.0*
(2.2) Growth effect	*-2.6*	*-1.0*	*-0.7*	*-0.9*	*-1.0*	*-0.8*	*-0.9*	*-0.9*	*-0.9*	*-1.1*	*-1.2*	*-1.3*	*-1.4*	*-1.6*
(2.3) Inflation effect	*-1.4*	*-4.3*	*-5.4*	*-2.8*	*-1.9*	*-2.0*	*-2.1*	*-2.2*	*-2.3*	*-2.4*	*-2.6*	*-2.7*	*-2.8*	*-2.9*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**1.0**	**-0.1**	**-0.8**	**0.5**	**-0.8**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*1.0*	*-0.1*	*-0.8*	*0.5*	*-0.8*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-5.3	-2.2	-5.6	-6.3	-6.8	-7.3	-7.9	-8.4	-8.9	-9.3	-9.8	-10.3	-10.8	-11.2
Gross financing needs	7.9	4.4	9.7	11.7	11.1	12.5	13.2	13.8	14.5	15.0	15.7	16.3	16.9	17.7

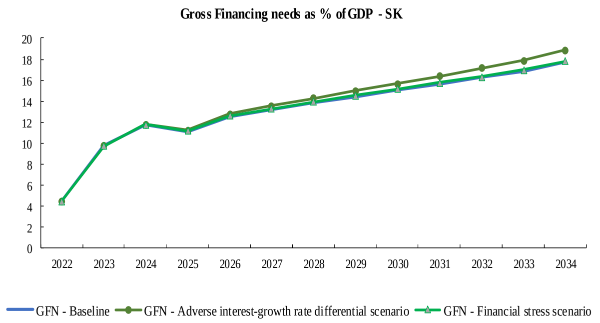












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios: Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	HIGH	Overall	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	HIGH	HIGH	HIGH
		Debt level (2034), % GDP	115.2	90.6	118.0	122.3	115.7				
		Debt peak year	2034	2034	2034	2034	2034				
		Fiscal consolidation space	96%	55%	100%	96%	96%				
		Probability of debt ratio exceeding in 2028 its 2023 level						99%			
		Difference between 90th and 10th percentiles (pps. GDP)						27.4			

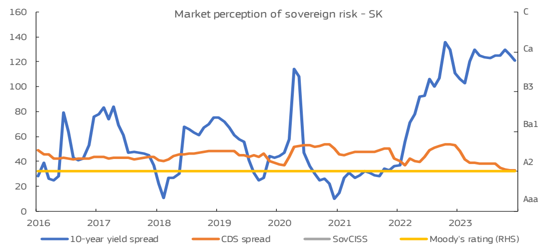
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.50**	**0.38**
Fiscal sub-index	0.36	0.47	0.28
Financial competitiveness sub-index	0.49	0.52	0.44

S2 indicator		DSM 2022	DSM 2023: Baseline	DSM 2023: Lower productivity scenario	DSM 2023: Non-demographic risk scenario
Overall index (pps. of GDP)		**11.3**	**9.9**	**10.2**	**13.6**
of which					
Initial budgetary position		3.7	5.5	5.6	5.5
Ageing costs		7.6	4.5	4.6	8.0
of which	*Pensions*	4.1	1.9	2.2	1.9
	Health care	1.6	1.1	1.0	2.2
	Long-term care	1.6	1.2	1.1	3.7
	Others	0.4	0.2	0.2	0.2
Required structural primary balance related to S2		**8.0**	**4.8**	**5.1**	**8.5**

S1 indicator		DSM 2022	DSM 2023: Baseline	DSM 2023: Lower productivity scenario	DSM 2023: Non-demographic risk scenario
Overall index (pps. of GDP)		**8.5**	**8.7**	**8.9**	**10.6**
of which					
Initial budgetary position		3.2	5.0	5.0	5.0
Debt requirement		-0.1	0.0	0.0	0.0
Ageing costs		5.3	3.7	3.8	5.6
of which	*Pensions*	2.9	1.9	2.0	1.9
	Health care	1.2	0.9	0.9	1.7
	Long-term care	0.9	0.7	0.7	1.8
	Others	0.3	0.2	0.2	0.2
Required structural primary balance related to S1		**5.2**	**3.6**	**3.8**	**5.5**

3. Financial information



Financial market information SK - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	121.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - SK (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	0.7	0.0	48.0

Net International Investment Position (IIP) - SK (2022)	Net IIP (% GDP):
	-61.0

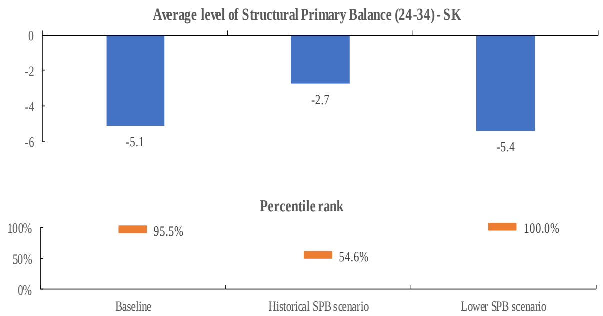
5. Risks related to government's contingent liabilities

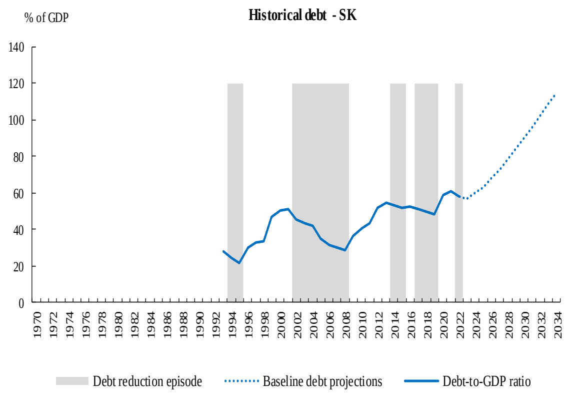
General government contingent liabilities	SK							EU
	2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)	0.0	0.0	0.1	0.0	0.7	0.9	0.9	7.1
of which *One-off guarantees*	*0.0*	*0.0*	*0.1*	*0.0*	*0.1*	*0.1*	*0.1*	*5.6*
Standardised guarantees	*0.0*	*0.0*	*0.0*	*0.0*	*0.6*	*0.9*	*0.9*	*1.5*
Public-private partnerships (PPPs) (% GDP)	*3.2*	*2.9*	*2.7*	*1.7*	*1.7*	*1.5*	*0.0*	*0.0*

