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EXECUTIVE SUMMARY

1. MONITORING SUSTAINABILITY IS CRITICAL AT THE CURRENT JUNCTURE

The world economy is confronted with an unprecedented economic crisis, with large uncertainties going forward

The COVID-19 pandemic that erupted last year caused an economic crisis across the world, unique in its severity. Recent estimates show a contraction of global GDP by more than 4% in 2020, unprecedented since the 1980s (by comparison, global economic activity shrunk by 0.1% in 2009). ([1]) Based on the Commission Autumn forecast 2020, the EU GDP diminished by about 7½% last year. Going forward, the uncertainty surrounding the economic outlook will remain particularly elevated as long as the pandemic hangs over the economy. According to key international institutions, including the European Commission, growth should resume in 2021-22; yet, the recovery is expected to be incomplete over this horizon, and to differ widely across Member States.

The economic policy response in the EU has been swift and sizeable, preventing worse outcomes

The unique recession, caused by the COVID-19 outbreak, prompted a massive policy response at the national and the EU level that has prevented worse outcomes. All EU Member States have adopted unprecedented fiscal support and liquidity assistance to their economies to avoid mass lay-offs, preserve incomes and protect businesses, also in response to calls from the EU to maintain support to their economies. The ECB's forceful and immediate response since March was complemented by the activation of the 'general escape clause' in the EU's fiscal rules, which has helped Member States to provide a strong fiscal support to address the health and ensuring economic crisis. Rapid agreements were reached on a number of powerful EU instruments, including the temporary Support to mitigate Unemployment Risks in an Emergency (SURE). Importantly, the Next Generation EU (NGEU) plan to support all Member States, in particular those hardest hit by the COVID-19 crisis with a €750 billion fund is an unprecedented example of European solidarity and commitment to European cohesion. ([2]) Already, this demonstration of collective resolve has cushioned the impact of the pandemic on businesses and people, and has had positive impact on financial market confidence.

Public finances took a severe hit as a result of the severe recession and the necessary policy response

In this context, the EU/EA government deficit ratio is estimated to have significantly increased last year (by around 8 pps.) to around 9% of GDP. This deterioration reflects the operation of automatic stabilisers and the sizeable discretionary fiscal measures put in place to cushion households and firms from the negative impact of the COVID-19 pandemic. The deficit ratio is set to ease in 2021 and 2022 (to around 5% of GDP), reflecting the unwinding of pandemic-related emergency measures, as well as the expected rebound in economic activity. Mirroring the spike in deficits, as well as unfavourable snowball effects, the aggregate government debt-to-GDP ratio rose by around 15 pps. in 2020, reaching respectively 95% and 102% in the EU/EA. It is expected to continue rising by around 1-2 pps. cumulatively over 2021 and 2022. Hence, the forecasted deterioration of public finances is expected to be much higher than the one observed during the global financial

([1]) See European Commission (2020c).

([2]) See https://data.consilium.europa.eu/doc/document/ST-9971-2020-INIT/en/pdf

crisis. ([3]) Overall, these short-term projections remain subject to high uncertainty on the evolution of the pandemic.

Monitoring debt sustainability risks is critical

2020 appears as an exceptional year in terms of debt dynamics. While the conditions to sustain high debt levels certainly improved over the past years, given the global fall of interest rates and the lengthening of debt maturities, ([4]) a number of EU Member States recorded persistently high debt levels. In 2020, the necessary fiscal expansion to respond to the crisis has led to a large increase of government debt ratios in the Member States. Despite the severity of the crisis, large-scale monetary policy support and EU initiatives have contributed to stabilising sovereign financing conditions, and enabled financing large government borrowing needs (with euro area governments having issued more than €1 trillion of debt on a net basis last year). ([5]) Yet, the pandemic heightened challenges to debt sustainability, and assessing fiscal sustainability risks appears particularly critical at the current juncture.

2. DSM 2020: METHODOLOGY AND USE

This report provides an update of fiscal sustainability risks compared to the DSM 2019

This edition of the Debt Sustainability Monitor (DSM) provides an update of fiscal sustainability risks faced by Member States, previously assessed – before the crisis - in the DSM 2019. It offers a snapshot of the situation, based on results from the latest available Commission macroeconomic forecast (Autumn 2020 forecast). The assessment also relies on the Economic Policy Committee (EPC) commonly agreed methodology to project medium-term GDP growth. ([6]) Last, it reflects agreed long-term economic and budgetary projections from the joint European Commission - EPC 2018 Ageing Report. In a limited number of cases, long-term budgetary projections have been updated to reflect recent pension reforms.

In order to maintain a realistic baseline scenario, the methodological approach used in the DSM 2019 has been amended to reflect the current exceptional circumstances

Fiscal sustainability risks faced by Member States are assessed according to the comprehensive horizontal fiscal sustainability framework used in the DSM 2019. This framework brings together in a synthetic way results on debt sustainability analysis (DSA) and fiscal sustainability indicators. It allows gaining a horizontally consistent overview of fiscal sustainability risks across time horizons (short, medium and long term) and across countries, based on a set of transparent criteria. However, owing to the exceptional crisis circumstances, and the high uncertainty on the economic prospects, a number of adjustments to the standard underlying assumptions have been made (see Box 1.1 of the report). In particular, given the exceptional impact of the crisis on deficit levels in the period 2020-2022, a gradual return of the structural primary balance to the pre-crisis forecast level has been assumed, instead of keeping it constant at an exceptionally very negative level, also compared to historical averages. This amendment implies the phasing out of some measures or the financing of some permanent ones. Moreover, as agreed in November 2020 by the EPC / Ageing Working Group (AWG), the

([3]) See European Commission (2020c).

([4]) See European Commission (2020a) for a discussion of the low interest rate environment.

([5]) See ECB (2020).

([6]) The so-called T+10 methodology commonly agreed with the Output Gap Working Group (OGWG), see Havik et al. (2014).

long term assumption on interest rates has been revised, to reflect decline of interest rates over the past decades. ([7])

Particularly large uncertainty calls for caution when considering the assessment

Assessing fiscal sustainability is admittedly subject to particularly large uncertainty at the current juncture. Important uncertainty relates to future developments of the pandemic: on the one hand, prolonged containment measures could further weight on the economy and delay the recovery; on the other hand, an effective rollout of the vaccine against the COVID-19 in the coming months represents a tangible upside risk. The impact of the pandemic on medium term potential output in the EU is also highly uncertain. Some scarring on the economy is likely. ([8]) Moreover, the assessment of debt sustainability presented in this report could not reflect at this stage the fiscal impulse provided by the Next Generation EU/Recovery and Resilience Facility (NGEU/RRF). ([9]) Yet, the implementation of the NGEU/RRF is expected to have a large positive impact on the EU economy since the package amounts to almost 5% of euro area GDP, and aims at supporting the recovery and strengthening growth fundamentals, through structural reforms and investments. A successful implementation of reforms and investment under the NGEU/RRF would provide a fiscal impulse to the European economy, improve the functioning of the economy and society, as well as the quality, composition and long-term sustainability of public finances in the Member States (see Box 5.1 of the report). The current large degree of uncertainty implies that the suite of sensitivity tests and alternative scenarios (including stochastic projections), routinely included in the DSM, is particularly relevant this year. In the same manner, the qualifying additional risk factors considered (either aggravating or mitigating) are of particular importance for the current exercise.

The DSM results are used in the context of EU regular surveillance, ranging from standard monitoring to financial assistance

The Commission analysis of public finances sustainability presented in this report contributes to the monitoring and coordination of Member States' fiscal policies. It plays a key role in the context of the SGP ([10]) and in the context of the European Semester, the EU integrated surveillance framework, including for post-programme surveillance. These results also provide the starting point for the assessment of debt sustainability in the context of requests to the ESM Pandemic Crisis Support facility. In spring 2020, the European Commission services carried out an assessment of debt

([7]) In particular, long term interest rates are assumed to converge to 2% in real terms for all countries by T+30 (2050) – against 3% previously (see European Commission - EPC (2020)).

([8]) Potential growth projections over a the next years, including the impact of the COVID-19 crisis, are presented in Box 3.1 of the report. See also Bodnár et al. (2020) for an analysis of the impact of the COVID-19 pandemic on potential output in the euro area.

([9]) On 18 December 2020, the European Parliament and the Council reached an agreement on the Recovery and Resilience Facility, the key instrument at the heart of *NextGenerationEU*. The Recovery Resilience Plans are expected to be submitted in the course of 2021. In line with the usual no-policy-change assumption, the T+2 forecast only incorporates measures that have been already adopted or credibly announced and sufficiently specified (while strictly technical assumptions apply on the revenue side). Beyond T+2, a similar assumption is made in the baseline.

([10]) According to the 'general escape clause', "in periods of severe economic downturn for the euro area or the Union as a whole, Member States may be allowed temporarily to depart from the adjustment path towards the medium-term budgetary objective, *provided that this does not endanger fiscal sustainability in the medium term"*. (see https://ec.europa.eu/info/sites/info/files/economy-finance/2_en_act_part1_v3-adopted_text.pdf).

sustainability of euro area countries, as part of the eligibility assessment to activate the ESM Pandemic Crisis Support. ([11]) The DSM 2020 provides a timely update of debt sustainability risks that contribute to inform this assessment. Last, but not least, the results presented in the report are notably relevant for the purpose of assessing Member States Recovery and Resilience Plans (RRPs), which should provide a fiscal stimulus to the European economy, improve the functioning of the economy and society, as well as the quality, composition and longer-term sustainability of public finances in the Member States.

3. KEY RESULTS

Government debt is expected to gradually fall over the medium term, notwithstanding important uncertainties

Past the spike observed in 2020, the EU/EA government debt is expected to broadly stabilise and progressively decline over the next decade, to about 90% of GDP in the EU and 98% of GDP in the EA by 2031. The debt dynamics are expected to benefit from the assumed progressive correction of the primary balance and from negative interest - growth differentials. In particular, the prevailing favourable financial environment (as reflected by financial market expectations) and the economic recovery should favour government debt deleveraging over the medium term. However, when taking into account a large range of possible temporary shocks to macroeconomic variables (through stochastic projections), the EA government debt ratio is found to have a relatively high probability to be greater in the next 5 years than in 2020 (probability of 65%). Under-achievement of the assumed gradual return to pre-crisis forecast levels of the structural primary balance would lead to less favourable debt dynamics. Despite the severity of the crisis and the surge in short-term gross financing needs, monetary policy support from the Eurosystem and EU initiatives have helped stabilise sovereign financing conditions and enabled markets to absorb sizeable government financing needs. Average medium-term gross financing needs are set to remain below the levels seen during the economic and financial crisis and to generally decrease over time.

Overall aggregate results hide important cross-countries differences, and risks remain heterogeneous across the EU and over different time dimensions. As fiscal policies are largely under national responsibility, this country – specific analysis of fiscal sustainability risks remains relevant.

Short-term risks have increased as a result of the COVID-19 pandemic

Reflecting the large and abrupt deterioration of public finances in 2020, resulting from the severe recession and the needed fiscal response, eleven countries appear at short-term risk of fiscal stress in the report (including Belgium, Spain, France, Croatia, Italy, Cyprus, Latvia, Portugal, Romania, Slovakia and Finland) – according to the early-warning indicator used by the European Commission, the S0 indicator. In 2009, as many as seventeen countries were found to face such risk. In most cases, the macro-financial situation currently appears much sounder than during the global financial crisis, as shown by the S0 macro-financial sub-index. ([12]) Moreover, the decisive ECB interventions and EU initiatives should ensure that sovereign

([11]) On the basis of this assessment, the European Commission, the ESM and the Eurogroup concluded in Spring 2020 that debt was sustainable in all euro area countries (see https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/financial-assistance-eu/funding-mechanisms-and-facilities/european-stability-mechanism-esm_en).

([12]) This sub-index is below its critical threshold for all countries but Cyprus.

financing conditions remain favourable going forward. ([13]) In particular, purchases of euro area government bonds have allowed financing a significant share of government borrowing needs in 2020, and should continue to do so in 2021 (see Chapter 2, section 2.2).

Medium term risks are high in eight EU countries, medium in six and low in twelve

Over the medium term, eight countries are found to face high risk (Belgium, Spain, France, Italy, Portugal, Romania, Slovenia and Slovakia). These results are driven by the high debt ratio (in Belgium, Spain, France, Italy and Portugal), which is projected to only gradually fall – sometimes late - over the projection period. In the case of Romania, the high risk classification reflects a particularly fast-increasing debt path (bringing the debt ratio above the high risk threshold by 2031). For Slovenia and Slovakia, vulnerabilities to more adverse macro-financial developments or to weaker fiscal improvement, than assumed in the baseline, drive the results. In most cases (all but Portugal and Slovenia), the medium term fiscal gap indicator (the S1 indicator) confirms the DSA results. Six further countries appear at medium risk (Croatia, Cyprus, Hungary, Netherlands, Austria and Finland), with overall consistent signals across the different scenarios considered. ([14]) The remaining twelve Member States (Bulgaria, Czechia, Denmark, Germany, Estonia, Ireland, Latvia, Lithuania, Luxembourg, Malta, Poland and Sweden) are classified at low medium term risk. In some cases however, stochastic projections, featuring the uncertainty surrounding baseline projections, point to some vulnerabilities – due to the historical volatility of the main debt drivers in these countries (Bulgaria, Czech Republic and Latvia). In the case of Ireland, when scaling government debt with GNI, a more accurate measure of repayment capacity in this country, medium term vulnerabilities appear more important than suggested according to the standard GDP metric.

Population ageing is a critical issue over the long term

Over the long term, five countries appear to be at high risk (Belgium, Luxembourg, Romania, Slovenia and Slovakia). In Luxembourg, Romania and Slovakia, this risk classification is driven by the large long-term fiscal sustainability gap (the S2 indicator), reflecting the projected fast increase of ageing costs (in particular, in Luxembourg and Slovakia). In Romania (and to a lesser extent in Slovakia), the deteriorated initial budgetary position also explains this result. In Belgium and Slovenia, the high risk classification reflects a significant fiscal gap to meet the inter-temporal budget constraint combined with debt vulnerabilities (captured by the DSA component). Sixteen countries are deemed to be at medium fiscal sustainability risk over the long term (Bulgaria, Czech Republic, Germany, Ireland, Spain, France, Croatia, Italy, Cyprus, Hungary, Malta, Netherlands, Austria, Portugal, Finland and Sweden). These results are driven in most cases by a significant long term fiscal sustainability gap, fuelled by the projected increase in ageing costs. ([15]) The remaining five Member States (Denmark, Estonia, Latvia, Lithuania and Poland) are classified at low long term risk.

([13]) Moreover, the yield curve variable, which enters the S0 indicator composition, and which has significantly flattened as a result of such interventions, may unduly flag risks. When 'switching-off' such a variable in the S0 indicator, three countries (Belgium, Latvia and Finland) would no longer be deemed to be at short term risk.

([14]) The S1 indicator points to lower risks in some cases (Croatia, Cyprus, Hungary and Austria), although being at borderline values between low/medium risk for Cyprus, Hungary and Austria.

([15]) In some cases (Spain, France, Croatia, Italy, Cyprus and Portugal), the medium term risk classification reflects the DSA risk category.

Sustainability risks have increased compared to last year, owing to the severe crisis and its impact

In general, notwithstanding important uncertainties, the updated projections show much higher levels of debt-to-GDP ratios, and, in spite of the assumed gradual return of the structural balance to the pre-crisis level, less favourable trajectories for the debt ratios over the projection period, compared with the DSM 2019, owing to significantly worse starting budgetary positions and projected medium-term growth. The severe impact of the pandemic on the economy has required a rapid and decisive fiscal policy response to cushion its effect and prevent even deeper scars on the social and economic fabric. In terms of risk classification, most important changes are observed *over the short term* - with now eleven countries at risk of fiscal stress in the upcoming year (2021), while no country was deemed to face such risks in the DSM 2019. *Over the medium term*, seven countries exhibit a downgrading of their risk category (Slovenia and Slovakia – moving to high risk – and Croatia, Cyprus, Hungary, Netherlands and Austria – moving to medium risk). This deterioration is explained by the large increase of debt-to-GDP ratios in 2020 (with ratios having breached the medium risk threshold in some countries), by the (only) gradual assumed reduction of the 2022 (large) primary deficits assumed in the baseline, and by the lower growth of potential GDP over the projection period. *Over the long term*, six countries are deemed to face more acute risks compared to the DSM 2019 (Slovenia and Slovakia – moving to high risk - and Bulgaria, Croatia, Cyprus and Sweden – moving to medium risk). In some countries, this revision reflects the deterioration of the DSA (Slovenia, Croatia and Cyprus). In others, it is driven by unfavourable changes in the initial budgetary position (Bulgaria and Sweden), or by the revision of projected ageing costs (Slovakia). The revision of the long term assumption on interest rates mitigates to some extent the increase of the fiscal sustainability indicators (see Box 4.1). In the case of Italy, it leads to an improvement of the long term risk category (from high to medium risk).