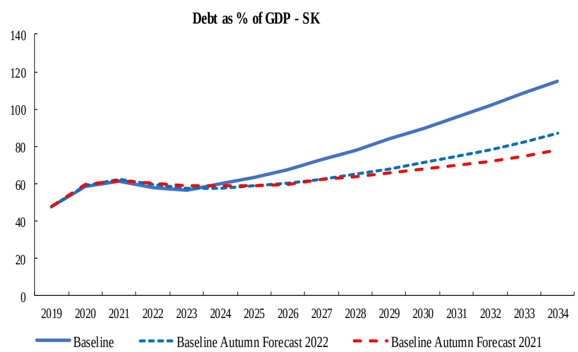
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.9
	Securities issued under liquidity schemes	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.0
	Special purpose entity	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.0
	Total	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.9

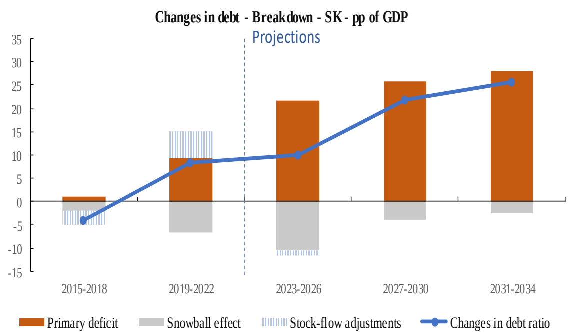
Government's contingent liability risks from banking sector - SK (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	9.3	13.7	112.7	1.6	0.1	56.8	0.01%	0.30%

6. Realism of baseline assumptions









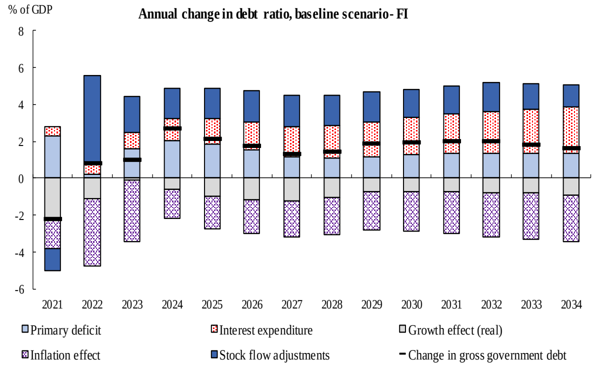
7. Underlying macro-fiscal assumptions

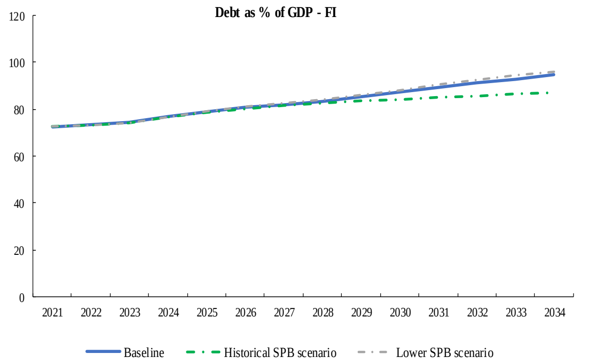
Macro-fiscal assumptions, Slovakia	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	56.7	59.9	63.2	89.6	101.9	115.2	59.9	90.4	82.8
Primary balance	-4.7	-5.3	-5.6	-6.6	-7.0	-7.2	-5.2	-6.6	-6.3
Structural primary balance (before CoA)	-4.6	-5.1	-5.1	-5.1	-5.1	-5.1	-4.9	-5.1	-5.1
Real GDP growth	1.3	1.7	1.8	1.3	1.4	1.5	1.6	1.4	1.4
Potential GDP growth	2.2	1.8	1.8	1.3	1.4	1.5	1.9	1.3	1.5
Inflation rate	10.2	5.3	3.3	3.0	2.9	2.8	6.3	3.0	3.8
Implicit interest rate (nominal)	2.0	2.2	2.4	3.3	3.6	3.8	2.2	3.3	3.0
Gross financing needs	9.7	11.7	11.1	15.0	16.3	17.7	10.8	15.1	14.0
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	56.7	59.9	62.4	77.7	83.5	90.6	59.7	78.1	73.5
Primary balance	-4.7	-5.3	-4.9	-3.7	-3.9	-4.1	-5.0	-4.0	-4.2
Structural primary balance (before CoA)	-4.6	-5.1	-4.3	-2.0	-2.0	-2.0	-4.7	-2.3	-2.9
Real GDP growth	1.3	1.7	1.8	1.8	1.4	1.5	1.6	1.4	1.4
Gross financing needs	9.7	11.7	10.3	11.2	11.6	12.5	10.6	11.4	11.2
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	56.7	60.0	63.3	90.1	102.4	115.7	60.0	90.8	83.1
Implicit interest rate (nominal)	2.0	2.4	2.5	3.4	3.6	3.9	2.3	3.3	3.1
Gross financing needs	9.7	11.8	11.2	15.1	16.3	17.8	10.9	15.1	14.1
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	56.7	60.0	63.5	91.4	104.2	118.0	60.1	92.1	84.1
Primary balance	-4.7	-5.5	-5.9	-6.9	-7.2	-7.5	-5.4	-6.9	-6.5
Structural primary balance (before CoA)	-4.6	-5.4	-5.4	-5.4	-5.4	-5.4	-5.1	-5.4	-5.3
Real GDP growth	1.3	1.9	1.7	1.3	1.4	1.5	1.6	1.4	1.4
Gross financing needs	9.7	11.9	11.3	15.5	16.7	18.3	11.0	15.5	14.4
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	56.7	60.3	63.9	93.2	107.1	122.3	60.3	94.2	85.7
Implicit interest rate (nominal)	2.0	2.3	2.5	3.7	4.0	4.3	2.3	3.6	3.3
Real GDP growth	1.3	1.2	1.3	0.8	0.9	1.0	1.3	0.9	1.0
Gross financing needs	9.7	11.8	11.2	15.7	17.1	18.9	10.9	15.7	14.5
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	56.7	59.9	63.2	89.6	101.9	115.2	59.9	90.4	82.8
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	9.7	11.7	11.1	15.0	16.3	17.7	10.8	15.1	14.0

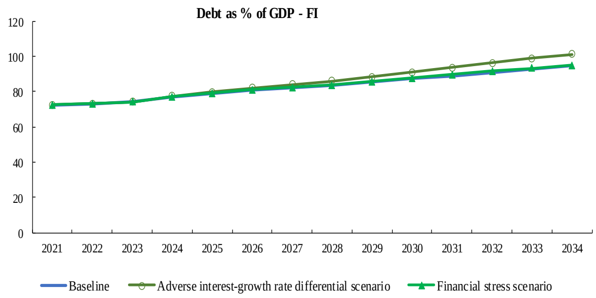
Finland

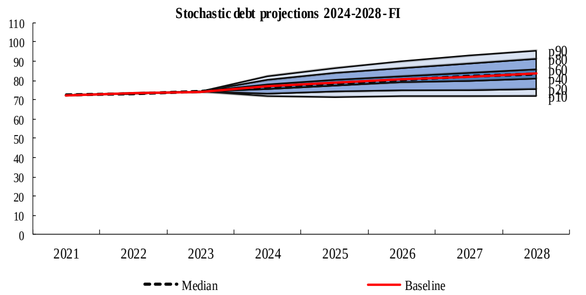
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

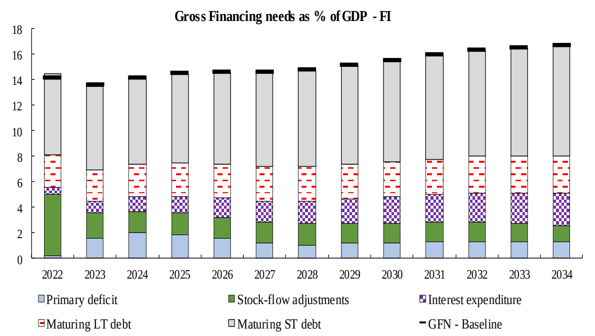
Finland - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**72.5**	**73.3**	**74.3**	**76.9**	**79.0**	**80.8**	**82.1**	**83.5**	**85.3**	**87.2**	**89.2**	**91.1**	**92.9**	**94.6**
Changes in the ratio (-1+2+3)	*-2.2*	*0.8*	*1.0*	*2.7*	*2.1*	*1.7*	*1.3*	*1.4*	*1.8*	*1.9*	*2.0*	*2.0*	*1.8*	*1.6*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-2.3**	**-0.2**	**-1.6**	**-2.0**	**-1.9**	**-1.6**	**-1.2**	**-1.1**	**-1.2**	**-1.3**	**-1.3**	**-1.3**	**-1.3**	**-1.3**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-1.8***	***0.2***	***-0.7***	***-1.0***	***-0.9***	***-0.9***	***-1.0***	***-1.1***	***-1.2***	***-1.3***	***-1.3***	***-1.3***	***-1.3***	***-1.3***
(1.1.1) Structural primary balance (bef. CoA)	*-1.8*	*0.2*	*-0.7*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.0*
(1.1.2) Cost of ageing					*-0.1*	*-0.1*	*0.0*	*0.1*	*0.2*	*0.3*	*0.3*	*0.4*	*0.4*	*0.3*
(1.1.3) Others (taxes and property incomes)					*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.2) Cyclical component	***-0.4***	***-0.4***	***-0.9***	***-1.1***	***-1.0***	***-0.6***	***-0.2***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-3.3**	**-4.2**	**-2.6**	**-1.0**	**-1.4**	**-1.5**	**-1.6**	**-1.3**	**-0.9**	**-0.9**	**-0.9**	**-0.9**	**-0.9**	**-0.9**
(2.1) Interest expenditure	*0.5*	*0.6*	*0.8*	*1.2*	*1.3*	*1.5*	*1.6*	*1.8*	*1.9*	*2.0*	*2.2*	*2.3*	*2.4*	*2.5*
(2.2) Growth effect	*-2.2*	*-1.1*	*-0.1*	*-0.6*	*-1.0*	*-1.2*	*-1.3*	*-1.0*	*-0.7*	*-0.7*	*-0.7*	*-0.8*	*-0.8*	*-1.0*
(2.3) Inflation effect	*-1.6*	*-3.7*	*-3.4*	*-1.6*	*-1.8*	*-1.8*	*-1.9*	*-2.0*	*-2.1*	*-2.2*	*-2.3*	*-2.4*	*-2.5*	*-2.5*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**-1.2**	**4.8**	**2.0**	**1.6**	**1.7**	**1.7**	**1.7**	**1.6**	**1.6**	**1.5**	**1.5**	**1.5**	**1.4**	**1.2**
(3.1) Base	*-1.1*	*4.4*	*2.1*	*1.5*	*1.7*	*1.7*	*1.7*	*1.6*	*1.6*	*1.5*	*1.5*	*1.5*	*1.4*	*1.2*
(3.2) Adjustment due to the exchange rate effect	*-0.1*	*0.3*	*-0.1*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-2.4	-0.4	-1.5	-2.2	-2.3	-2.4	-2.6	-2.8	-3.1	-3.3	-3.5	-3.6	-3.8	-3.9
Gross financing needs	11.7	14.1	13.5	14.1	14.5	14.6	14.6	14.7	15.1	15.5	15.9	16.3	16.5	16.7

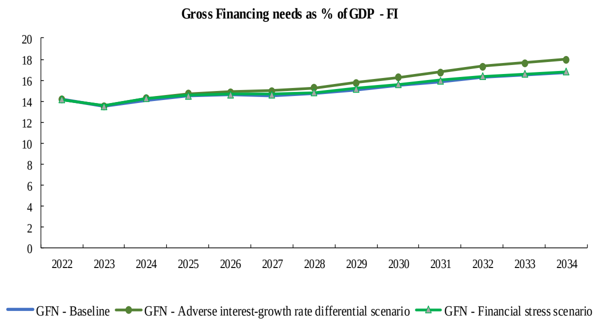












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios: Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress	Stochastic projections	S2	S1	Overall (S1 + S2)
LOW	HIGH	Overall	HIGH	MEDIUM	HIGH	HIGH	HIGH	HIGH	MEDIUM	MEDIUM	MEDIUM
		Debt level (2034), % GDP	94.6	87.1	96.2	101.2	95.1				
		Debt peak year	2034	2034	2034	2034	2034				
		Fiscal consolidation space	100%	96%	100%	100%	100%				
		Probability of debt ratio exceeding in 2028 its 2023 level						85%			
		Difference between 90th and 10th percentiles (pps. GDP)						23.5			