Several additional factors need to be considered in the overall assessment

Beyond the debt projections and the risk classification provided in this report, additional risk factors are analysed and considered in the overall assessment. On the downside, risks are related to the presence of contingent liabilities, notably related to government guarantees to the private sector, which represents a source of additional vulnerability. These contingent liabilities amounted to about 15% of GDP in 2020, with large differences across Member States. Any possible future impact on public debt and deficit crucially depends on the extent these guarantees are taken up by the private sector and the extent they will be called. In the banking sector, risk reduction indicators pointed to further improvement up to mid 2020, in particular, regarding the level of non-performing loans ratios. However, while the crisis is likely to lead to an increase of non-performing loans, the ability of the banking sector to absorb the shock is overall higher than during the global financial crisis. ([16]) Finally, the projections are contingent to the phasing-out of some measures or the financing of some permanent measures until the structural primary balance is brought back to its pre-crisis forecast level.

However, on the upside, there are many factors that contribute to mitigating debt sustainability risks across the EU, notably the lengthening of debt maturities in recent years, relatively stable financing sources (with a diversified and large investors' base), historically low borrowing costs, supported by the ECB's intervention. Moreover, the implementation of the

([16]) See European Commission, ECB and SRB (2020).

reforms and investment under the NGEU/RRF is expected to have a substantial positive and persistent impact on overall EU growth ([17]) in the coming years (not reflected in the current debt sustainability analysis, as the implementation of the RRF is on-going) and this, ceteris paribus, would contribute to influence positively the debt sustainability of Member states by lowering the debt-to-GDP ratio compared to what is presented in this report.

([17]) See European Commission (2020a).

Table 1: **Fiscal sustainability risk classification by Member States (in brackets, risk classification in the DSM 2019 whenever the risk classification has changed)**

	Overall SHORT-TERM risk category	Overall MEDIUM-TERM risk category	S1 indicator - overall risk assessment	Debt sustainability analysis - overall risk assessment	S2 indicator - overall risk assessment	Overall LONG-TERM risk category
BE	HIGH (LOW)	HIGH	HIGH	HIGH	MEDIUM	HIGH
BG	LOW	LOW	LOW	LOW	MEDIUM (LOW)	MEDIUM (LOW)
CZ	LOW	LOW	LOW	LOW	MEDIUM	MEDIUM
DK	LOW	LOW	LOW	LOW	LOW	LOW
DE	LOW	LOW	LOW	LOW	MEDIUM	MEDIUM
EE	LOW	LOW	LOW	LOW	LOW	LOW
IE	LOW	LOW	LOW	LOW	MEDIUM	MEDIUM
ES	HIGH (LOW)	HIGH	HIGH	HIGH	LOW	MEDIUM
FR	HIGH (LOW)	HIGH	HIGH	HIGH	LOW	MEDIUM
HR	HIGH (LOW)	MEDIUM (LOW)	LOW	MEDIUM (LOW)	LOW	MEDIUM (LOW)
IT	HIGH (LOW)	HIGH	HIGH	HIGH	LOW (MEDIUM)	MEDIUM (HIGH)
CY	HIGH (LOW)	MEDIUM (LOW)	LOW	MEDIUM (LOW)	LOW	MEDIUM (LOW)
LV	HIGH (LOW)	LOW	LOW	LOW	LOW	LOW
LT	LOW	LOW	LOW	LOW	LOW	LOW
LU	LOW	LOW	LOW	LOW	HIGH	HIGH
HU	LOW	MEDIUM (LOW)	LOW	MEDIUM (LOW)	MEDIUM	MEDIUM
MT	LOW	LOW	LOW	LOW	MEDIUM	MEDIUM
NL	LOW	MEDIUM (LOW)	MEDIUM (LOW)	MEDIUM (LOW)	MEDIUM	MEDIUM
AT	LOW	MEDIUM (LOW)	LOW	MEDIUM (LOW)	MEDIUM	MEDIUM
PL	LOW	LOW	LOW	LOW	LOW	LOW
PT	HIGH (LOW)	HIGH	MEDIUM	HIGH	LOW	MEDIUM
RO	HIGH (LOW)	HIGH	HIGH	HIGH	HIGH	HIGH
SI	LOW	HIGH (LOW)	MEDIUM (LOW)	HIGH (LOW)	MEDIUM	HIGH (MEDIUM)
SK	HIGH (LOW)	HIGH (LOW)	HIGH (LOW)	HIGH (LOW)	HIGH (MEDIUM)	HIGH (MEDIUM)
FI	HIGH (LOW)	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM
SE	LOW	LOW	LOW	LOW	MEDIUM (LOW)	MEDIUM (LOW)

Source: Commission services.

Table 2: **Final DSA risk classification: detail of the classification**

HIGH RISK	MEDIUM RISK	LOW RISK
Baseline scenario at high risk BE, ES, FR, IT, PT, RO	**Baseline scenario at medium risk** HR, CY, HU, NL, AT, FI	**Baseline scenario at low risk (confirmed by other scenarios)** BG, CZ, DK, DE, EE, IE, LV, LT, LU, MT, PL, SE
Baseline scenario at medium risk (At least one) other scenario at high risk due to: Debt level at high risk: SI, SK		

Source: Commission services

Table 3: **Summary heat map of fiscal sustainability challenges**

	BE	BG	CZ	DK	DE	EE	IE	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 EU countries																										
S0 overall index	0.48	0.35	0.37	0.41	0.37	0.33	0.42	0.50	0.55	0.61	0.48	0.64	0.48	0.37	0.30	0.46	0.29	0.39	0.40	0.45	0.61	0.49	0.43	0.54	0.49	0.32
Overall SHORT-TERM risk category	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	LOW	HIGH	HIGH	LOW
Heat map for medium-term risks in EU countries																										
S1 indicator in the EU countries																										
S1 indicator - Baseline scenario	4.3	-3.1	-0.9	-4.2	-1.1	-2.9	-1.8	7.7	4.4	-1.5	9.2	-0.6	-1.8	-1.0	-3.9	-0.3	-3.5	0.1	-0.3	-1.6	2.0	14.8	1.6	3.2	0.9	-3.1
S1 indicator - overall risk category	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	MEDIUM	LOW	LOW	MEDIUM	HIGH	MEDIUM	HIGH	MEDIUM	LOW
Sovereign-debt sustainability risks in EU countries																										
Baseline scenario	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	MEDIUM	MEDIUM	MEDIUM	LOW
Debt level (2031)	121.2	23.0	43.1	24.7	57.1	31.7	48.3	140.6	119.9	76.8	155.8	82.6	45.3	42.9	17.9	64.0	43.3	63.5	76.3	46.4	107.6	126.8	79.1	84.2	70.5	30.6
Debt peak year	2027	2021	2026	2020	2020	2027	2021	2030	2026	2020	2024	2020	2026	2021	2022	2020	2021	2025	2024	2021	2020	2031	2026	2030	2024	2021
Average Structural Primary Balance (2022-2031) Percentile rank	77%	49%	66%	42%	52%	77%	43%	90%	82%	50%	57%	35%	68%	61%	33%	55%	44%	63%	57%	64%	27%	100%	79%	90%	71%	57%
Historical SPB scenario	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	MEDIUM	MEDIUM	LOW	LOW
Debt level (2031)	109.6	23.4	46.7	16.0	50.1	31.1	63.7	128.1	119.6	89.7	145.8	83.3	50.9	48.7	13.0	69.0	45.8	60.8	73.6	54.5	123.2	95.8	78.0	79.2	58.2	20.8
Debt peak year	2025	2023	2031	2020	2020	2026	2021	2026	2026	2030	2024	2020	2031	2021	2022	2020	2021	2025	2024	2021	2020	2031	2025	2031	2024	2021
Average Structural Primary Balance (2022-2031) Percentile rank	67%	56%	73%	26%	44%	80%	75%	82%	83%	71%	41%	39%	77%	73%	24%	66%	57%	64%	62%	77%	60%	97%	82%	90%	55%	37%
Negative shock (-0.5p.p.) on nominal GDP growth	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	HIGH	HIGH	MEDIUM	LOW
Debt level (2031)	127.4	24.2	45.2	26.3	60.0	32.9	51.0	147.3	125.9	81.3	164.2	87.5	47.6	44.9	18.9	67.5	45.8	66.8	80.5	48.7	114.1	131.5	83.0	88.0	74.0	32.2
Debt peak year	2028	2023	2027	2020	2020	2028	2022	2030	2027	2026	2031	2020	2026	2021	2022	2021	2021	2026	2025	2021	2020	2031	2027	2030	2025	2021
Positive shock (+1p.p.) to the short- and long-term interest rates on newly issued	HIGH	LOW	LOW	LOW	MEDIUM	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	HIGH	HIGH	MEDIUM	LOW
Debt level (2031)	127.9	24.2	46.1	26.6	61.5	33.8	51.3	149.1	127.3	82.0	166.3	87.4	48.2	45.8	18.9	68.9	46.6	67.9	81.0	49.1	113.8	134.4	84.1	89.0	74.4	32.4
Debt peak year	2029	2023	2027	2020	2020	2028	2022	2031	2027	2020	2031	2020	2026	2021	2022	2021	2021	2026	2025	2021	2020	2031	2027	2031	2025	2021
Lower SPB scenario (equal to 50% of the pre-crisis forecast SPB)	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW
Debt level (2031)	122.4	24.4	43.5	27.4	59.2	32.8	51.1	142.4	123.9	79.5	156.3	87.8	46.2	43.8	22.8	66.4	47.5	64.6	78.9	47.5	114.4	135.7	80.2	85.6	73.4	31.2
Debt peak year	2028	2021	2026	2020	2020	2028	2021	2030	2027	2020	2024	2020	2026	2021	2022	2020	2021	2026	2025	2021	2020	2031	2026	2030	2025	2021
Stochastic projections	HIGH	MEDIUM	MEDIUM	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	MEDIUM	LOW	LOW	MEDIUM	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	LOW
Probability of debt in 2025 greater than in 2020 (%)	71%	49%	80%	11%	30%	100%	44%	95%	93%	43%	52%	23%	56%	50%	44%	46%	62%	94%	60%	39%	24%	100%	60%	91%	71%	36%
Difference of the 10th and 90th percentile in 2025 (p.p. of GDP)	30.3	51.9	23.7	17.1	16.4	10.1	27.9	25.5	16.3	34.0	30.9	43.9	31.7	30.3	21.4	37.4	25.8	16.2	27.5	17.2	38.2	43.6	27.0	31.6	19.9	11.7
Debt sustainability analysis - overall risk category	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	HIGH	HIGH	MEDIUM	LOW
Overall MEDIUM-TERM risk category	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	HIGH	HIGH	MEDIUM	LOW
Heat map for long-term risks in EU countries																										
S2 indicator - Baseline scenario	3.7	2.5	4.8	1.0	2.1	0.7	2.4	0.2	-1.1	-2.1	1.1	0.2	-0.3	0.3	10.7	3.3	4.6	3.3	2.4	1.6	-1.5	6.5	3.4	7.7	3.2	2.9
Debt sustainability analysis - overall risk category	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	HIGH	HIGH	MEDIUM	LOW
Overall LONG-TERM risk category	HIGH	MEDIUM	MEDIUM	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	LOW	HIGH	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	MEDIUM	HIGH	HIGH	HIGH	MEDIUM	MEDIUM

Source: Commission services.

1. INTRODUCTION

1.1. THE COMMISSION FISCAL SUSTAINABILITY ANALYSIS FRAMEWORK

Monitoring debt sustainability risks is critical at the current juncture. The COVID-19 pandemic that erupted in 2020 caused an economic crisis across the World, unique in its severity. Based on the Commission Autumn forecast 2020, the EU GDP has diminished by about 7½% last year. In this context, the EU/EA government deficit ratio is estimated to have significantly increased last year (by around 8 pps.) to around 9% of GDP. This deterioration reflects the operation of automatic stabilisers and the necessary sizeable discretionary fiscal measures put in place to cushion households and firms from the negative impact of the COVID-19 pandemic. The deficit ratio is set to ease in 2021 and 2022 (to around 5% of GDP), reflecting the unwinding of pandemic-related emergency measures, as well as the expected rebound in economic activity. Mirroring the spike in deficits, and unfavourable snowball effects, the aggregate government debt-to-GDP ratio rose by around 15 pps. in 2020, reaching respectively 95% and 102% in the EU/EA. It is expected to continue rising by around 1-2 pps. cumulatively over 2021 and 2022. Hence, the pandemic significantly heightened challenges to debt sustainability, and assessing fiscal sustainability risks appears particularly critical at the current juncture, given also the persistently high uncertainty about the evolution of the pandemic and its economic impact .

This edition of the Debt Sustainability Monitor (DSM) provides an update of fiscal sustainability risks faced by Member States, previously assessed in the 2019 Debt Sustainability Monitor (DSM) ([18]). It offers a snapshot of the situation, based on results from the latest available Commission macroeconomic forecast (Autumn 2020 forecast). The assessment also relies on the Economic Policy Committee (EPC) commonly agreed methodology to project medium-term GDP growth. ([19]) Last, it reflects agreed long-term economic and budgetary projections from the joint European Commission - EPC 2018 Ageing Report. In a limited number of cases, long-term budgetary projections have been updated, to reflect recent pension reforms. ([20]).

A multi-dimensional approach is used to assess and differentiate fiscal sustainability risks in the short, medium and long term. Fiscal sustainability risks faced by Member States are assessed according to the comprehensive horizontal fiscal sustainability framework used in the DSM 2019. This framework brings together in a synthetic way results on debt sustainability analysis (DSA) and fiscal sustainability indicators. It allows gaining a horizontally consistent overview of fiscal sustainability risks across time horizons (short, medium and long term) and across countries, based on a set of transparent criteria. In particular, key results are summarised in an overall summary heat map of fiscal sustainability risks per time dimension. This framework is meant to allow identifying the scale, nature and timing of fiscal sustainability challenges. Such a comprehensive and multidimensional assessment framework is key to design appropriate policy responses.

A wealth of tools and scenarios support the assessment along the different time dimensions. The *short-term dimension* is assessed by the S0 indicator, which allows for an early detection of short-term risks of fiscal stress (within the upcoming year) stemming from the fiscal and / or the macro-financial and competitiveness sides of the economy. Fiscal sustainability challenges over *the medium term* are captured through the joint use of the medium-term fiscal sustainability indicator S1 ([21]) and the debt sustainability analysis (DSA). The latter ensures due consideration to medium-term public debt dynamics (for which the DSA is the reference toolkit). Challenges over *the long term* are identified through the joint use of the

([18]) European Commission (2020a).

([19]) The so-called T+10 methodology commonly agreed with the Output Gap Working Group (OGWG), see Havik et al. (2014).

([20]) This concerns notably Croatia, Romania, Italy and Slovakia. The cut-off date for the preparation of the report was 5 November 2020 (i.e. the date of publication of the Commission Autumn forecast 2020). It does not integrate developments that may have occurred since this date.

([21]) The S1 indicator shows the additional fiscal adjustment effort required (in terms of improvement in the government structural primary balance) over five years to reach the 60% of GDP debt ratio target in fifteen years.

long-term fiscal sustainability indicator S2 ([22]) and the DSA. The joint use of these two tools allows for an identification of long-term challenges deriving from population ageing (mostly through the S2 indicator that is particularly suited to this purpose), while capturing potential vulnerabilities stemming from high debt levels (through the DSA tool). ([23])

Assessing fiscal sustainability is admittedly subject to particularly large uncertainty this year. The current large degree of uncertainty implies that the set of sensitivity tests and alternative scenarios (including stochastic projections), routinely included in the DSM, is particularly relevant this year. *For the DSA*, different deterministic scenarios and stress tests are performed to complement the traditional baseline, including for instance the assumption of reversal to historical averages for fiscal variables, or more stringent economic and financial conditions. Additionally, another scenario assumes a fiscal adjustment path in line with the main provisions of the Stability and Growth Pact. A detailed description of the different scenarios and sensitivity tests performed in this report is provided in Box 1.1. Stochastic projections are an important complement to this analysis, whereby a very large number of shocks are jointly simulated, based on the historical volatility of each economy and correlation of shocks. Furthermore, some alternative calculations – to the baseline - are also computed for the *fiscal sustainability indicators*.