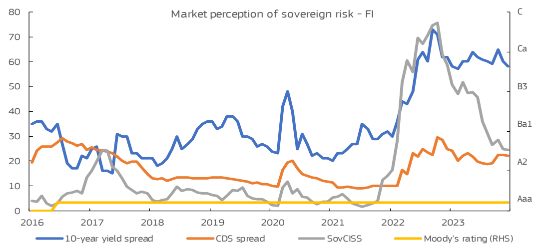
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.33**	**0.20**
Fiscal sub-index	0.36	0.35	0.15
Financial competitiveness sub-index	0.49	0.31	0.23

S2 indicator		DSM 2022	DSM 2023: Baseline	DSM 2023: Lower productivity scenario	DSM 2023: Non-demographic risk scenario
Overall index (pps. of GDP)		**3.0**	**3.3**	**3.6**	**5.6**
of which					
Initial budgetary position		1.1	1.6	1.7	1.6
Ageing costs		1.9	1.6	1.8	3.8
of which	*Pensions*	0.5	0.4	0.7	0.4
	Health care	0.6	0.6	0.5	1.3
	Long-term care	1.6	1.5	1.5	3.1
	Others	-0.8	-0.9	-0.9	-0.9
Required structural primary balance related to S2		**2.2**	**2.3**	**2.7**	**4.6**

S1 indicator		DSM 2022	DSM 2023: Baseline	DSM 2023: Lower productivity scenario	DSM 2023: Non-demographic risk scenario
Overall index (pps. of GDP)		**1.1**	**2.0**	**2.3**	**3.3**
of which					
Initial budgetary position		0.0	1.2	1.3	1.1
Debt requirement		0.3	0.4	0.3	0.4
Ageing costs		0.7	0.5	0.7	1.8
of which	*Pensions*	-0.1	-0.2	0.0	-0.2
	Health care	0.4	0.4	0.4	0.9
	Long-term care	1.1	1.0	1.0	1.7
	Others	-0.7	-0.7	-0.7	-0.7
Required structural primary balance related to S1		**0.3**	**1.1**	**1.4**	**2.3**

3. Financial information



Financial market information FI - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	58.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - FI (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	12.1	3.9	49.4

Net International Investment Position (IIP) - FI (2022)	Net IIP (% GDP):
	-2.2

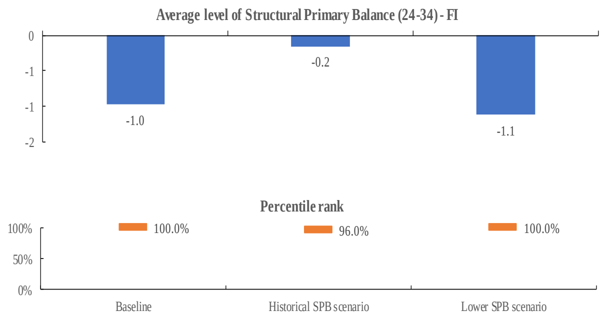
5. Risks related to government's contingent liabilities

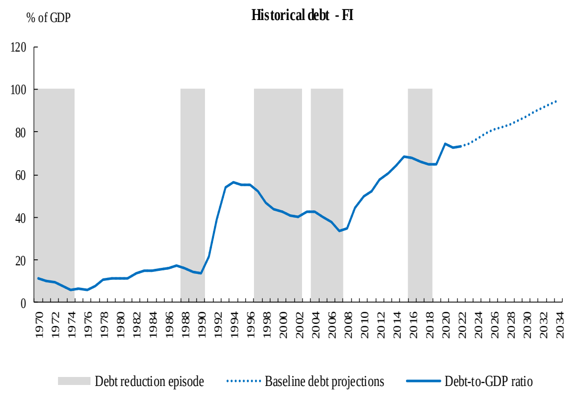
General government contingent liabilities	FI							EU
	2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)	27.8	23.7	15.3	17.1	18.6	19.0	19.1	7.1
of which *One-off guarantees*	*26.7*	*22.4*	*13.9*	*15.5*	*16.7*	*17.0*	*17.0*	*5.6*
Standardised guarantees	*1.1*	*1.2*	*1.5*	*1.7*	*1.9*	*2.0*	*2.1*	*1.5*
Public-private partnerships (PPPs) (% GDP)	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*

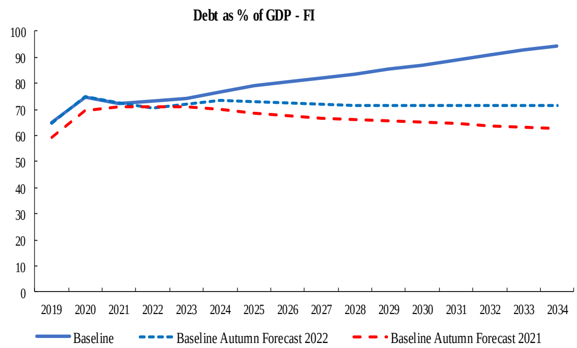
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)		2016	2017	2018	2019	2020	2021	2022	2022
	Liabilities and assets outside gen. gov. under guarantee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9

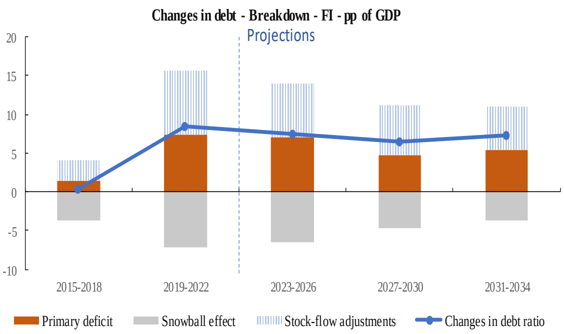
Government's contingent liability risks from banking sector - FI (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	2.3	1.2	173.3	1.0	0.0	28.7	0.01%	0.16%

6. Realism of baseline assumptions









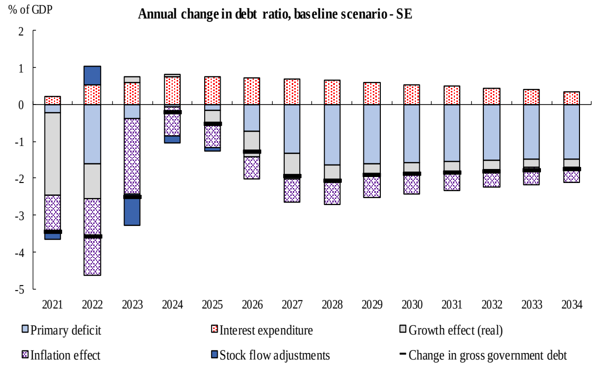
7. Underlying macro-fiscal assumptions

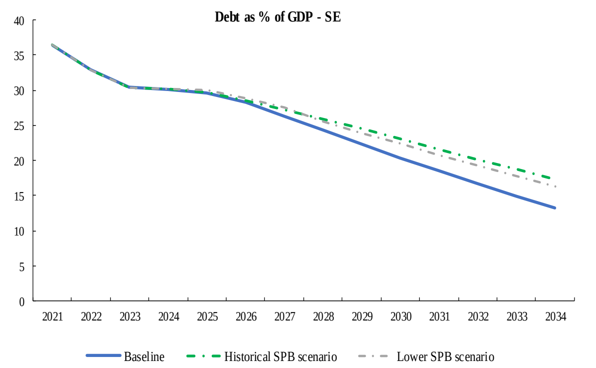
Macro-fiscal assumptions, Finland	Levels						Averages		
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	74.3	76.9	79.0	87.2	91.1	94.6	76.7	87.4	84.7
Primary balance	-1.6	-2.0	-1.9	-1.3	-1.3	-1.3	-1.8	-1.3	-1.4
Structural primary balance (before CoA)	-0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-0.9	-1.0	-0.9
Real GDP growth	0.1	0.8	1.3	0.9	0.9	1.1	0.8	1.1	1.0
Potential GDP growth	1.0	1.0	1.1	0.9	0.9	1.1	1.1	0.9	1.0
Inflation rate	4.8	2.2	2.3	2.6	2.8	2.8	3.1	2.6	2.7
Implicit interest rate (nominal)	1.2	1.7	1.8	2.5	2.7	2.8	1.6	2.4	2.2
Gross financing needs	13.5	14.1	14.5	15.5	16.3	16.7	14.0	15.5	15.2
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	74.3	76.9	78.8	84.2	85.8	87.1	76.7	84.0	82.2
Primary balance	-1.6	-2.0	-1.6	-0.4	-0.3	-0.3	-1.8	-0.5	-0.8
Structural primary balance (before CoA)	-0.7	-1.0	-0.7	0.1	0.1	0.1	-0.8	0.0	-0.2
Real GDP growth	0.1	0.8	1.3	1.2	0.9	1.1	0.8	1.1	1.0
Gross financing needs	13.5	14.1	14.2	14.3	14.5	14.6	13.9	14.3	14.2
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	74.3	77.0	79.2	87.7	91.6	95.1	76.8	87.8	85.1
Implicit interest rate (nominal)	1.2	1.9	1.9	2.5	2.7	2.9	1.6	2.5	2.3
Gross financing needs	13.5	14.3	14.5	15.6	16.4	16.8	14.1	15.6	15.3
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	74.3	76.9	79.2	88.2	92.4	96.2	76.8	88.4	85.5
Primary balance	-1.6	-2.1	-2.0	-1.4	-1.5	-1.5	-1.9	-1.4	-1.6
Structural primary balance (before CoA)	-0.7	-1.1	-1.1	-1.1	-1.1	-1.1	-1.0	-1.1	-1.1
Real GDP growth	0.1	0.9	1.3	0.9	0.9	1.1	0.8	1.1	1.0
Gross financing needs	13.5	14.2	14.6	15.8	16.6	17.1	14.1	15.8	15.4
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	74.3	77.3	79.9	91.0	96.3	101.2	77.2	91.3	87.7
Implicit interest rate (nominal)	1.2	1.8	1.9	2.7	3.0	3.2	1.6	2.7	2.4
Real GDP growth	0.1	0.3	0.8	0.4	0.4	0.6	0.4	0.6	0.6
Gross financing needs	13.5	14.2	14.7	16.3	17.3	18.0	14.1	16.3	15.8
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	74.3	77.5	79.6	87.7	91.6	95.1	77.1	87.9	85.2
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross financing needs	13.5	14.2	14.5	15.6	16.4	16.8	14.1	15.6	15.2

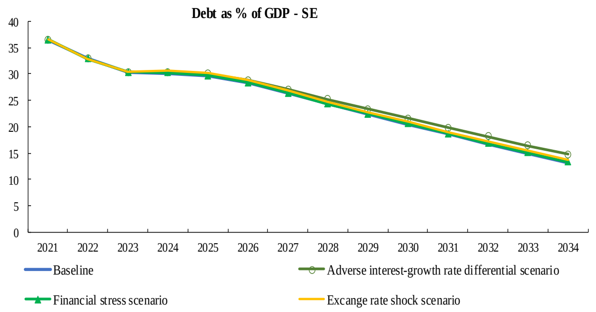
Sweden

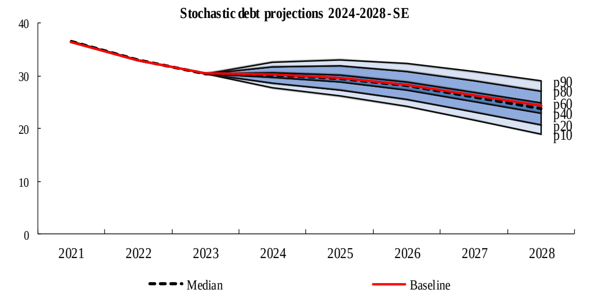
1. General Government Debt and financing needs projections under baseline and alternative scenarios and stress tests