In the same manner, the qualifying additional risk factors considered (either aggravating or mitigating) are of particular importance for the current exercise. Given the current high level of uncertainty and given that the expected positive impact on growth from the implementation of reforms and investments under key EU initiatives (notably the NGEU/RRF) cannot be reflected in the quantitative assessment at this stage, the quantitative results and ensuing risk assessment based on this horizontal framework need, more than ever, to be complemented by consideration of qualifying factors. To this end, a number of additional aggravating and mitigating risk factors are also considered, as a complement to model-based quantitative results (see for example Chapter 5), and inform the overall assessment of debt (fiscal) sustainability challenges. Actually, the importance of such factors – sometimes more qualitative in nature (such as institutional factors) and / or country specific, and a prudent application of judgment to reach a final assessment of sustainability risks is a key feature of the Commission DSA framework since 2014, and is in line with other international institutions' practices.

1.2. NOVELTIES OF THE REPORT

The DSM 2020 brings a few novelties compared to the previous report.

– First, owing to the exceptional crisis circumstances, and the high uncertainty on the economic prospects, a number of adjustments to the standard underlying assumptions have been made, concerning in particular fiscal variables (see Box 1.1). In particular, in the baseline, rather than assuming a constant structural primary balance (SPB) at the last forecast value (as in 2022, which is an exceptionally very negative level, also compared to historical averages), a gradual return to the SPB pre-crisis forecast level is assumed. This adjustment to the standard assumption acknowledges the extraordinary negative impact of the COVID-19 crisis on public finances, which in part carries over to 2021-22, but which can be expected to progressively unwind based on the phasing out of some measures or financing of some permanent ones by the Member States.

– Moreover, as agreed in November 2020 by the EPC / AWG, the long term assumption on interest rates has been revised, to reflect decline of interest rates over the past decades. ([24]) Moreover, the report provides an analysis of the impact of the COVID-19 crisis on medium-term growth (see Box 3.1). It also

([22]) The S2 indicator shows the fiscal adjustment (to the government structural primary balance) required to stabilise the debt ratio over the infinite horizon.

([23]) A thorough description of the Commission multi-dimensional approach can also be found in the Chapter 6 and in annex A9 of the report.

([24]) In particular, long term interest rates are assumed to converge to 2% in real terms for all countries by T+30 (2050) – against 3% previously (see European Commission - EPC (2020)).

tentatively explores the potential expected impact of the EU NGEU/RRF on debt sustainability (see Box 5.1). ([25])

The remainder of the report is organised as follows. Chapter 2 presents the short-term fiscal sustainability analysis. Chapter 3 covers the medium-term fiscal sustainability analysis - including DSA results. Chapter 4 discusses ageing issues and long-term fiscal sustainability analysis. Chapter 5 reviews additional aggravating and mitigating risk factors. Finally, Chapter 6 sums up the main results in an overall assessment of fiscal sustainability risks. Several statistical and methodological annexes are also provided at the end of the report, including statistical country fiches (see Annex A2).

([25]) It should also be noted that the EU averages in the report refer to EU27.

Box 1.1: **Deterministic debt projection scenarios: the main assumptions**

Government debt projections are a stylised set of trajectories a country's government debt may follow in the next 10 years (currently until 2031). Debt projections rely on assumptions about the key macroeconomic, financial and fiscal variables that underpin the debt ratio, with the realism of macro assumptions intrinsically affecting the realism of debt projections themselves. Importantly, the Commission *baseline* debt projections rest to a large extent on assumptions and methodologies agreed with EU Member States represented in different Council formations ([1]). This ensures that the results are comparable across countries and consistent with other EU processes (notably the European Semester and the Stability and Growth Pact (SGP)).

The baseline

The baseline constitutes the starting point for assessing DSA risks and the central scenario around which debt paths for alternative and sensitivity test scenarios are built. The assumptions used in the baseline for the variables entering the debt dynamics ([2]) are detailed below. This round, owing to the exceptional crisis circumstances, some adjustments to the standard underlying assumptions have been made and are described below:

- **Real GDP growth rates** are: i) the European Commission forecasts for the first two years of the projections (until T+2, currently 2022); ii) the so-called EPC / OGWG 'T+10 methodology' projections between T+3 and T+10 ([3]). Actual GDP growth is driven by its potential growth and standard assumption regarding the output gap closure, and affected by any additional fiscal adjustment considered over the projection horizon, according to a standard fiscal multiplier (whereby a 1 pp. of GDP adjustment impacts actual GDP growth by 0.75 pp. in the same year). ([4])
- **Inflation (the GDP deflator)** converges from current country-specific levels to 2% (the ECB target rate) by T+10 ([5]) and it remains constant thereafter.
- The **primary balance** is projected as follows:

  - Owing to the exceptional crisis circumstances, the ***structural primary balance*** (SPB) is generally assumed to gradually return to its pre-crisis forecast for 2021, as estimated in the DSM 2019. The linear adjustment starts from 2023, i.e. the year after the T+2 European Commission Autumn 2020 forecast, and is capped at a maximum of 0.5 pp. of GDP per year ([6]). As a result, while the baseline in previous publications was broadly consistent with a no-policy-change scenario, the current

([1]) Notably the Economic Policy Committee (EPC)'s technical Output gap working group (OGWG) and 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 A6 in this report.

([3]) The estimates of potential GDP growth are based on a production function methodology agreed with the Member States in OGWG (see Havik et al. (2014) for more details).

([4]) In the absence of any additional fiscal adjustment, and in line with the EPC/OGWG methodologies, the output gap is assumed to close after three years, after which actual and potential GDP growth coincide.

([5]) For non-EA countries targeting inflation, national central bank targets are used instead, i.e.: CZ, SE: 2%; PL, RO: 2.5%; HU: 3%. The latter convergence of inflation to its target, compared with the assumption of the DSM 2019, is in line with the latter closure of the output gap over the projection period.

([6]) For countries that over-reached their MTOs pre-crisis, a lower SPB is assumed. For countries that are forecasted to over-reach their MTO in 2022 (based on the Autumn 2020 forecast), the SPB is assumed to remain constant.

(Continued on the next page)

Box (continued)

assumption implies the phasing out of some measures or the financing of some permanent ones. Once the pre-crisis forecast SPB is reached, ***ageing-related expenditures*** (including pension, health-care, long-term care and education) projected in the joint Commission - Council *Ageing Report 2018* ([7]), as well as ***property income*** on government financial and non-financial assets ([8]) are also included.

- 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 (for taxes and expenditure) agreed with the Member States and used in standard EU budgetary surveillance (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 the T+2 forecast.

- **Interest rates** projections assume that:
  - ***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 ([10]); beyond T+10, as of this round, long-term interest rates converge to 2% real by T+30 (4% nominal for most EU countries) and remain constant thereafter. ([11]) The latter assumption is a downward revision compared to the past, consistent with the change introduced in the Ageing Report 2021 ([12]).
  - ***Short-term interest rates*** on new and rolled over debt converge linearly from current values to market-based forward (nominal) rates by T+10 ([13]); beyond T+10, short term rates are assumed to converge to 1% in real terms by T+30 (assuming a yield curve coefficient of 0.5). ([14])
  - ***Implicit interest rates*** are derived endogenously in the debt projection model based on the above assumptions on market interest rates, on the maturity structure of government debt and on projected financing needs ([15]).
- **The exchange rate** for non-EA countries is the European Commission forecast for T+2, with no appreciation or depreciation thereafter.
- The **stock-flow adjustment (SFA)** is set to zero after the forecast.

The impact of EU initiatives, notably of the NGEU/RRF is not reflected in the baseline. This approach is in line with the European Commission Autumn forecast. The impact of the NGEU/RRF is discussed separately in Box 5.1 of this report.

([7]) For countries having reformed their pension systems recently, ageing costs have been updated to the latest projections presented and validated at the EPC. Compared to the DSM 2019, this is the case for Slovakia.

([8]) For details see Annex A8 of the Fiscal Sustainability Report 2015.

([9]) The budget semi-elasticities are those reported in Mourre et al. (2019).

([10]) This approach is similar to that used in the Commission Forecasts.

([11]) 4.5% nominal for Poland and Romania, and 5% nominal for Hungary, given these countries' higher inflation targets.

([12]) For details, see Part I.4 of European Commission – EPC (2020).

([13]) For more details on the new and previous interest rate assumptions, the rationale of the change and the impact on debt ratio projections see Box 3.1 in the DSM 2019.

([14]) This factor of 0.5 reflects the standard slope of the euro area yield curve. It was revised down from 0.83 previously, as a slope of 0.5 better reflects the level observed before the financial crisis, around a period when the euro area output gap was broadly closed (and yields were not affected by unconventional monetary policy measures).

([15]) For a detailed discussion, see Annex A6.

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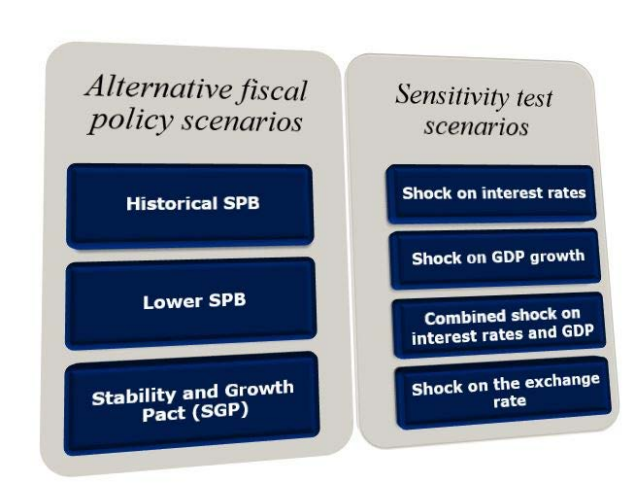
Box (continued)

Map 1: **Deterministic debt projections scenarios: alternative and sensitivity test scenarios**



The factors conditioning a government's debt path are of two main kinds: fiscal policy decisions on one hand, and changes in macroeconomic conditions due to internal policies or external shocks, on the other hand. For an array of options, this report proposes different debt projection scenarios (Figure 1).

Alternative fiscal policy scenarios

Fiscal policy decisions are often an essential driver of the debt path. Several fiscal policy scenarios presented in this report show debt trajectories associated to different policy options in EU countries, being therefore useful for analysis. Among the scenarios described below, those assuming fiscal consolidation (fiscal expansion, respectively) incorporate a feedback effect on GDP growth whereby a 1 pp. of GDP consolidation effort (expansion, respectively) impacts negatively (positively, respectively) baseline GDP growth by 0.75 pp. in the same year) ([16]).

1. **The historical SPB scenario** uses the European Commission forecasts until T+2, after which it assumes that the SPB converges gradually to its historical average (last 15 years) in 4 years.
2. **The lower SPB scenario** assumes that the SPB returns as from the last forecast value (2022) to only half of the level assumed in the baseline.
3. **The Stability and Growth Pact (SGP) scenario** assumes that EU countries comply as from 2023 with the main provisions of the SGP ([17]). In particular, a yearly adjustment of 0.5 pp. of GDP is assumed for countries whose headline deficit is greater than 3% of GDP (until it is brought below this level). Then, it is assumed that EU countries' structural balances converge to the medium term objective (MTO) according to the matrix of required fiscal adjustment ([18]), with an annual adjustment capped at 0.6 pp. of GDP. Once the MTO is reached, the

([16]) Carnot and de Castro (2015).

([17]) To note that, on 20 March 2020, the Commission activated the general escape clause of the Stability and Growth Pact, which allows Member States to undertake budgetary measures to deal adequately with the crisis situation (see European Commission (2020b)).

([18]) European Commission (2019), European Commission (2015), and Council of the European Union, ECOFIN (2015).

(Continued on the next page)

Box (continued)

structural balance is assumed to remain constant in structural terms until the end of the projections (T+10) ([19]).

Sensitivity test scenarios

Albeit significant, discretionary fiscal policy is not the only element susceptible to influence a government's debt trajectory. Exogenous shocks to macro-financial variables may swing the debt ratio off the expected path. To portray the response of a government's debt trajectory to such shocks, a set of sensitivity test scenarios is run around the baseline :

1. ***'Sensitivity tests on short- and long-term interest rates:*** -1p.p./+1p.p. on short- and long-term interest rates on new and rolled over debt over whole projection period, 2021-31).
2. ***'Sensitivity tests on nominal GDP growth:*** -0.5/+0.5 p.p. on nominal GDP growth over the entire projection period, 2021-31.
3. ***Combined adverse / favourable shock on interest rates and nominal GDP growth:*** +1p.p./-1p.p. on short- and long-term interest rates on new and rolled over debt and -0.5/+0.5 p.p. on nominal GDP growth over the entire projection period, 2021-31**.**
4. ***Sensitivity test on nominal exchange rate:*** shock equal to maximum annual change in the country's exchange rate, observed over the last 10 years, applied for first two projection years, after which the baseline assumption prevails.

Additionally to this set of deterministic debt projections, stochastic debt projections are run, whereby 2000 shocks affecting the primary balance, GDP growth, interest rates and the exchange rate, are jointly simulated, based on the historical volatility of each Member State's economy and correlation of shocks (see related section of this report).

([19]) See Annex A8 for a detailed description.

2. SHORT-TERM FISCAL SUSTAINABILITY ANALYSIS

This chapter presents results for the short-term fiscal sustainability analysis. As in the Debt Sustainability Monitor 2019, the short-term fiscal risk classification is based on the Commission early-detection indicator of fiscal stress, the S0 indicator (section 2.1). These results are complemented by a more thorough analysis of short-term government gross financing needs, one component of the S0 indicator that is of particular importance (section 2.2). Finally, this chapter provides an analysis of the ease of (re-)financing government debt, based on different indicators of financial markets' perceptions of sovereign risk (section 2.3).

2.1. SHORT-TERM FISCAL SUSTAINABILITY INDICATOR: THE S0 INDICATOR

2.1.1. The S0 indicator: conceptual elements

The S0 indicator allows an identification of risks of potential fiscal stress in the upcoming year, based on a number of fiscal and structural variables. S0 is more precisely an early - detection indicator of fiscal stress over a one year horizon (Berti et al., 2012). Fiscal stress designates situations ranging from a credit event, a request of large official financing, to an implicit domestic government default (when high inflation) and a loss of market confidence (the latter has been the most common situation of fiscal stress during the global financial crisis in the case of European countries, see Pamies Sumner and Berti, 2017).

The S0 indicator is a composite indicator of fiscal stress stemming from fiscal variables and structural features of the economy. It is based on a wide range of variables that have proven to perform well in the past in detecting situations of upcoming fiscal stress. Thus, unlike the traditional medium- and long-term fiscal sustainability indicators (the S1 and S2 indicators presented in Chapters 3 and 4), the S0 indicator is not a fiscal gap indicator (i.e. it does not quantify the required fiscal adjustment to ensure sustainable public finances over a specific time horizon). The S0 indicator is neither a financial markets' based indicator of sovereign risk (see section 2.3 for an analysis of the latter).

More precisely, the measurement of S0 is based on 25 fiscal and financial-competitiveness variables. Table 2.1 provides the list of the 12 fiscal and 13 financial-competitiveness variables that are used to construct the S0 indicator. Most of the financial-competitiveness variables are also used as part of the scoreboard for the surveillance of macroeconomic imbalances in the context of the Macroeconomic Imbalances Procedure (European Commission, 2016). This reflects the existing rich evidence, also from recent experience in the EU, of the role played by developments in the financial sector and the competitiveness of the economy in generating fiscal risks (Cerovic et al., 2018; Pamies Sumner and Berti, 2017; Bruns and Poghosyan, 2016; Berti et al., 2012).

The S0 indicator is computed based on an empirical method, the so-called signalling approach. This method involves setting out endogenously critical risk thresholds, by analysing the behaviour of a large number of variables ahead of past fiscal stress events. More precisely, these critical thresholds are determined for each individual variable entering the S0 indicator, by minimising the proportion of missed crises and false alarms (or by maximising the 'signalling power'). Then, S0 is computed 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 endogenously derived. The same method applies for the two thematic sub-indices that reflect either the fiscal or the financial-competitiveness sides of the economy. The higher the proportion of individual variables with values at or above their specific threshold, the higher the value of S0 (and the sub-indices). The predictive performance of the S0 indicator fares well compared to other studies (Cerovic et al., 2018).