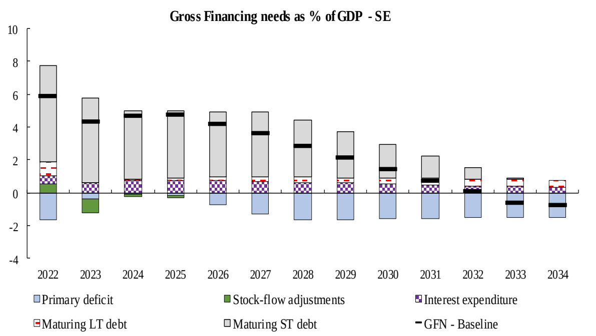
Sweden - Debt projections baseline scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Gross debt ratio	**36.5**	**32.9**	**30.4**	**30.1**	**29.6**	**28.3**	**26.3**	**24.3**	**22.3**	**20.4**	**18.6**	**16.7**	**15.0**	**13.2**
Changes in the ratio (-1+2+3)	*-3.5*	*-3.6*	*-2.5*	*-0.2*	*-0.5*	*-1.3*	*-1.9*	*-2.1*	*-1.9*	*-1.9*	*-1.9*	*-1.8*	*-1.8*	*-1.8*
of which														
(1) Primary balance (1.1+1.2+1.3)	**0.2**	**1.6**	**0.4**	**0.1**	**0.2**	**0.7**	**1.3**	**1.6**	**1.6**	**1.6**	**1.6**	**1.5**	**1.5**	**1.5**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***0.2***	***1.0***	***0.9***	***1.5***	***1.6***	***1.7***	***1.6***	***1.6***	***1.6***	***1.6***	***1.6***	***1.5***	***1.5***	***1.5***
(1.1.1) Structural primary balance (bef. CoA)	*0.2*	*1.0*	*0.9*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*
(1.1.2) Cost of ageing					*-0.1*	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.2*	*-0.2*	*-0.2*	*-0.1*	*-0.2*
(1.1.3) Others (taxes and property incomes)					*0.0*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*
(1.2) Cyclical component	***0.0***	***0.6***	***-0.5***	***-1.4***	***-1.4***	***-0.9***	***-0.3***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-3.1**	**-2.5**	**-1.3**	**0.0**	**-0.3**	**-0.6**	**-0.6**	**-0.5**	**-0.3**	**-0.3**	**-0.3**	**-0.3**	**-0.3**	**-0.3**
(2.1) Interest expenditure	*0.2*	*0.5*	*0.6*	*0.7*	*0.7*	*0.7*	*0.7*	*0.6*	*0.6*	*0.5*	*0.5*	*0.4*	*0.4*	*0.3*
(2.2) Growth effect	*-2.3*	*-0.9*	*0.2*	*0.1*	*-0.4*	*-0.7*	*-0.7*	*-0.5*	*-0.3*	*-0.3*	*-0.3*	*-0.2*	*-0.2*	*-0.2*
(2.3) Inflation effect	*-1.0*	*-2.1*	*-2.1*	*-0.8*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.5*	*-0.5*	*-0.5*	*-0.4*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock-flow adjustments	**-0.2**	**0.5**	**-0.8**	**-0.2**	**-0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*0.1*	*0.2*	*-1.1*	*-0.2*	*-0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*-0.2*	*0.3*	*0.3*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	0.0	0.5	0.3	0.7	0.8	1.0	0.9	1.0	1.0	1.1	1.1	1.1	1.1	1.1
Gross financing needs	8.5	5.9	4.3	4.7	4.7	4.2	3.6	2.8	2.1	1.4	0.7	0.0	-0.7	-0.8

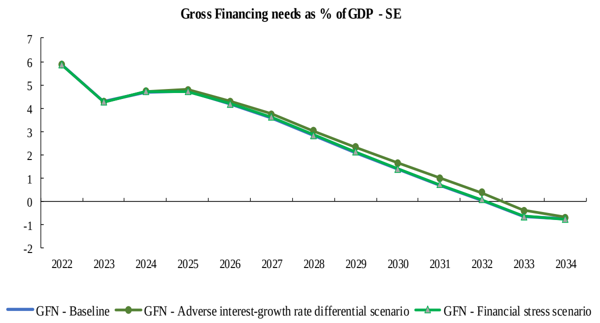












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term - Debt sustainability analysis (DSA)								Long term		
Overall (S0)	Overall		Deterministic scenarios					Stochastic projections	S2	S1	Overall (S1 + S2)
			Baseline	Historical SPB	Lower SPB	Adverse 'r-g'	Financial stress				
LOW	LOW	Overall	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
		Debt level (2034), % GDP	13.2	17.3	16.2	14.7	13.3				
		Debt peak year	2023	2023	2023	2023	2023				
		Fiscal consolidation space	65%	69%	67%	65%	65%				
		Probability of debt ratio exceeding in 2028 its 2023 level						5%			
		Difference between 90th and 10th percentiles (pps. GDP)						10.0			

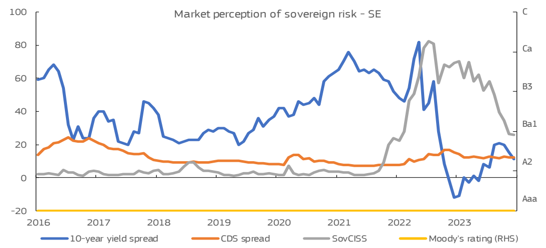
2.2. Sustainability indicators

S0 indicator	Critical threshold	2009	2023
Overall index	**0.46**	**0.31**	**0.12**
Fiscal sub-index	0.36	0.15	0.00
Financial competitiveness sub-index	0.49	0.40	0.19

S2 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**0.8**	**-0.6**	**-0.7**	**1.9**
of which					
Initial budgetary position		-1.3	-1.2	-1.2	-1.2
Ageing costs		2.1	0.7	0.5	3.1
of which	*Pensions*	0.0	-0.5	-0.6	-0.5
	Health care	0.6	0.6	0.6	1.5
	Long-term care	1.8	1.1	1.1	2.8
	Others	-0.4	-0.6	-0.6	-0.6
Required structural primary balance related to S2		**2.3**	**0.9**	**0.8**	**3.4**

S1 indicator		DSM 2022	DSM 2023		
			Baseline	Lower productivity scenario	Non-demographic risk scenario
Overall index (pps. of GDP)		**-1.8**	**-2.2**	**-2.2**	**-1.0**
of which					
Initial budgetary position		-1.8	-1.6	-1.6	-1.6
Debt requirement		-0.8	-0.7	-0.7	-0.7
Ageing costs		0.9	0.1	0.1	1.4
of which	*Pensions*	-0.2	-0.5	-0.5	-0.5
	Health care	0.4	0.4	0.4	1.0
	Long-term care	1.1	0.7	0.7	1.3
	Others	-0.4	-0.4	-0.4	-0.4
Required structural primary balance related to S1		**-0.3**	**-0.7**	**-0.7**	**0.5**

3. Financial information



Financial market information SE - December 2023		
Sovereign yield spreads (bp)* - December 2023	10-year	11.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - SE (2022)	Share of short-term government debt (%):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	27.8	11.1	14.9