S0's identification of short-term fiscal risks is threefold. First, S0 is a measure of overall short-term risks to fiscal sustainability. Secondly, the fiscal and financial-competitiveness sub-indices help identifying vulnerabilities coming from one of the two thematic areas, though not necessarily at the aggregate level. Additionally, they also give insights into specific areas for those countries where high values of S0 already flag overall sustainability risks. Finally, individual variables of S0 allow for identifying specific sources of

Table 2.1: **Thresholds and signalling power of S0 indicator, fiscal and financial-competitiveness sub-indices and individual variables**

Variables	safety	threshold	signaling power	type I error	type II error	crisis number	no-crisis number
Balance, % GDP	>	-9.61	0.07	0.04	0.89	44	1080
Primary balance, % GDP	>	0.23	0.13	0.47	0.40	43	1058
Cyclically adjusted balance, % GDP	>	-2.50	0.23	0.52	0.25	40	981
Stabilizing primary balance, % GDP	<	2.34	0.08	0.13	0.79	38	983
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
Short-term debt gen. gov., % GDP	<	13.20	0.20	0.14	0.67	21	430
Net debt, % GDP	<	59.51	0.20	0.18	0.62	26	586
Gross financing need, % GDP	<	15.95	0.26	0.24	0.50	26	621
Interest rate-growth rate differential	<	4.80	0.08	0.11	0.82	38	977
Change in expenditure of gen. government, % GDP	<	1.90	0.11	0.13	0.76	41	1051
Change in final consumption expend. of gen. governm	<	0.61	0.07	0.17	0.76	38	972
Fiscal index	<	0.36	0.28	0.30	0.42	45	1083
L1.net international investment position, % GDP	>	-19.80	0.29	0.47	0.24	25	500
L1.net savings of households, % GDP	>	2.61	0.33	0.42	0.25	28	699
L1.private sector debt, % GDP	<	164.70	0.18	0.22	0.60	20	418
L1.private sector credit flow, % GDP	<	11.70	0.37	0.28	0.35	20	409
L1.short-term debt, non-financial corporations, %	<	15.40	0.20	0.54	0.26	19	403
L1.short-term debt, households, % GDP	<	2.90	0.21	0.52	0.26	19	403
L1.construction, % value added	<	7.46	0.22	0.27	0.51	43	1006
L1.current account, 3-year backward MA, % GDP	>	-2.50	0.34	0.35	0.31	42	983
L1.change (3 years) of real eff. exchange rate, based o	<	9.67	0.11	0.18	0.71	24	460
L1.change (3 years) in nominal unit labour costs	<	7.00	0.18	0.64	0.18	38	967
Yield curve	>	0.59	0.37	0.34	0.29	35	813
Real GDP growth	>	-0.67	0.10	0.09	0.81	48	1124
GDP per capita in PPP, % of US level	>	72.70	0.22	0.44	0.33	51	1129
Financial-competitiveness index	<	0.49	0.55	0.32	0.13	52	1158
Overall index	<	0.46	0.55	0.22	0.23	52	1158

(1) Variable names preceded by L1 are taken in lagged value. (2) The signalling power is defined as (1 - type I error - type II error). See Annex A4 for more details.
Source: Commission services.

vulnerability. Overall, this detailed identification of sources of short-term fiscal risk enables identifying precise areas calling for policy action at the Member State and/or the Union level.

The interpretation of risk assessment results based on the S0 analysis should be made with some caution:

– First, although the framework described above is rather comprehensive, additional dimensions that are relevant for the analysis of short-term sustainability risks are necessarily left aside. For instance, factors of a more qualitative nature or variables for which data availability is limited are not reflected by S0.

– Then, the S0 indicator is based on yearly outturn values of the different variables. This reflects the fiscal stress identification approach underpinning the S0 indicator (whereby the build-up of fiscal and structural imbalances in the past and current years can lead to fiscal stress in the next year). While it allows complementing the traditional forward-looking perspective of the DSA, it can present some limitations in cases where real-time or foreseen developments change rapidly. ([26])

– Last, a high short-term risk signal, as highlighted by S0, does not mean that fiscal stress is inevitable (it is not a prediction), but rather that there are significant vulnerabilities that need to be addressed by appropriate policy responses.

Hence, a broader analysis of country-specific contexts should supplement the interpretation of S0 results.

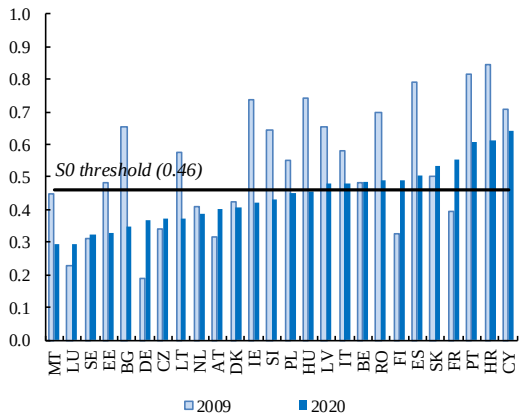
2.1.2. Results of the S0 indicator

As a result of the abrupt and large deterioration of public finances in 2020, short-term risks of fiscal stress are identified in several countries. In 2020, 11 countries had values of S0 above its critical threshold, signalling risk of fiscal stress in the upcoming year. This concerns Cyprus, Croatia, Portugal, France, Slovakia, Spain, Finland,

([26]) For example, the announcement of the NGEU/RRF is deemed to have contributed to mitigate short-term risks, while not being reflected yet in outturn data.

Romania, Belgium, Italy and Latvia (see Graph 2.1). As a comparison, before the Covid-19 crisis, no EU country was deemed to be at short term risk of fiscal stress (as in the Debt Sustainability Monitor 2019).

Graph 2.1: **The S0 indicator for EU countries, 2009 and 2020**

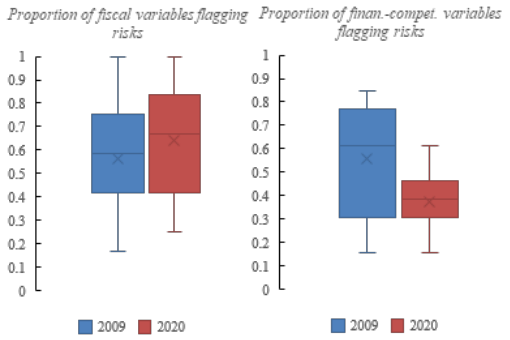


(1) For more methodological explanations, see Berti et al. (2012) and Pamies Sumner and Berti (2017).
Source: Commission services.

Nonetheless, the overall situation appears less critical than during the global financing crisis, notably thanks to sounder private and external positions (with only one country – Cyprus - shown to be at risk along this dimension, see more details below). In 2009, S0 flagged short-term risks of fiscal stress in as many as 17 countries, notably due to macroeconomic imbalances (captured by financial-competitiveness variables, see Graph 2.2). Moreover, the extraordinary monetary policy interventions that took place since March 2020 call for caution when interpreting the results: indeed, the induced 'flattening' of the yield curve coefficient (an important variable entering the S0 calculation) should not necessarily be interpreted as a crisis signal *per se*. ([27]) Importantly, such interventions, together with decisive EU actions in 2020, ([28]) contributed to stabilising sovereign financing conditions, lessening risks of short-term fiscal stress. Specifically, a coherent policy mix committed to support the economy for as long as necessary and avoid a premature withdrawal of fiscal support, also with respect to other large economies, help mitigate risks of short-term fiscal stress.

While there are no signs of a possible risk reassessment by markets, the S0 indicator identifies some vulnerabilities in the short-term, notably in countries with sizeable government financing needs (see more details below and in section 2.2.).

Graph 2.2: **Proportion of variables included in the S0 indicator flagging risks (i.e. above their critical threshold), 2009 versus 2020**



(1) The proportion of fiscal variables flagging risks is based on the 12 fiscal variable included in the S0 indicator; the proportion of financial-competitiveness variables flagging risks is based on the 13 financial-competitiveness variables included in the S0 indicator.
Source: Commission services.

The thematic sub-indices allow identifying significant vulnerabilities on the fiscal side in most countries. In 2020, vulnerabilities are clearly identified on the fiscal side in most Member States (see Graph 2.3), leading to overall deteriorated S0 results. This is due to the necessary and rapid increase of public spending to address the crisis, combined with the contraction of public revenue, induced by the economic crisis in 2020 (see Table 2.2). In some Member States, the weakening of fiscal balances compound existing high level of public debt (e.g. Italy, Portugal, Spain, Belgium, France and Cyprus). As a result, government financing needs are particularly large in some countries, and also represent an important determinant of identified risks (in particular, in Italy, Hungary ([29]), Spain, France and Belgium).

([27]) For example, when 'switching off' this variable in the S0 calculation (implying a re-weighting of other variables), Finland, Belgium and Latvia are not identified anymore at short-term risk of fiscal stress.

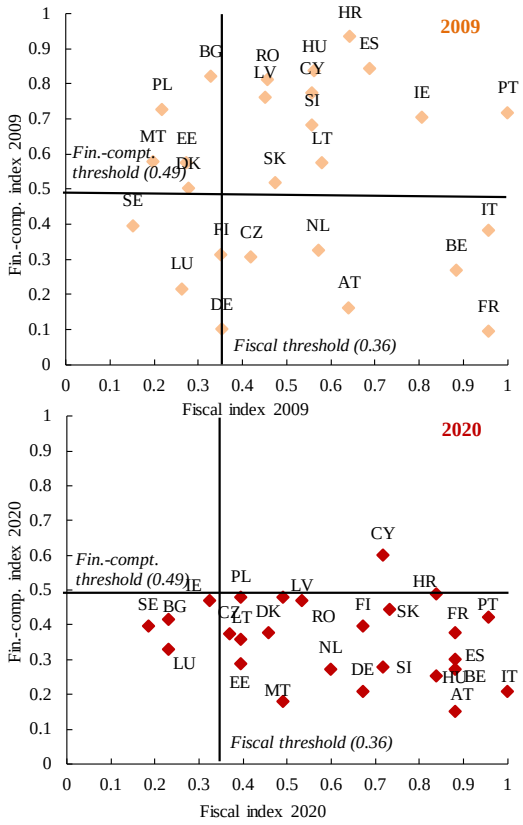
([28]) These include the creation of the SURE, as well as the announcement of the NGEU/RRF, as well as the ESM PCS.

([29]) In Hungary, large financing needs also reflect the relative short average maturity of public debt compared to its European peers.

However, the lengthening of average debt maturities over the past years contributes to mitigate risks of fiscal stress, with a ratio of short-term debt (as % of GDP) above its critical threshold only in few cases (Portugal and Italy). In the same vein, the historically low level of market interest rates helps containing government interest payments and budgetary balances compared with the developments observed during the global financial crisis in several countries.

The thematic sub-indices highlight limited additional vulnerabilities coming from the financial-competitiveness side, except in the case of Cyprus. Indeed, like last year, Cyprus is the only country identified as facing high short-term risks stemming from the macro-financial side of the economy (a financial-competitiveness sub-index above its critical threshold, see Graph 2.3). The current account deficit, the large negative net international investment position, and the negative level of households' saving rate contribute to this result, as well as some financial variables (short-term debt of households and non-financial corporations, as well as the private debt, see Table 2.3). In all other countries, the financial-competitiveness sub-index is below its critical threshold, suggesting sounder private and external positions compared with the situation observed in 2009 (see Graph 2.3).

Graph 2.3: **Fiscal and financial-competitiveness sub-indices, 2009 and 2020**



(1) For more methodological explanations, see Berti et al. (2012) and Pamies Sumner and Berti (2017).
Source: Commission services.

Table 2.2: **Fiscal variables used in the S0 indicator, 2020**

	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 need (% GDP)	Interest growth rate diff. (pps.)	Change expend. gen. govt (% GDP)	Change consumpt. gen. govt (% GDP)
BE	-11.2	-9.2	-6.2	9.3	117.7	19.7	7.5	103.8	26.0	8.8	9.4	2.5
BG	-3.0	-2.4	-2.0	1.4	25.7	5.5	0.0	8.8	5.8	6.5	6.2	2.4
CZ	-6.2	-5.4	-4.0	1.9	37.9	7.6	0.5	27.3	10.6	6.1	7.0	2.2
DK	-4.2	-3.5	-1.2	1.9	45.0	11.7	3.4	14.8	16.2	5.5	7.3	1.8
DE	-6.0	-5.3	-3.2	2.6	71.2	11.5	3.8	54.1	22.0	4.3	7.0	2.2
EE	-5.9	-5.8	-3.9	0.4	17.2	8.8	0.5	9.2	8.5	4.3	6.4	3.0
IE	-6.8	-5.7	-5.3	2.2	63.1	5.7	7.2	58.6	12.4	3.8	6.1	1.9
ES	-12.2	-9.9	-5.5	15.2	120.3	24.8	6.4	106.9	27.8	14.0	11.3	4.4
FR	-10.5	-9.1	-4.8	8.5	115.9	17.8	8.3	110.0	26.5	8.1	7.5	2.5
HR	-6.5	-4.2	-3.8	9.5	86.6	13.8	3.3	60.9	18.6	11.8	8.4	3.3
IT	-10.8	-7.2	-5.1	16.5	159.6	24.9	19.7	148.8	32.7	11.2	10.1	2.8
CY	-6.1	-3.7	-4.7	7.8	112.6	18.5	2.0	47.4	23.5	7.8	7.3	4.7
LV	-7.4	-6.7	-5.5	2.5	47.5	10.6	0.8	35.1	13.0	6.5	7.1	1.6
LT	-8.4	-7.8	-7.6	0.8	47.2	11.3	0.4	42.0	15.4	2.3	9.4	3.0
LU	-5.1	-4.8	-2.1	1.4	25.4	3.4	0.7	-4.8	7.2	6.1	8.6	2.6
HU	-8.4	-5.9	-6.4	3.3	78.0	12.6	7.6	70.4	28.2	4.9	6.7	2.8
MT	-9.4	-8.4	-6.5	4.2	55.2	12.6	5.3	29.6	15.4	9.2	10.3	5.2
NL	-7.2	-6.5	-4.4	2.4	60.0	11.3	4.3	48.1	18.4	4.7	7.3	2.2
AT	-9.6	-8.2	-6.2	5.3	84.2	13.7	3.0	61.0	18.4	7.1	9.1	1.9
PL	-8.8	-7.4	-7.8	1.5	56.6	10.9	0.5	53.5	13.9	3.2	7.6	1.1
PT	-7.3	-4.4	-3.6	12.2	135.1	17.9	20.9	130.3	20.0	9.6	7.4	2.4
RO	-10.3	-8.6	-8.1	2.5	46.7	11.4	1.1	36.6	14.3	7.0	7.3	2.2
SI	-8.7	-7.0	-6.8	5.3	82.2	16.6	2.0	50.2	21.8	7.7	10.5	3.2
SK	-9.6	-8.3	-7.4	3.5	63.4	15.0	0.7	:	16.8	7.0	9.3	4.4
FI	-7.6	-6.9	-5.1	2.4	69.8	10.5	5.5	32.0	18.0	4.0	6.3	2.6
SE	-3.9	-3.5	-1.3	1.0	39.9	4.8	7.3	9.2	10.7	2.8	4.2	1.4
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 2.3: **Financial-competitiveness variables used in the S0 indicator, 2020**

	Yield curve (pps.)	Real GDP growth (%)	GDP per capita PPP (% US level)	L.Net Intern. Inves.t Position (% GDP)	L.Net savings households (% GDP)	L.Private debt (% GDP)	L.Private credit flow (% GDP)	L.Short debt Non-fin. corp. (% GDP)	L.Short debt households (% GDP)	L.Constructi on (% value added)	L.Current account (% GDP)	L.Change real eff. exchange rate (pps.)	L.Change nom. Unit Labour Costs (pps.)
BE	0.3	-8.4	80.5	50.6	3.4	179.1	3.8	30.2	1.5	5.4	0.1	2.5	5.3
BG	0.3	-5.1	38.0	-31.2	:	91.8	5.6	13.0	1.8	4.5	2.5	8.7	19.5
CZ	-1.2	-6.9	64.6	-20.3	3.9	80.8	3.1	14.1	1.0	5.6	0.6	1.4	14.4
DK	-0.1	-3.9	92.7	76.9	1.8	221.2	11.4	39.6	2.6	6.0	8.0	2.0	1.4
DE	-0.2	-5.6	85.4	71.7	6.4	105.4	5.4	13.4	1.7	5.4	7.4	-0.6	7.9
EE	:	-4.6	59.5	-21.4	5.2	97.8	3.8	7.7	0.9	6.4	1.7	1.8	19.9
IE	0.4	-2.3	141.4	-174.0	2.4	202.4	-9.1	23.9	0.8	2.6	-1.6	-2.2	-4.4
ES	0.7	-12.4	59.3	-73.9	1.2	129.4	1.3	8.2	2.6	6.4	2.3	0.3	4.0
FR	0.2	-9.4	71.4	-22.9	5.4	153.3	8.0	25.3	1.4	5.8	-0.7	-1.4	1.3
HR	0.4	-9.6	44.0	-50.3	1.7	91.2	1.7	5.9	2.9	5.7	2.6	3.1	4.7
IT	2.0	-9.9	64.1	-1.5	1.6	106.6	0.2	14.7	2.7	4.3	2.7	0.2	3.2
CY	0.9	-6.2	62.6	-122.3	-2.1	259.1	2.7	20.2	5.6	6.4	-5.2	-2.6	5.2
LV	0.4	-5.6	48.9	-41.7	-1.8	67.1	1.5	6.3	1.2	6.5	0.1	2.3	17.0
LT	0.7	-2.2	60.4	-24.1	0.4	55.1	3.0	3.8	0.8	7.3	1.4	3.7	16.4
LU	-0.1	-4.5	182.5	56.2	5.7	318.7	3.8	89.3	1.8	6.0	4.7	7.0	11.9
HU	1.9	-6.4	52.0	-43.7	3.3	66.6	3.2	11.1	2.3	5.6	0.7	-3.0	10.0
MT	0.7	-7.3	67.1	54.6	:	123.0	8.5	10.7	2.2	4.1	5.1	1.9	8.2
NL	0.0	-5.3	90.1	90.0	4.9	234.0	0.0	36.5	2.0	5.0	10.5	1.1	5.9
AT	0.1	-7.1	87.7	12.1	4.6	120.1	4.5	10.9	2.4	6.8	1.8	-0.6	5.5
PL	0.2	-3.6	52.8	-49.4	-0.9	74.0	3.3	7.6	2.4	7.2	-0.4	4.1	9.2
PT	0.6	-9.3	53.3	-100.3	-1.4	149.2	2.2	15.4	2.3	4.3	0.5	1.9	7.6
RO	1.1	-5.2	49.5	-43.5	-3.4	46.7	2.0	9.9	0.7	7.1	-4.0	3.5	24.5
SI	0.3	-7.1	61.0	-15.4	3.3	68.7	0.8	7.3	1.9	6.0	5.9	0.9	8.4
SK	0.3	-7.5	50.6	-66.3	2.7	91.6	5.0	12.9	1.6	7.6	-2.3	-0.1	14.5
FI	0.2	-4.3	79.0	3.6	0.2	147.5	7.6	15.3	3.8	7.5	-0.9	3.3	0.8
SE	-0.4	-3.4	86.4	18.2	8.0	203.7	9.8	37.4	15.2	6.8	3.3	-4.8	8.1
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	>	>	>	>	>	<	<	<	<	<	>	<	<

(1) Variable names preceded by L are taken in lagged values.
Source: Commission services.

2.2. SHORT-TERM FINANCING NEEDS

Among the S0 fiscal variables, government gross financing needs (GFN) are the strongest predictor of fiscal stress events. This property warrants a closer examination of GFN results, including this variable's definition.

The COVID-19 crisis put GFN at the core of fiscal analysis. The extraordinary fiscal stimulus governments provided to different economic agents in 2020, paired with the need to roll over large amounts of existing debt raised gross financing needs substantially and emphasized the importance of estimating GFN in real time.

2.2.1. Definition and measurement issues

While debt stock indicators capture *solvency* risks, GFN is primarily a flow concept informing mainly ([30]) about the liquidity of government finances in the short to medium term. A given debt stock may be associated to very different schedules of repayment flows and thus financing needs, depending on the specific borrowing terms, such as term-to-maturity structure, amortisation schedules for principal and interest. GFN are usually defined as the flow of payment or financing obligations the government faces to service its debt and cover its budget deficit, if any, over the next period:

GFN = Headline deficit + Debt principal amortisation + SFA

or

GFN = Primary deficit + Interest payments + Debt principal amortisation + SFA **([31])**

([30]) GFN's mixed nature notably in terms of potential adjustments from contingent liabilities' realisations or variation of assets makes it also informative about solvency-related risks.

([31]) To capture additional government balance sheet changes, other net debt-creating flows such as privatisations or bank recapitalisations, which may not be reflected in the primary balance, as well as cash-accrual differences, stock-flow adjustments (SFA) also enter the formula. See also notes to Table 2.4.

GFN may be measured using different data sources and approaches, in both backward- and forward-looking manner. Contrary to government debt, which is an indicator well defined in the EU and measured by national statisticians using harmonised definitions set by Eurostat, GFN is an indicator built for practical or analytical purposes, which falls outside of the scope of government finance statistics ([32]). For outturn data, such as the GFN used under S0, different sources exist to estimate GFN components, among them national statistical institutes (NSIs), national central banks (NCBs), national authorities (ministries), debt management offices (DMOs) or large data providers such as Bloomberg. For forward-looking data, a few institutions provide GFN projections, among them the European Commission and the IMF ([33]).

Therefore, GFN are versatile metrics, useful for a variety of analytical purposes. GFN estimates are a particularly valuable concept in the case of programme countries or more generally in a crisis context, to define accurately the financing requirements and the necessary sources to cover those needs, including when calibrating the size of the programme. They are also useful in regular fiscal surveillance to monitor potential market roll-over risks in the short to medium term.

International institutions and creditors are paying increased attention to GFN in their appraisal of fiscal risks. The same institution may use multiple GFN definitions, depending on the analytical purpose. Different financial instruments may be considered under the universe of GFN. The European Commission, the ECB and the IMF have been using different GFN definitions to monitor different risks ([34]). Experts generally agree that a broader definition of GFN flows, mirroring the components of Maastricht debt stocks, seems appropriate. Such a definition would include currency and deposits, debt securities and loans, but the scope may vary depending on the purpose of the analysis.

([32]) See for example Eurostat, ESA 2010, "Chapter 20 – The government accounts", where no mention is made of this indicator.

([33]) The ESM (Gabriele et al. 2017) and the ECB (2017) also provided outturn estimations.

([34]) See for example the ECB (2017) and the IMF (2019).

In the European Commission's Fiscal Sustainability Reports and Debt Sustainability Monitors, GFN are regularly examined in the short- and medium-term fiscal sustainability sections. For the medium-term, chapter 3.3 shows GFN projections up to T+10.

For the purpose of short-term analysis performed through S0, GFN are gauged more comprehensively this round, just like the medium-term measure, to be able to evaluate all liquidity pressures EU countries are currently facing, (see Table 2.4). Specifically, to reflect all needs that require market financing, short-term GFN are now computed to include the redemption of all loans (official and commercial) reaching maturity, as well as other debt creating net flows (stock-flow adjustments).

Table 2.4: **GFN definition - Components and debt instruments included**

GFN Components	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
Other net debt-creating flows (SFA)		x

(1) In this report, short and medium-term GFN are calculated in the same way, based on the definition previously used for medium-term GFN (see DSM 2019). This formula uses outturn GFN values up to 2019 included and estimations/projections based on the DSM model from 2020 onwards.
(2) Consolidated data.
(3) Stock-flow adjustments (SFA) include other 'below the line' (not affecting the deficit) items that are net debt-creating, such as the net acquisition of financial assets (e.g. accumulation of cash deposits, nationalisation/privatisation, financial sector recapitalisations, participation in a (new) common financial instrument at EU level, buy back of public debt, etc.) and the cash-accrual difference, when the headline balance is considered on an accrual basis.
Source: Commission services.

2.2.2. Short-term GFN values in the context of the COVID-19 crisis

As a result of the COVID-19 crisis, the gross financing needs of all EU governments soared. The important fiscal stimulus and liquidity support governments provided to different economic agents in 2020, paired with the need to roll over large amounts of existing debt and the toll the recession took on growth, substantially amplified their gross financing needs. Specifically, government deficits and in some cases other debt-creating net flows widened following discretionary measures to support firms and households during the pandemic. Such measures included grants to self-employed people and small companies, wage supplements to prevent lay-offs in companies affected by the crisis, support of short-time work schemes, recapitalisation of ailing companies, tax relief and deferrals, among others. Liquidity support may not have impacted fiscal flows immediately (e.g. tax deferrals within the year), but measures such as government guarantees increased implicit or explicit contingent liabilities and may materialise in the future, if some of the agents benefiting from such guarantees do not eventually recover (see Chapter 5, section 5.2).

In 2020-22, government GFN are expected to exceed significantly the levels reached in 2019 and previous forecasts. In the EU/EA, gross financing needs nearly doubled in 2020 compared to 2019. In 2020, GFN are now estimated at some 23.0 / 24.3% of GDP, respectively, against 12.7 / 13.7% of GDP in 2019. According to the latest Commission autumn forecast 2020, liquidity pressures would moderate by some 4-5 pps of GDP in 2021-22. Current forecasts for 2020-21 also show large GFN increases compared to pre-COVID-19 forecasts, illustrative of the crisis' impact. The additional financing needs created by the crisis amount to some 10.3 / 10.5 pps of GDP in 2020 and some 6.6 / 6.7 pps of GDP in 2021 for the EU/EA, respectively (see Table 2.5).

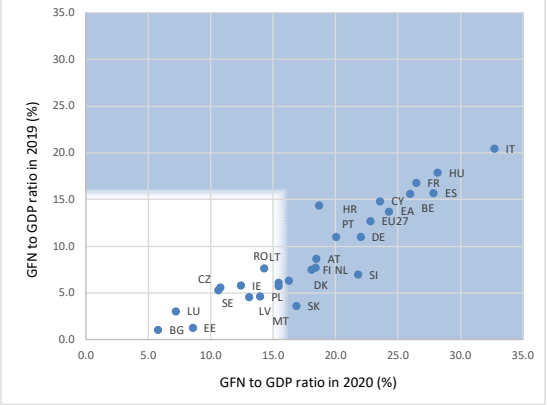
Table 2.5: **Gross Financing Needs (% of GDP), Outturn (2019) and projections (2020-2022), by country**

	GFN (1)				Additional GFN (AF 2020 vs AF 2019)(2)		
	2019	2020	2021	2022	2019	2020	2021
BE	15.6	26.0	21.1	21.5	-0.9	8.6	3.3
DE	11.0	22.0	15.9	15.1	0.8	12.0	6.0
EE	1.2	8.5	6.3	5.5	0.2	8.2	5.9
IE	5.8	12.4	10.1	6.3	-0.6	6.1	1.8
ES	15.7	27.8	25.6	25.7	-1.8	10.1	8.4
FR	16.8	26.5	25.2	23.5	-1.4	8.8	7.3
IT	20.4	32.7	29.0	27.4	-0.8	11.2	6.8
CY	14.8	23.5	9.4	7.4	1.1	18.2	4.2
LV	4.5	13.0	6.1	6.4	-0.3	8.8	3.3
LT	6.1	15.4	11.2	7.0	-0.1	12.8	7.9
LU	3.0	7.2	3.7	3.3	2.5	1.7	2.7
MT	5.7	15.4	14.0	11.0	0.2	10.5	9.6
NL	7.7	18.4	15.6	15.1	0.6	11.0	8.5
AT	8.6	18.4	14.9	12.5	0.9	10.7	7.8
PT	11.0	20.0	15.1	14.7	-2.0	7.1	3.0
SI	6.9	21.8	12.9	12.9	-0.6	14.6	6.3
SK	3.6	16.8	10.3	10.4	0.1	13.0	6.0
FI	7.5	18.0	15.0	13.3	-1.7	8.8	5.3
EA	**13.7**	**24.3**	**20.5**	**19.4**	**-0.3**	**10.5**	**6.7**
BG	1.0	5.8	3.2	2.7	-0.8	4.6	2.3
CZ	5.3	10.6	9.2	9.3	-0.6	4.9	3.8
DK	6.3	16.2	5.1	7.0	0.7	11.7	0.4
HR	14.4	18.6	14.4	15.8	1.9	6.8	3.1
HU	17.8	28.2	23.8	23.2	-2.3	9.0	5.8
PL	4.6	13.9	7.6	7.0	-1.3	8.7	1.9
RO	7.6	14.3	15.5	18.2	-0.4	5.4	4.7
SE	5.6	10.7	9.6	8.5	-0.8	4.6	3.8
EU	**12.7**	**22.8**	**19.0**	**18.0**	**-0.3**	**10.0**	**6.2**
EA (bn EUR)	**1,638.4**	**2,723.3**	**2,428.7**	**2,395.8**	**-24.1**	**1,038.6**	**694.6**

(1) 2020-22 estimates are GFN projections calculated as the sum of the budgetary deficit, amortisation of main debt instruments (securities and loan principal repayments), as well as other debt creating net flows.
(2) Change in GFN estimates between the Commission autumn forecast 2020 and the Commission autumn forecast 2019.
(3) For post-programme surveillance countries (such as IE, CY and PT), figures take into account official loans' repayment schedule
Source: Ameco, ECB, Eurostat, ECFIN desks.

As shown under S0, short-term GFNs are now flashing for most EU countries in 2020 compared to previous years. Concretely, in IT, HU, ES, FR, BE, CY, DE, SI, PT, HR, AT, NL, FI, SK and DK short-term GFN flag risks, with levels above the associated threshold. The highest pressures would range between 32.8% of GDP in Italy and 20% of GDP in Portugal. In Hungary, Italy, France, Spain and Belgium, short-term GFN were also close to or above the threshold in 2019 (see Graph 2.4). Although above the threshold, 2020 financing needs appear more limited as a share of GDP in DK, SK, FI, NL, AT, and HR, where they range between 16.2% and 18.6% of GDP, respectively.

Graph 2.4: **Short-term GFN (% of GDP) vis-a-vis threshold, 2019 and 2020, EU countries**



(1) GFN outturn values for 2019 and 2020 estimates are calculated as per Table 2.4. The threshold of around 16 has been derived based on the signaling approach (see section 2.1). (2) Blue quadrants depict countries where GFN exceeded this threshold in 2019 and /or 2020.
Source: Ameco, ECB, Eurostat, ECFIN desks.

Circumstances differ across the EU, with higher vulnerabilities foreseen in high-debt countries and/or in countries where the budgetary deficit is expected to particularly widen. In several highly indebted countries such as IT, PT, ES, BE, FR, CY, HR and HU, the need to roll over existing debt would make for an important share of GFN in 2020. Additionally, larger deficits call for new debt issuance in virtually all EU countries, constituting an important driver of GFN especially where deficits are particularly sizeable in 2020 (RO, AT, SK, MT, PL, SI, LT, HU, FI, LV, PT, NL, IE, HR, CZ, CY and DE, where deficits range between 10.3% and 6% of GDP; see Table 2.6).

In 2021, financing needs are expected to recede in all EU countries except Romania. GFN would however remain sizeable (above 20% of GDP) in Spain, France, Hungary and Belgium (see Table 2.5).

Table 2.6: **Gross Financing Needs Components (% of GDP), 2020 projections, by country**

	Budget Deficit	Maturing Debt	SFA	GFN
BE	11.2	13.5	1.2	26.0
DE	6.0	12.4	3.7	22.0
EE	5.9	0.1	2.6	8.5
IE	6.8	7.8	-2.1	12.4
ES	12.2	15.8	-0.2	27.8
FR	10.5	15.8	0.2	26.5
IT	10.8	20.7	1.3	32.7
CY	6.1	10.5	7.0	23.5
LV	7.4	4.3	1.4	13.0
LT	8.4	4.4	2.6	15.4
LU	5.1	4.9	-2.8	7.2
MT	9.4	5.9	0.1	15.4
NL	7.2	8.9	2.4	18.4
AT	9.6	8.5	0.3	18.4
PT	7.3	11.3	1.4	20.0
SI	8.7	8.7	4.4	21.8
SK	9.6	4.1	3.2	16.8
FI	7.6	9.1	1.2	18.0
EA	**8.8**	**14.0**	**1.5**	**24.3**
BG	3.0	1.0	1.7	5.8
CZ	6.2	4.2	0.2	10.6
DK	4.2	5.7	6.3	16.2
HR	6.6	13.0	-0.9	18.6
HU	8.4	17.2	2.6	28.2
PL	8.9	3.6	1.5	13.9
RO	10.3	4.0	-0.1	14.3
SE	3.9	6.5	0.3	10.7
EU	**8.4**	**12.8**	**1.6**	**22.8**

(1) See notes to Table 2.5
Source: Ameco, ECB, Eurostat, ECFIN desks.

A close monitoring of financing needs in real time remains key in 2021. At the current juncture, monitoring financing need developments, notably in high debt countries and in countries where the fiscal deficit is fast deteriorating, is key to timely identify potential liquidity pressures and risks of financing gaps. Improved practices such as monitoring fiscal deficits in cash terms, identifying more accurately other debt creating/reducing flows of the stock-flow adjustment (SFA) ([35]), and cooperating with national DMOs to follow more closely debt redemption and issuance plans could significantly improve GFN estimates, in real time.

([35]) See Table 2.1 for an indication of what stock-flow adjustments (SFA) may include.