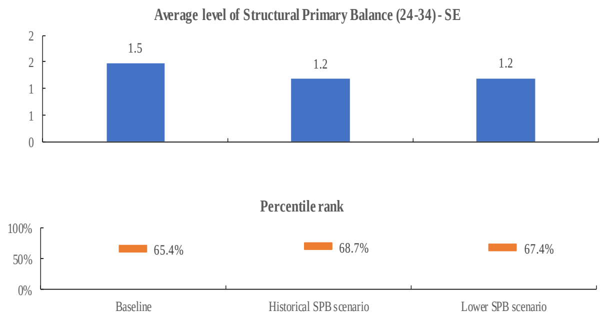
Net International Investment Position (IIP) - SE (2022)	Net IIP (% GDP):
	30.9

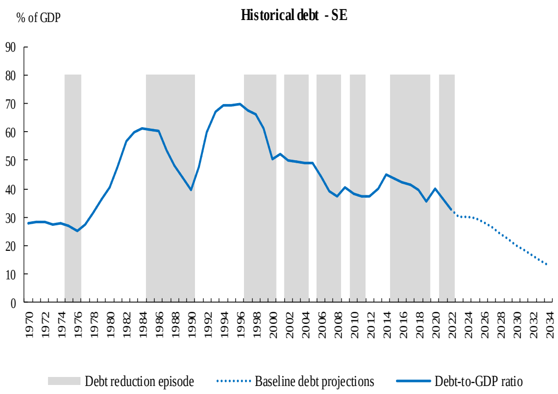
5. Risks related to government's contingent liabilities

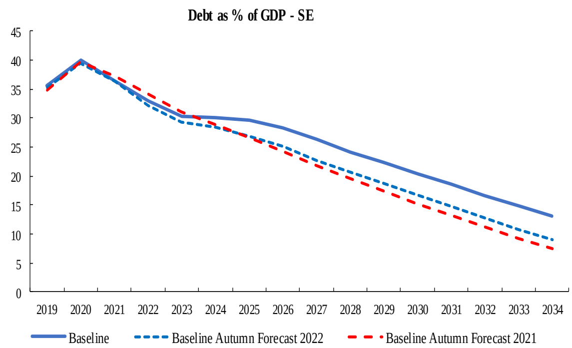
General government contingent liabilities		SE							EU
		2016	2017	2018	2019	2020	2021	2022	2022
State guarantees (% GDP)		11.9	10.6	11.2	10.9	12.5	12.1	11.6	7.1
of which	*One-off guarantees*	*11.9*	*10.6*	*11.2*	*10.9*	*12.5*	*12.1*	*11.6*	*5.6*
	Standardised guarantees	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*1.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
		2016	2017	2018	2019	2020	2021	2022	2022
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9

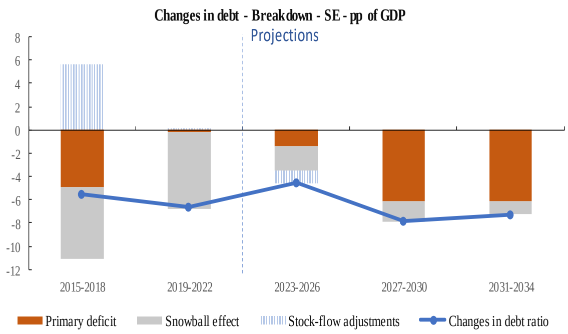
Government's contingent liability risks from banking sector - SE (2022)	Private sector credit flow (% GDP):	Change in nominal house price index (p.p.):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio (%)	Theoretical probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): Stress	Severe Stress
	10.3	3.6	176.0	0.2	0.0	34.8	0.01%	0.04%

6. Realism of baseline assumptions









7. Underlying macro-fiscal assumptions

Macro-fiscal assumptions, Sweden			Levels					Averages	
1. Baseline	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	30.4	30.1	29.6	20.4	16.7	13.2	30.0	20.6	22.9
Primary balance	0.4	0.1	0.2	1.6	1.5	1.5	0.2	1.4	1.1
Structural primary balance (before CoA)	0.9	1.5	1.5	1.5	1.5	1.5	1.3	1.5	1.4
Real GDP growth	-0.5	-0.2	1.4	1.4	1.3	1.5	0.2	1.7	1.3
Potential GDP growth	1.5	1.4	1.4	1.4	1.3	1.5	1.4	1.4	1.4
Inflation rate	6.7	2.7	2.0	2.5	2.7	2.8	3.8	2.5	2.8
Implicit interest rate (nominal)	1.9	2.5	2.6	2.5	2.4	2.4	2.3	2.5	2.5
Gross financing needs	4.3	4.7	4.7	1.4	0.0	-0.8	4.5	1.5	2.2
2. Historical SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	30.4	30.1	29.7	23.1	20.1	17.3	30.1	23.0	24.8
Primary balance	0.4	0.1	0.1	1.1	1.1	1.1	0.2	1.0	0.8
Structural primary balance (before CoA)	0.9	1.5	1.4	1.1	1.1	1.1	1.3	1.1	1.2
Real GDP growth	-0.5	-0.2	1.4	1.6	1.3	1.5	0.2	1.7	1.3
Gross financing needs	4.3	4.7	4.8	3.0	2.1	1.2	4.6	2.9	3.3
3. Financial stress scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	30.4	30.2	29.7	20.5	16.9	13.3	30.1	20.7	23.0
Implicit interest rate (nominal)	1.9	2.7	2.6	2.5	2.5	2.5	2.4	2.5	2.5
Gross financing needs	4.3	4.7	4.7	1.4	0.1	-0.8	4.6	1.5	2.3
4. Lower SPB scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	30.4	30.2	29.9	22.4	19.3	16.2	30.2	22.5	24.4
Primary balance	0.4	-0.1	0.0	1.3	1.2	1.2	0.1	1.1	0.9
Structural primary balance (before CoA)	0.9	1.2	1.2	1.2	1.2	1.2	1.1	1.2	1.2
Real GDP growth	-0.5	0.0	1.3	1.4	1.3	1.5	0.3	1.7	1.3
Gross financing needs	4.3	4.8	5.0	2.4	1.4	0.5	4.7	2.5	3.0
5. Adverse interest-growth rate differential	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	30.4	30.3	30.0	21.6	18.1	14.7	30.2	21.7	23.8
Implicit interest rate (nominal)	1.9	2.6	2.7	2.6	2.6	2.5	2.4	2.6	2.6
Real GDP growth	-0.5	-0.7	0.9	0.9	0.8	1.0	-0.1	1.2	0.9
Gross financing needs	4.3	4.7	4.8	1.7	0.4	-0.7	4.6	1.7	2.4
6. Exchange rate depreciation scenario	**2023**	**2024**	**2025**	**2030**	**2032**	**2034**	**2023-25**	**2025-34**	**2023-34**
Gross public debt	30.4	30.6	30.1	20.9	17.2	13.6	30.4	21.0	23.4
Exchange rate depreciation	0.0%	8.5%	0.0%	0.0%	0.0%	0.0%	2.8%	0.0%	0.7%
Gross financing needs	4.3	4.7	4.8	1.5	0.1	-0.7	4.6	1.6	2.3

ANNEX A9
Data sources and information

This annex presents the data sources and information of the country fiches presented in Annex A8.