Despite the severity of the crisis, the ECB's monetary policy actions and EU initiatives have contributed to stabilising sovereign financing conditions. In 2020, euro area governments have issued more than €1 trillion of debt on a net basis. ([36]) In spite of these significant additional financing needs, most governments accessed markets relatively smoothly (see Table 2.7). A number of ECB monetary policy easing measures and notably the ECB Pandemic emergency purchase programme (PEPP), which was devised in addition to the existing Asset purchase programmes (APP), has been successful in preserving favourable financing conditions for the euro area governments. When looking at highly indebted countries, purchases of euro area government bonds through these programmes corresponded to between some 30% of GFN in Belgium, France and Italy, to around 50% in Portugal and nearly 60% in Cyprus in 2020 (see Table 2.7). A continuation of large Eurosystem asset purchases in 2021 should contribute to preserve supportive financing conditions that year (see Table 2.7). Additionally, recent EU initiatives such as the NGEU/RRF should also contribute to favourable financing conditions for EU sovereigns, going forward (see Box 5.1 for a discussion of the expected impacts of the NGEU/RRF).

([36]) See ECB (2020).

Table 2.7: **Government GFN and possible total acquisitions of sovereign bonds by the Eurosystem, 2020 and 2021 estimates, by country**

	2020			2021		
	GFNs, EUR bn	Public sector asset purchases under APP and PEPP, EUR bn	Public sector asset purchases under APP and PEPP, % GFNs 2020	GFNs, EUR bn	Ranges of possible public sector asset purchases under APP and PEPP, EUR bn	Ranges of possible public sector asset purchases under APP and PEPP, % GFNs 2021
BE	115.1	35.7	31.0	99.0	(16.8 - 32.1)	(16.9 - 32.4)
DE	734.5	226.1	30.8	558.2	(121.2 - 232.2)	(21.7 - 41.6)
EE	2.3	0.6	26.9	1.8	(1.3 - 2.5)	(72.4 - 138.7)
IE	43.4	16.0	36.8	37.0	(7.8 - 14.9)	(21.0 - 40.3)
ES	305.6	116.9	38.3	299.8	(54.8 - 105.1)	(18.3 - 35.0)
FR	598.2	185.4	31.0	606.5	(93.9 - 179.9)	(15.5 - 29.7)
IT	534.6	174.0	32.6	497.0	(78.1 - 149.7)	(15.7 - 30.1)
CY	5.0	2.9	58.9	2.1	(1.0 - 1.9)	(47.4 - 90.9)
LV	3.8	1.5	40.7	1.9	(1.8 - 3.4)	(95.9 - 183.8)
LT	7.5	3.3	43.5	5.7	(2.7 - 5.1)	(46.3 - 88.7)
LU	4.4	1.7	38.5	2.4	(1.5 - 2.9)	(64.1 - 122.7)
MT	1.9	0.4	19.4	1.8	(0.5 - 0.9)	(26.5 - 50.7)
NL	143.7	42.5	29.6	126.1	(26.9 - 51.6)	(21.4 - 41.0)
AT	69.4	27.6	39.8	59.6	(13.5 - 25.8)	(22.6 - 43.3)
PT	39.6	20.7	52.2	31.9	(10.8 - 20.6)	(33.7 - 64.6)
SI	10.0	4.2	42.5	6.3	(2.2 - 4.2)	(35.1 - 67.3)
SK	15.1	7.4	48.8	9.7	(5.3 - 10.1)	(54.3 - 104.1)
FI	42.2	14.1	33.4	36.6	(8.4 - 16.2)	(23.1 - 44.2)

(1) Asset purchase programme (APP), Pandemic Emergency Purchase Programme (PEPP).

(2) GFN estimates are calculated as previously specified in this section.

(3) 2020 Eurosystem purchases are outturn data and do not take into account reinvestments. The December 2020 purchases under the PEPP are estimated because the country breakdown was not available.

(4) The total volume of possible asset purchases for 2021 does not include reinvestments. It is estimated based on the following assumptions: (i) asset purchases under the APP will continue at a monthly pace of EUR 20 bn, (ii) asset purchases under PEPP in 2021 are presented as a range of estimates based on the results of a Bloomberg survey of 35 economists, which was published on 15 January 2021. The lower level is based on the minimum expected purchases for 2021 in the survey and implies that the ECB will not spend the entire PEPP envelope. The upper level is based on the maximum expected purchases for 2021 in the survey and implies that the remaining PEPP envelope at the end of December 2020 would be fully used, at a constant monthly average pace, over the period between January 2021 and March 2022.

(5) Computations for possible Eurosystem purchases by country in 2021 also rely on the following additional assumptions: (i) the public sector purchase program (PSPP) would continue to represent 80% of the overall purchases under the APP, in line with the composition of asset purchases in previous years; (ii) public sector securities would account for 90% of purchases under the PEPP; iii) the government bonds and recognised agencies would make up for around 90% of the total pubic sector securities purchases under the APP and the PEPP, while securities issued by international organisations and multilateral development banks would account for the remaining 10%; (iv) the distribution of government bonds purchases is based on the ECB's capital distribution by euro area Member State as of 1 January 2019, including for purchases under the PEPP.

Source: Commission services, based on ECB data.

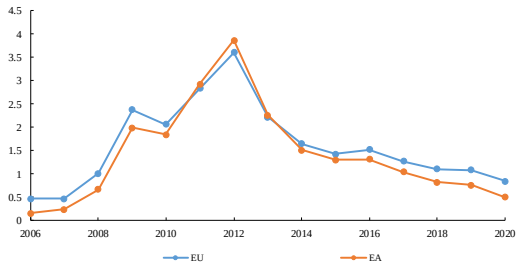
2.3. FINANCIAL MARKETS INFORMATION

This section provides an analysis of the ease of (re-)financing government debt, based on different indicators of financial markets' perceptions of sovereign risk. Such information complements debt projection based DSA results, notably to identify, early on, signs of sustainability risks over the short term. In practice, high frequency financial data allows monitoring emergence of potentially self-reinforcing adverse fiscal sustainability developments ([37]). While assessing the nature of such developments in real-time calls for caution, financial data provide an important source of information to monitor market's perception, a driver of short-term debt dynamics and, potentially, of self-reinforcing debt dynamics.

Sovereign yield conditions have remained benign in the EU. Reflecting perceived creditworthiness but also the low interest rate environment, notably supported by the accommodative monetary policy stance (see section 2.2). Low financing costs continue to contribute to mitigating rollover risks across the EU, which continues to post low sovereign yield spread development (see Chart 2.5). However, some countries face higher financing costs (see Chart 2.6), such as Romania. Other countries, such as Italy, which experienced some financial stress in 2018, have instead recently benefited from a moderation of spreads.

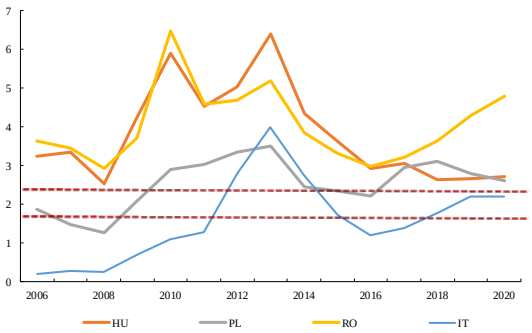
([37]) For discussion of the market expectations on sovereign debt default and risks of self-fulfilling crisis channel, see Calvo (1988). For an application of the EU sovereign crisis event see Miller and Zhang (2014).

Graph 2.5: **10-year government bond yield spreads to the German bund - EU and EA aggregates**



(1) Yield spreads are as of January 2021.
(2) Aggregates represent unweighted averages.
Source: ECB LTIR database, Commission services.

Graph 2.6: **10-year government bond yield spreads to the German bund - Selected countries**



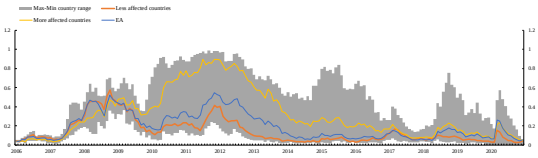
(1) Countries are those whose spreads are (or have recently been) above the lower risk threshold: 184.8 bps. Upper threshold: 231 bps.
Source: ECB LTIR database, Commission services.

The SovCISS indicator ([38]) shows that stress temporarily surged following the onset of the COVID-19 pandemic but is now subdued in euro area sovereign debt markets, while divergence in trends is low according to most recent data. This indicator of systemic stress for euro area sovereign bond markets continues to post a moderate average level and the gap between countries with the lowest and the highest score appears low, notably compared to the degree of divergence seen by the end of 2017 (see Chart 2.7). At the country level, notable developments include a decline in the indicator for Italy

([38]) 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). In the SovCISS, stress symptoms are measured along three dimensions: (i) risk spreads; (ii) yield volatilities; and (iii) bid-ask spreads. For details, see Garcia-de-Andoain and Kremer (2018).

following a peak in October 2018. The increase in the gap between the minimum and the maximum (i.e. the country range) seen during the COVID outbreak was driven by a temporary surge in the indicator in March, which affected countries to a different extent.

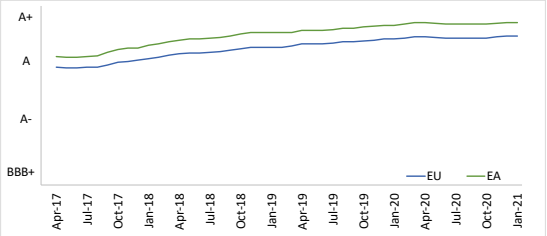
Graph 2.7: **Composite indicator of Systemic Stress (SovCISS) in euro area sovereign bond markets**



(1) The 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: ECB, Commission services.

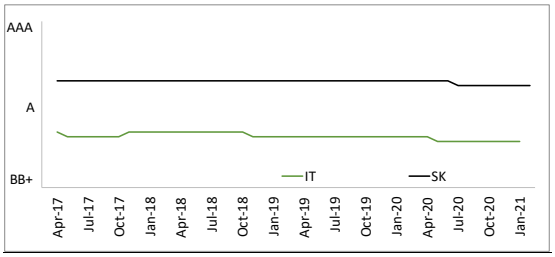
The EU and EA average sovereign ratings are high and have not been adversely affected by the COVID-19 crisis (see Graph 2.8). This reflects stable or improving ratings in most countries, with some exceptions (see Graph 2.9), with Italy and Slovakia posting a recent ratings deterioration (see Graph 2.10 and Table 2.8).

Graph 2.8: **Sovereign debt ratings - EU and EA aggregates**



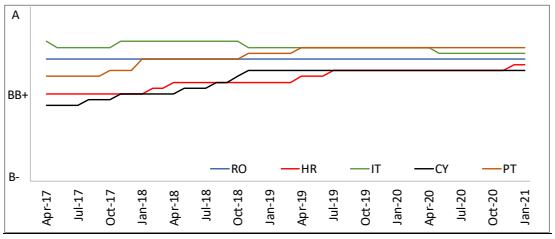
(1) Ratings are computed as simple average (using an alphanumeric conversion table) of long-term foreign currency ratings, assigned by the major rating agencies.
Source: Commission services, based on Bloomberg data.

Graph 2.9: **Countries posting a recent rating deterioration**



(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 Bloomberg data.

Graph 2.10: **Countries with the lowest ratings as of January 2021**



(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 Bloomberg data.

In sum, markets' perception of EU sovereign risks remains overall benign, contributing to favourable short-term debt dynamics. However, a premature withdrawal of fiscal support, also with respect to other large economies, or a departure from the commitment to preserve fiscal sustainability in the medium term may expose the fiscal sustainability risks identified in the short-term for a number of countries.

Table 2.8: **Long-term foreign currency sovereign ratings (at January 1, 2021)**

	Moody's			S&P			Fitch		
	Rating	Since	Outlook	Rating	Since	Outlook	Rating	Since	Outlook
Euro area MS									
AT	Aa1	24-06-2016	STABLE	AA+	13-01-2012	STABLE	AA+	13-02-2015	STABLE
BE	Aa3	16-12-2011	STABLE	Aau	13-01-2012	STABLE	AA-	23-12-2016	NEG
CY	Ba2	27-07-2018	POS	BBB-	14-09-2018	STABLE	BBB-	19-10-2018	STABLE
EE	A1	23-04-2009	STABLE	AA-	13-01-2012	STABLE	AA-	05-10-2018	STABLE
FI	Aa1	03-06-2016	STABLE	AA+	10-10-2014	STABLE	AA+	11-03-2016	STABLE
FR	Aa2u	18-09-2015	STABLE	AAu	08-11-2013	STABLE	AA	12-12-2014	NEG
DE	Aaau	05-07-2000	STABLE	AAAu	13-01-2012	STABLE	AAA	10-08-1994	STABLE
IE	A2	15-09-2017	STABLE	AA-	29-11-2019	STABLE	A+	15-12-2017	STABLE
IT	Baa3u	19-10-2018	STABLE	BBBu	27-10-2017	STABLE	BBB-	28-04-2020	STABLE
LV	A3	13-02-2015	STABLE	A+	21-02-2020	STABLE	A-	20-06-2014	STABLE
LT	A3	08-05-2015	POS	A+	21-02-2020	STABLE	A	31-01-2020	STABLE
LU	Aaa	20-09-1989	STABLE	AAA	13-01-2012	STABLE	AAA	10-08-1994	STABLE
MT	A2	19-07-2019	STABLE	A-	14-10-2016	STABLE	A+	11-08-2017	STABLE
NL	Aaau	20-07-1999	STABLE	AAAu	20-11-2015	STABLE	AAA	10-08-1994	STABLE
PT	Baa3	12-10-2018	POS	BBBu	15-03-2019	STABLE	BBB	15-12-2017	STABLE
SK	A2	13-02-2012	STABLE	A+	31-07-2015	NEG	A	08-05-2020	NEG
SI	A3	02-10-2020	STABLE	AA-	14-06-2019	STABLE	A	19-07-2019	STABLE
ES	Baa1	13-04-2018	STABLE	Au	20-09-2019	NEG	A-	19-01-2018	STABLE
Non-euro area MS									
BG	Baa1	09-10-2020	STABLE	BBB-	29-11-2019	STABLE	BBB	01-12-2017	STABLE
HR	Ba1	13-11-2020	STABLE	BBB-	22-03-2019	STABLE	BBB-	07-06-2019	STABLE
CZ	Aa3	04-10-2019	STABLE	AA-	24-08-2011	STABLE	AA-	03-08-2018	STABLE
DK	Aaau	23-08-1999	STABLE	AAAu	27-02-2001	STABLE	AAA	10-11-2003	STABLE
HU	Baa3	04-11-2016	POS	BBB	15-02-2019	STABLE	BBB	22-02-2019	STABLE
PL	A2	12-11-2002	STABLE	A-	12-10-2018	STABLE	A-	18-01-2007	STABLE
RO	Baa3	06-10-2006	NEG	BBB-	16-05-2014	NEG	BBB-	04-07-2011	NEG
SE	Aaa	04-04-2002	STABLE	AAAu	23-01-2014	STABLE	AAA	08-03-2004	STABLE

Source: Commission services, based on Bloomberg data.

3. MEDIUM-TERM FISCAL SUSTAINABILITY ANALYSIS

The medium-term fiscal sustainability analysis is based on two main tools. It consists, on one hand, of debt sustainability analysis (DSA), which deploys a rich analytical toolkit to identify fiscal risks associated, essentially, to EU countries' debt ratio level and trajectory (see section 3.1). DSA projections cover a period of 10 years. Medium-term gross financing needs' projections are additionally presented (section 3.2). On the other hand, the DSA is complemented by estimates of the fiscal sustainability gap indicator S1, whereby fiscal gaps in EU countries are analysed (see section 3.3). DSA and S1 outcomes matter equally towards the overall assessment of medium-term fiscal risks.

Some specific issues are also explored in this Chapter. In particular, this Chapter contains a Box presenting the drivers of the revision of medium term potential growth (see Box 3.1) and a Box dedicated to the analysis of debt sustainability challenges for Greece (see Box 3.2).

3.1. DEBT SUSTAINABILITY ANALYSIS

The two most important components of the DSA toolkit are the deterministic and the stochastic debt projections (results follow in sections 3.1.1. and 3.1.2). The deterministic projections reflect a single outcome for the debt trajectory following the impact of either policy or pre-determined shock scenarios. The stochastic projections reflect a probabilistic approach, whereby the outcome is a distribution of debt trajectories reflecting the impact on the baseline value of shocks to the debt drivers drawn from their historical probability distribution. Considering alternative and stress test scenarios is particularly important this year, given the high degree of uncertainty linked to the COVID-19 crisis developments, and its impact on economic growth prospects.

3.1.1. Deterministic debt projections

Deterministic government debt projections presented in this report reflect two type of scenarios: policy scenarios, including the baseline and a set of alternative policy scenarios, and sensitivity tests around the baseline ([39]).

Among these projection scenarios, five are more relevant as their results determine the DSA risk classification. These are the baseline, the historical structural primary balance (SPB) scenario (see section 3.1.1.1), as well as three sensitivity tests, including a positive shock to interest rates, a negative shock to GDP growth and a lower SPB scenario (see section 3.1.1.2). These scenarios appear first in this section. The remainder of deterministic debt projection scenarios constitute additional information useful in qualifying DSA risks, yet they do not influence the risk classification. This includes the Stability and Growth Pact scenario (see section 3.1.1.3). Section 3.1.1.4 provides a comparison of the baseline with the DSM 2019 results.

3.1.1.1. Baseline and historical scenarios

EU and EA aggregate results

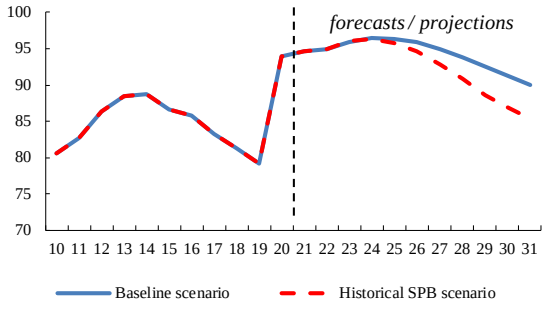
Under the baseline, the EU and EA debt ratio would continue to slightly increase until 2024, before gradually declining by the end of the next decade. On the basis of budgetary positions from the European Commission's Autumn 2020 forecasts, and under the assumed gradual correction of the structural primary balance (SPB) beyond the forecast period, the EU debt ratio would continue to slightly increase and peak at 96.5% of GDP in 2024, before slowly declining to about 90% of GDP by 2031 (see Graph 3.1) ([40]). For the EA, the same scenario shows a similar pattern, the debt ratio would peak at about 104.6% of GDP in 2025, before slowly declining to about 98% of GDP by 2031 (see Graph 3.2). Despite the downward trend, the debt ratio would remain well above its pre-crisis end-2019 level (about 79% and 86% of GDP, respectively, in the EU and the EA)

([39]) See Box 1.1 in Chapter 1 for an overview and definition of the different deterministic scenarios.

([40]) The baseline generally assumes that the government primary balance (in structural terms) gradually converges back to the pre-crisis (2021) forecast value in autumn 2019 (with an annual adjustment by no more than 0.5 pp. of GDP), and remains constant (before ageing costs) for the remainder of the projection period. Costs of ageing are included in the projections as from the year the pre-crisis forecast SPB is reached (see Box 1.1 for more details).

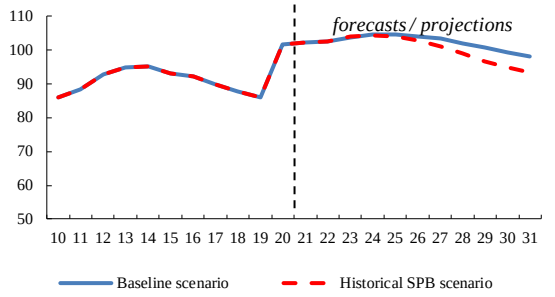
for the next decade, and well above the 60% of GDP Treaty reference threshold.

Graph 3.1: **Gross government debt projections (% of GDP), European Union : baseline and historical scenarios**



Source: Commission services.

Graph 3.2: **Gross government debt projections (% of GDP), Euro area: baseline and historical scenarios**

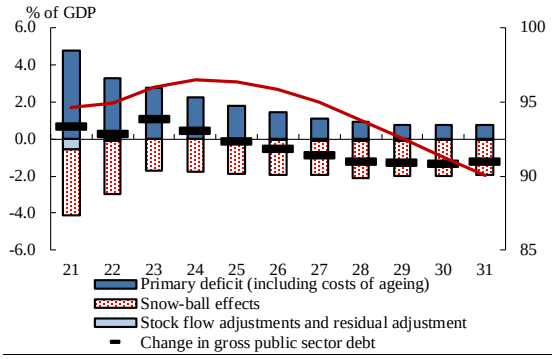


Source: Commission services.

Favourable snowball effects should allow a progressive reduction of the aggregate debt ratio, despite primary deficits ([41]). Under the assumption of a *gradual* adjustment of fiscal positions, the primary balance is expected to remain in deficit over the entire projection period under the baseline. However, favourable interest rate – growth rate differentials (snowball effects) are expected to more than compensate the positive contribution from the primary deficits towards the end of the projection period, and allow a progressive reduction of the debt ratio (see Tables 3.1 – 3.2 and Graphs 3.3 – 3.4).

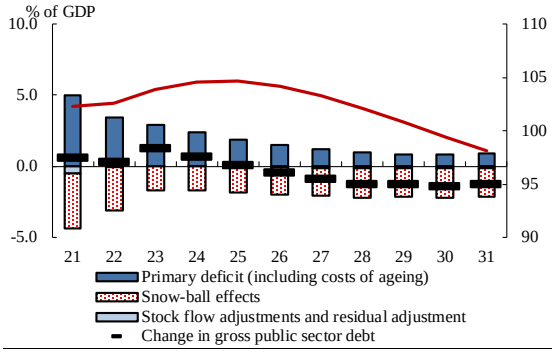
([41]) Snowball effects refer to the net impact of the counter-acting effects of interest rates, inflation and real GDP growth (as well as exchange rates in some countries) on the evolution of the debt ratio (see Annex A6 for more details).

Graph 3.3: **Gross government debt ratio variation breakdown (% of GDP), European Union - Baseline**



(1) Reading note: In 2021, a forecast primary deficit of 4.8% of GDP contributes to increase the government debt ratio.
Source: Commission services.

Graph 3.4: **Gross government debt ratio variation breakdown (% of GDP), Euro area - Baseline**



(1) Reading note: In 2021, a forecast primary deficit of 5% of GDP contributes to increase the government debt ratio.
Source: Commission services.

Table 3.1: **Gross government debt projections (% of GDP) and underlying macro-fiscal assumptions, European Union - Baseline**

	2020	2021	2022	2023	2024	2025	2028	2031
Gross debt ratio	**93.9**	**94.6**	**94.9**	**96.0**	**96.5**	**96.4**	**93.8**	**90.1**
of which Oustanding (non maturing) debt	*68.3*	*72.6*	*73.9*	*75.1*	*76.1*	*76.4*	*75.2*	*72.3*
Rolled-over short-term debt	*7.8*	*8.2*	*8.3*	*8.4*	*8.5*	*8.5*	*8.3*	*7.9*
Rolled-over long-term debt	*7.9*	*8.2*	*8.3*	*8.5*	*8.6*	*8.7*	*8.5*	*8.2*
New short-term debt	*0.9*	*0.5*	*0.4*	*0.3*		*0.2*	*0.1*	*0.1*
New long-term debt	*9.1*	*5.0*	*4.0*	*3.6*	*3.0*	*2.5*	*1.6*	*1.5*
Changes in the debt ratio (-1+2+3)	**14.7**	**0.7**	**0.3**	**1.1**	**0.5**	**-0.1**	**-1.2**	**-1.2**
of which (1) Overall primary balance (1.1+1.2+1.3)	**-6.9**	**-4.8**	**-3.3**	**-2.8**	**-2.2**	**-1.8**	**-0.9**	**-0.8**
(1.1) Structural primary balance (1.1.1-1.1.2+1.1.3)	***-3.3***	***-2.8***	***-2.3***	***-1.9***	***-1.5***	***-1.1***	***-0.6***	***-0.7***
(1.1.1) Structural primary balance (before CoA)	*-3.3*	*-2.8*	*-2.3*	*-1.9*	*-1.4*	*-1.0*	*-0.3*	*-0.1*
(1.1.2) Cost of ageing (incl. revenues pensions tax)				*0.1*	*0.1*	*0.2*	*0.4*	*0.7*
(1.1.3) Property incomes				*0.0*	*0.0*	*0.1*	*0.1*	*0.1*
(1.2) Cyclical component	***-3.6***	***-2.0***	***-1.0***	***-0.9***	***-0.7***	***-0.6***	***-0.3***	***-0.1***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (interest rate/growth differential) (2.1+2.2+2.3)	**5.8**	**-3.5**	**-2.9**	**-1.7**	**-1.7**	**-1.8**	**-2.0**	**-1.9**
(2.1) Interest expenditure	*1.5*	*1.3*	*1.2*	*1.1*	*1.0*	*1.0*	*0.9*	*0.9*
(2.2) Growth effect (real)	*6.1*	*-3.7*	*-2.7*	*-1.4*	*-1.3*	*-1.2*	*-1.2*	*-1.0*
(2.3) Inflation effect	*-1.7*	*-1.1*	*-1.3*	*-1.4*	*-1.5*	*-1.6*	*-1.7*	*-1.8*
(3) Stock flow adjustments	***1.9***	***-0.6***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
PM : Structural balance	***-4.8***	***-4.2***	***-3.5***	***-3.0***	***-2.5***	***-2.1***	***-1.4***	***-1.5***
Key macroeconomic assumptions								
Actual GDP growth (real)	-7.3	4.1	3.0	1.5	1.4	1.3	1.3	1.1
Potential GDP growth (real)	0.8	0.9	1.2	1.2	1.1	1.1	1.0	1.0
Inflation (GDP deflator)	2.1	1.2	1.5	1.5	1.6	1.7	1.9	2.0
Implicit interest rate (nominal)	1.7	1.4	1.3	1.2	1.1	1.0	1.0	1.0

(1) Given that the drivers of the EU28 change in the government debt ratio 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 3.2: **Gross government debt projections (% of GDP) and underlying macro-fiscal assumptions, Euro area - Baseline**

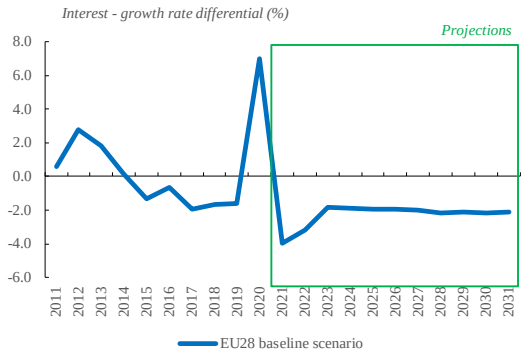
	2020	2021	2022	2023	2024	2025	2028	2031
Gross debt ratio	**101.7**	**102.3**	**102.6**	**103.9**	**104.6**	**104.6**	**102.1**	**98.2**
of which *Oustanding (non maturing) debt*	*74.2*	*78.4*	*79.8*	*81.3*	*82.4*	*82.9*	*81.7*	*78.7*
Rolled-over short-term debt	*8.6*	*9.0*	*9.1*	*9.3*	*9.4*	*9.4*	*9.3*	*8.9*
Rolled-over long-term debt	*8.7*	*9.0*	*9.1*	*9.3*	*9.4*	*9.5*	*9.3*	*9.0*
New short-term debt	*0.9*	*0.5*	*0.4*	*0.4*	*0.3*	*0.3*	*0.2*	*0.2*
New long-term debt	*9.4*	*5.3*	*4.1*	*3.7*	*3.1*	*2.5*	*1.6*	*1.4*
Changes in the debt ratio (-1+2+3)	**15.8**	**0.6**	**0.3**	**1.3**	**0.7**	**0.1**	**-1.2**	**-1.3**
of which (1) Overall primary balance (1.1+1.2+1.3)	**-7.2**	**-5.0**	**-3.4**	**-2.9**	**-2.4**	**-1.9**	**-1.0**	**-0.9**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-3.2***	***-2.9***	***-2.3***	***-2.0***	***-1.6***	***-1.2***	***-0.6***	***-0.8***
(1.1.1) Structural primary balance (before CoA)	*-3.2*	*-2.9*	*-2.3*	*-1.9*	*-1.5*	*-1.0*	*-0.2*	*0.0*
(1.1.2) Cost of ageing (incl. revenues pensions tax)				*0.1*	*0.2*	*0.2*	*0.6*	*0.9*
(1.1.3) Property incomes				*0.0*	*0.0*	*0.1*	*0.1*	*0.1*
(1.2) Cyclical component	***-3.9***	***-2.1***	***-1.1***	***-0.9***	***-0.8***	***-0.7***	***-0.4***	***-0.1***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (interest rate/growth differential) (2.1+2.2+2.3)	**6.8**	**-3.9**	**-3.0**	**-1.7**	**-1.7**	**-1.8**	**-2.1**	**-2.0**
(2.1) Interest expenditure	*1.5*	*1.3*	*1.2*	*1.1*	*1.0*	*0.9*	*0.8*	*0.8*
(2.2) Growth effect (real)	*7.1*	*-4.1*	*-2.9*	*-1.3*	*-1.2*	*-1.1*	*-1.1*	*-0.9*
(2.3) Inflation effect	*-1.8*	*-1.1*	*-1.3*	*-1.4*	*-1.5*	*-1.6*	*-1.8*	*-1.9*
(3) Stock flow adjustments	***1.9***	***-0.5***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
PM : Structural balance	***-4.8***	***-4.3***	***-3.7***	***-3.1***	***-2.6***	***-2.1***	***-1.3***	***-1.4***
Key macroeconomic assumptions								
Actual GDP growth (real)	-7.8	4.2	3.0	1.3	1.2	1.1	1.1	0.9
Potential GDP growth (real)	0.6	0.7	1.1	1.0	1.0	1.0	0.8	0.8
Inflation (GDP deflator)	2.0	1.1	1.3	1.4	1.5	1.5	1.8	2.0
Implicit interest rate (nominal)	1.6	1.3	1.2	1.1	1.0	0.9	0.8	0.8

(1) Given that the drivers of the EA change in the government debt ratio 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.

The structural primary balances (SPB) assumed in the baseline leads to higher debt ratios than what would be implied by historical SPB levels, for both EU and EA aggregates (see Graphs 3.1 – 3.2, and Table 3.3 - Table 3.4)**.** Under the historical SPB scenario, the debt trajectory decreases more than under the baseline (government debt ratio decreasing in both EU and EA by about 9.5 pps of GDP under the historical SPB scenario compared with only about 5 pps. of GDP for EU, and about 4 pps. of GDP for EA, respectively, under the baseline over 2022–2031). Concretely, this means converging to an average structural primary balance of -0.1% / 0.4% of GDP, respectively, for the EU / EA in the historical SPB scenario (averages over the period 2005-19). The gap between the debt ratio under baseline and the historical SPB scenario is found to be slightly higher at the EA aggregate level than for the EU (see Table 3.3).

The favourable snowball effects in the baseline reflect the particularly favourable interest rate – growth rate differential over the next ten years (see also Graph 3.5).

Graph 3.5: **Interest rate - growth rate differential(%), outturn and projected values in the baseline (based on the implicit interest rate)**



Source: Commission services.

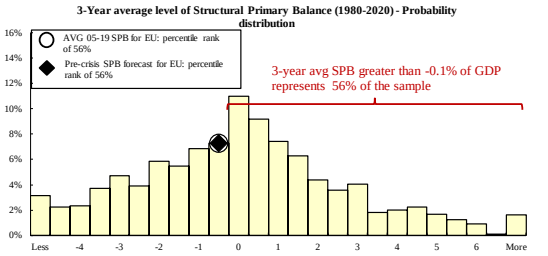
Table 3.3: **Gross government debt projections (% of GDP) - Baseline and historical SPB scenario, by country**

	Debt in 2022	(A) Debt in 2031 - Baseline	(B) Debt in 2031 using the historical last 15 years average (05-19) on the SPB	(B - A)	Year when the pre-crisis SPB forecast is reached
BE	118.6	121.2	109.6	-11.6	2029
BG	26.3	23.0	23.4	0.4	2024
CZ	42.2	43.1	46.7	3.6	2028
DK	40.9	24.7	16.0	-8.8	2022
DE	69.0	57.1	50.1	-7.0	2027
EE	26.4	31.7	31.1	-0.6	2029
IE	66.0	48.3	63.7	15.4	2025
ES	123.9	140.6	128.1	-12.5	2031
FR	119.4	119.9	119.6	-0.3	2027
HR	81.6	76.8	89.7	12.9	2027
IT	159.1	155.8	145.8	-10.0	2025
CY	102.8	82.6	83.3	0.7	2028
LV	45.5	45.3	50.9	5.6	2027
LT	49.5	42.9	48.7	5.8	2024
LU	28.9	17.9	13.0	-4.8	2022
HU	77.2	64.0	69.0	5.1	2028
MT	59.3	43.3	45.8	2.5	2029
NL	65.9	63.5	60.8	-2.7	2028
AT	85.1	76.3	73.6	-2.7	2029
PL	56.4	46.4	54.5	8.1	2025
PT	127.2	107.6	123.2	15.6	2027
RO	63.6	126.8	95.8	-31.0	2032
SI	79.8	79.1	78.0	-1.1	2032
SK	67.6	84.2	79.2	-5.0	2032
FI	72.5	70.5	58.2	-12.2	2025
SE	40.3	30.6	20.8	-9.8	2022
EU	**94.9**	**90.1**	**85.4**	**-4.7**	:
EA	**102.6**	**98.2**	**93.3**	**-4.9**	:

Source: Commission services.