COUNTRY FICHES – DATA SOURCES AND INFORMATION

The projections presented in this report are based on the Commission 2023 autumn forecast. It relies on the commonly agreed methodology of the Economic Policy Committee (EPC) for projecting medium-term GDP growth. The DSM also reflects the agreed long-term economic and budgetary projections of the Ageing Report 2024, jointly prepared by the European Commission and the EPC. The cut-off date for the preparation of the report was 31 October 2023, in line with the Commission 2023 autumn forecast. However, for some additional indicators, more recent information has been used.

Projections and fiscal sustainability indicators

Overall approach

See Annex A1 for a general presentation of the Commission's multi-dimensional approach, indicators, decision trees and thresholds underpinning the risk classification.

Short term

S0 indicator – Early-detection indicator of fiscal stress based on 25 fiscal and financial-competitiveness variables, including government gross financing needs (see Chapter I.1, Box I.1.1 and Annex A2).

Medium term

Debt sustainability analysis (DSA) – A set of *deterministic projections* including a baseline and alternative scenarios and stress tests (see Section I.2.1 and Box I.2.1) and *stochastic projections* (see Section I.2.2 and Annex A4).

Long term

S2 indicator – Long-term sustainability gap indicator measuring the permanent adjustment in the structural primary balance, compared to the baseline, required to stabilise public debt over the long term (see Section I.3.1 and Annex A5).

S1 indicator – Long-term sustainability gap indicator measuring the permanent adjustment in the structural primary balance, compared to the baseline, required to reach a debt-to-GDP ratio of 60% by 2070 (see Section I.3.2 and Annex A5).

Financial information

Market perception of sovereign risk

10-year bond yield spreads to the German Bund – ECB, interest rate statistics database, long-term interest rate for convergence purposes, 10 years maturity, denominated in Euro, basis points, monthly average, cut-off date: 31 December 2023.

5-year Credit Default Swap (CDS) spread – Thomson Reuters, provided by S&P Global, daily close, basis points, cut-off date: 31 December 2023.

SovCISS – Composite indicator of sovereign stress – ECB, pure number, monthly, available for 11 euro area countries (AT, BE, DE, ES, FI, FR, EL, IE, IT, NL and PT).

Moody's sovereign credit rating – Local currency long-term sovereign credit rating, Moody's, cut-off date: 31 December 2023.

Additional mitigating and aggravating factors

Risks related to the structure of government debt, the net international investment position and contingent liabilities (see Sections 4 and 5 below). The qualification of factors is based either on thresholds derived from a signalling approach or on a comparison with other Member States or the EU average.

SECTION 4 – Risks related to the structure of government debt financing and net International Investment position

Government debt structure

Share of short-term government debt – Eurostat, general government consolidated gross debt, original maturity of less than 1 year, as % of total, available for all countries except NL, downloaded in November 2023.

Share of short-term government debt (for the NL) – Eurostat, general government, % of GDP, government consolidated gross debt at face value (currency and deposits, short-term debt securities, short-term loans) as share of total government consolidated gross debt, downloaded in November 2023.

Share of government debt in foreign currency – Eurostat, debt by currency of issue, general government, foreign currency, % of total, available for all countries except DK, EL, FI, and SE, downloaded in November 2023.

Share of government debt in foreign currency (for DK, FI, EL and SE) – ECB, Government Finance Statistics (GFS) database, Maastricht debt, general government, consolidated, all original maturities, denominated in national currency; denominated in currencies other than national currency and euro; denominated in euro, downloaded in November 2023.

Share of government debt held by non-residents – Eurostat, General government consolidated gross debt, rest of the world, total-all maturities, % of total, available for all countries except EL, downloaded in November 2023.

Net International Investment Position (IIP) – Eurostat, % of GDP (downloaded in November 2023).

SECTION 5 – Risks related to government's contingent liabilities

Risks related to government's contingent liabilities

Guarantees (State guarantees, one-off guarantees, and standardised guarantees) – Eurostat, % of GDP, downloaded in November 2023.

Public-private partnerships (PPPs) – Eurostat, % of GDP, downloaded in November 2023.

Contingent liabilities of general government related to support to financial institutions – Eurostat, % of GDP, downloaded in November 2023.

Government's contingent liability risks from the banking sector

Private sector credit flow – Eurostat (MIP scoreboard), % of GDP, downloaded in November 2023.

Change in nominal house price index – European Commission, DG ECFIN, Unit B1 house price database, y-o-y % change (2015=100), downloaded in November 2023.

Bank loan-to-deposit ratio – European Banking Authority (EBA), risk indicator, loan-to-deposit ratio for households and non-financial corporations, downloaded in June 2023.

Share of non-performing loans – European Banking Authority (EBA), Risk indicator, Ratio of non-performing loans and advances (NPL ratio), downloaded in June 2023.

Non-Performing Loans (NPL) coverage ratio – European Banking Authority (EBA), Risk indicator, Coverage ratio of non-performing loans and advances, downloaded in June 2023.

SYMBOL model – Model estimating the potential impact of simulated bank losses on public finances (see Annex A6).

SECTION 6 – Realism of baseline projections

Percentile rank – Position of the average structural primary balance assumed in the projections in the country's past distribution of structural primary balances. The historical distributions start at the earliest in 1980, depending on data availability. The calculations use 3-year moving averages and exclude major crisis years, namely the Global Financial Crisis (2008-09) and the COVID-19 pandemic (2020-21).

SECTION 7 – Underlying macro-fiscal assumptions

See Box 1.2.1. in Chapter 2.

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