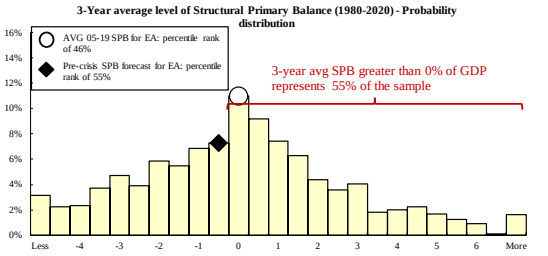
While the aggregate average structural primary balance assumed in the baseline projections between 2022 and 2031 appears weak by historical standards, the *average change* in the SPB seems to fall closer to the middle of the EU distribution of past episodes of fiscal adjustment (see Table 3.4). The average SPB over 2022-31 is lying into a higher quartile than the middle of the distribution of EU primary balances observed in the past, reflecting the persistent impact of the COVID-19 crisis over the medium term. Yet, at both the EU and the EA aggregate levels, the pre-crisis SPB forecast, on which the baseline is grounded, appears overall plausible based on the European historical track record (see Graphs 3.6–3.7). Indeed, the pre-crisis SPB forecast used in the EU / EA projections, at -0.1/ 0% of GDP, corresponds to a percentile rank of 56% and 55%, respectively, in the historical distribution. In other words, looking at all EU / EA countries' structural primary balances over the period 1980 – 2020, outturn structural primary balances were in 55% of cases at or above -0.1/ 0% of GDP. This means that, by historical standards, there is a 55-56% probability that the EU / EA as a whole would achieve such a structural primary deficit over the next decade. However, when looking at the *average change* in SPB, the average fiscal adjustment seems to be slightly less than the middle of the historical distribution (43% probability that the EU / EA as a whole would achieve such a fiscal adjustment), indicating a slightly more ambitious fiscal adjustment than past episodes of fiscal consolidation (see Table 3.4). Nevertheless, this may just illustrate that over the sample period considered (1980-20), there have not been many episodes of significant fiscal adjustment.

Graph 3.6: **EU projected structural primary balance (SPB) level and percentile rank in different scenarios against the distribution of EU countries' outturn SPBs over 1980 – 2020**



(1) The distribution (yellow histograms) is calculated over a dataset of all EU countries for the period 1980 - 2020. Vertical axis: % sample; horizontal axis: SPB values as % GDP.
(2) The pre-crisis SPB forecast for EU is given by the value reached in the year when all EU countries have converged to their pre-crisis SPB forecast.
Source: Commission services.

Graph 3.7: **EA projected structural primary balance (SPB) level and percentile rank in different scenarios against the distribution of EU countries' outturn SPBs over 1980 – 2020**



(1) The distribution (yellow histograms) is calculated over a dataset of all EU countries for the period 1980 - 2020. Vertical axis: % sample; horizontal axis: SPB values as % GDP.
2) The pre-crisis SPB forecast for EA is given by the value reached in the year when all EA countries have converged to their pre-crisis SPB forecast.
Source: Commission services.

Table 3.4: **Main macro-fiscal assumptions used in the baseline and historical scenarios, by country**

	Baseline				Historical SPB scenario - average (2022-31)	*Percentile rank of pre-crisis SPB forecast (1)*	*Percentile rank of avg 2022-31 (2)*	*Percentile rank of avg change 2022-31 (3)*	*Percentile rank of AVG 05-19 SPB (4)*
	2022	The year when the pre-crisis SPB forecast is reached	Average (2022-31)	Average change (2022-31)					
	SPB	SPB (1)	SPB (2)	SPB (3)	SPB (4)				
BE	-3,7	-0,5	-1,8	0,2	-0,8	*63%*	*77%*	*44%*	*44%*
BG	-0,6	0,4	0,2	0,2	0,0	*47%*	*49%*	*44%*	*45%*
CZ	-2,5	0,1	-0,8	0,3	-1,3	*51%*	*66%*	*43%*	*67%*
DK	0,7	0,7	0,7	0,0	1,7	*42%*	*42%*	*47%*	*19%*
DE	-1,3	0,7	0,1	0,3	0,8	*41%*	*52%*	*43%*	*26%*
EE	-3,5	-0,5	-1,7	0,4	-1,8	*62%*	*77%*	*42%*	*70%*
IE	-0,5	0,9	0,6	0,5	-1,6	*38%*	*43%*	*39%*	*76%*
ES	-5,2	-1,0	-3,1	0,3	-2,2	*69%*	*90%*	*43%*	*67%*
FR	-3,7	-1,4	-2,1	0,3	-2,2	*74%*	*82%*	*43%*	*76%*
HR	-1,3	0,9	0,2	0,1	-1,2	*38%*	*50%*	*47%*	*72%*
IT	-1,2	0,1	-0,1	0,2	1,0	*51%*	*57%*	*45%*	*26%*
CY	-0,6	2,0	1,1	0,2	0,9	*22%*	*35%*	*45%*	*29%*
LV	-2,4	-0,3	-0,9	0,2	-1,8	*60%*	*68%*	*45%*	*73%*
LT	-1,2	-0,3	-0,4	0,4	-1,4	*59%*	*61%*	*40%*	*69%*
LU	1,2	1,2	1,2	0,0	1,9	*33%*	*33%*	*48%*	*20%*
HU	-1,7	0,9	0,0	0,3	-0,6	*38%*	*55%*	*43%*	*60%*
MT	-1,3	1,8	0,6	0,4	-0,2	*25%*	*44%*	*40%*	*43%*
NL	-2,3	0,4	-0,5	0,4	-0,6	*46%*	*63%*	*41%*	*46%*
AT	-2,1	1,1	-0,2	0,5	-0,3	*34%*	*57%*	*38%*	*40%*
PL	-1,5	-0,3	-0,6	0,2	-1,9	*60%*	*64%*	*44%*	*76%*
PT	-0,1	2,4	1,6	0,3	-0,1	*19%*	*27%*	*43%*	*60%*
RO	-9,2	-4,6	-7,2	0,3	-4,4	*97%*	*100%*	*43%*	*83%*
SI	-4,1	0,7	-1,9	0,5	-2,2	*42%*	*79%*	*39%*	*72%*
SK	-5,3	-0,8	-3,3	0,5	-3,1	*66%*	*90%*	*39%*	*80%*
FI	-2,1	-0,9	-1,1	0,2	0,0	*68%*	*71%*	*44%*	*33%*
SE	-0,1	-0,1	-0,1	0,1	1,0	*57%*	*57%*	*47%*	*27%*
EU	-2,3	-0,1	-0,8	0,3	-0,5	*56%*	*67%*	*43%*	*46%*
EA	-2,3	0,0	-0,8	0,3	-0,4	*55%*	*67%*	*43%*	*56%*

(1) Percentile ranks are calculated on the distribution of 3-year average SPB level over all EU countries for 1980 – 2020.
Source: Commission services.

Cross-country main results ([42])

The baseline projects a decline in government debt ratios in most EU Member States. Debt ratios are expected to decrease in 17 countries with particularly large reductions foreseen in DK, DE, HU, CY, PT, and IE (ranging from 14 to 30 pps. of GDP between 2020 and 2031). In these 6 countries, the substantial projected decrease of government debt ratios is largely explained by the structural primary surpluses projected over 2022-31 (on average, on balance in DE and HU, about 0.6% of GDP in DK and IE, about 1.1% of GDP in CY, and 1.6% of GDP in PT, respectively) and favourable snowball effects. At the same time, government debt ratios would increase in 9 other countries, namely BE, CZ, EE, ES, FI, NL, FR, RO and SK. In Romania, debt is set to be on a particularly fast-increasing path, raising to above 125% of GDP in 2031, from currently low levels (less than 50% of GDP in 2020). The projected increase is significant also in the case of Spain and Slovakia (about 20 pps. of GDP between 2020 and 2031), reaching about 140% of GDP in 2031 in Spain, and 84% of GDP, respectively, in Slovakia. The increase is much milder in the case of BE, CZ, EE, FI, NL and FR, however, starting from a high level in BE and FR (reaching about 120% of GDP in both countries by 2031) (see Graph 3.8).

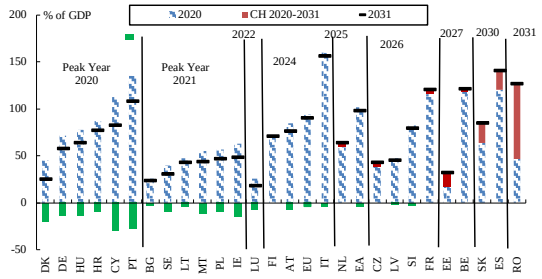
In some highly indebted countries, government debt burdens are therefore projected to only marginally decline or even increase. Under the gradual fiscal adjustment assumed under the baseline, which implies a return to the pre-crisis (2021) fiscal position as expected in autumn 2019, in Spain, Belgium and France, the debt ratio would increase even further in the coming decade compared to 2020, while in Italy government debt would only marginally decrease. Therefore, in these four countries, debt would remain (well) above 90% of GDP in 2031. Weak fiscal positions (a structural primary deficit in France, Spain and Belgium, and a small structural primary surplus in Italy) contribute to these trends. A negative interest rate - growth rate differential (very favourable snowball effects) would however mitigate the debt dynamic in all these countries (Graph 3.9; see also

([42]) See detailed results by country in the fiches presented in the Statistical Annex A2 of this report.

section 3.1.1.2 for an illustration of interest rate shocks).

In two other highly indebted countries, Portugal and Cyprus, debt burden would ease more markedly (by some 28 pps. and 30 pps. of GDP, respectively) by 2031. In Portugal, despite the projected large debt reduction, the debt-to-GDP level will nevertheless remain above 100%, while in Cyprus would just be falling below 90%.

Graph 3.8: **Peak year of gross government debt (% of GDP) over the 2020-2031 projections, under the baseline, by country**



Source: Commission services.

Graph 3.9: **Interest rate - growth rate differentials (%) in the baseline (based on the implicit interest rate), 2020-31 average, selected EU countries**

Source: Commission services.

In several cases, fiscal assumptions, more in line with historical patterns, would lead to a lower debt ratio by the end of the projection period. If the structural primary balance (before ageing costs) were reverting, after 2022, to its historical average, government debt ratios in 2031 would be lower than in the baseline scenario in a large number of countries (15). However, significantly larger debt ratios would be projected in some high debt countries such as Portugal, but also Ireland. The largest negative differentials would be recorded in BE, ES, IT, RO and FI (more than 10 pps. of GDP lower debt), while the largest positive differentials would be recorded in PT and IE (more than 15 pps. of GDP higher debt; see Table 3.3) given the important differences between recent and historical primary balances (see Table 3.4).

Fiscal assumptions under the baseline appear ambitious in some countries and less ambitious in others. Due to the COVID-19 crisis, in all countries, expected fiscal positions in 2022 appear significantly weaker when compared to EU historical experience, within the tails of the distribution. Yet, in several countries, the pre-crisis forecasted structural primary balances, on which the baseline is grounded, may appear high by historical EU standards. This is the case in PT, CY and MT (structural primary surpluses close to or above 2% of GDP) and to a lower extent in AT, IE, HR and HU (structural primary surpluses of about 1% of GDP) - see Table 3.4. In the cases of PT, CY and MT, only around 20-25% of the EU distribution displays a structural primary balance greater than the level assumed for these countries in the baseline scenario (around one third in the case of AT, IE, HR and HU) ([43]). At the same time, within the group of high-debt countries (IT, PT, BE, FR, ES and CY), fiscal positions, as illustrated by the pre-crisis SPB forecast, appear relatively weak in some cases based on EU historical experience (e.g. France, Spain) ([44]). In the case of France and Spain, about 70% of the EU historical distribution is above the -1.4% of GDP and -1% of GDP, respectively, pre-crisis structural primary *deficits* forecasted assumed in the baseline scenario.

However, over the period 2020 to 2031, the average fiscal *adjustment* assumed under the baseline seems to be broadly in line with historical trends for most countries.

([43]) A caveat to keep in mind when considering the percentile rank measures used in this chapter is that while each country's fiscal balance is analysed against the overall distribution of fiscal balances of all EU countries, history may prove that a certain country is more / less able to sustain stronger fiscal positions.

([44]) The relevant historical experience is given in this analysis by the past distribution of observed structural primary balances of all EU peers, which also includes the country-specific historical experience.

Table 3.5: **Sensitivity tests on interest rates (+1 / -1 pp. on short- and long-term interest rates on newly issues and rolled-over debt) around the baseline, by country**

	End forecast (2022)			The year when the pre-crisis forecast SPB is reached			2031							
							Baseline		Standardized (permanent) positive shock (+1p.p.) to market interest rates			Standardized (permanent) negative shock (-1p.p.) to market interest rates		
	SPB	Implicit interest rate	Debt	SPB	Implicit interest rate	Debt	Implicit interest rate	Debt	Implicit interest rate	Debt	*Debt (diff. with Baseline scenario)*	Implicit interest rate	Debt	*Debt (diff. with Baseline scenario)*
BE	-3.7	1.4	118.6	-0.5	0.9	124.3	0.9	121.2	1.6	127.9	6.7	0.1	115.0	-6.2
BG	-0.6	2.7	26.3	0.4	2.4	25.8	1.8	23.0	2.5	24.2	1.2	1.2	21.8	-1.1
CZ	-2.5	1.9	42.2	0.1	1.7	45.3	1.8	43.1	2.7	46.1	3.1	0.9	40.2	-2.8
DK	0.7	1.7	40.9	0.7	1.7	40.9	0.9	24.7	1.6	26.6	1.9	0.2	23.0	-1.8
DE	-1.3	0.8	69.0	0.7	0.2	64.6	0.2	57.1	1.0	61.5	4.4	-0.7	53.1	-4.0
EE	-3.5	0.2	26.4	-0.5	0.4	33.2	0.5	31.7	1.4	33.8	2.1	-0.4	29.8	-1.9
IE	-0.5	1.6	66.0	0.9	1.3	61.0	1.0	48.3	1.7	51.3	3.0	0.3	45.6	-2.7
ES	-5.2	1.7	123.9	-1.0	1.3	140.6	1.3	140.6	2.2	149.1	8.5	0.5	132.6	-7.9
FR	-3.7	0.9	119.4	-1.4	0.6	124.6	0.6	119.9	1.4	127.3	7.3	-0.2	113.2	-6.8
HR	-1.3	2.4	81.6	0.9	1.7	83.6	1.6	76.8	2.4	82.0	5.2	0.8	72.0	-4.8
IT	-1.2	2.0	159.1	0.1	1.9	159.9	2.0	155.8	2.8	166.3	10.5	1.2	146.1	-9.7
CY	-0.6	1.9	102.8	2.0	1.7	92.5	1.8	82.6	2.5	87.4	4.8	1.0	78.1	-4.5
LV	-2.4	1.6	45.5	-0.3	0.9	48.2	0.8	45.3	1.6	48.2	2.9	0.0	42.7	-2.6
LT	-1.2	0.7	49.5	-0.3	0.6	47.4	0.9	42.9	1.7	45.8	2.9	0.0	40.2	-2.7
LU	1.2	1.1	28.9	1.2	1.1	28.9	1.0	17.9	1.5	18.9	1.0	0.6	17.0	-0.9
HU	-1.7	3.2	77.2	0.9	3.1	70.8	3.2	64.0	4.1	68.9	4.9	2.4	59.5	-4.5
MT	-1.3	2.4	59.3	1.8	1.8	49.2	1.8	43.3	2.6	46.6	3.3	1.1	40.3	-3.0
NL	-2.3	0.7	65.9	0.4	0.3	67.8	0.3	63.5	1.1	67.9	4.4	-0.6	59.4	-4.1
AT	-2.1	1.5	85.1	1.1	0.8	81.2	0.8	76.3	1.5	81.0	4.6	0.1	72.0	-4.3
PL	-1.5	2.4	56.4	-0.3	2.2	54.0	1.9	46.4	2.7	49.1	2.8	1.1	43.8	-2.6
PT	-0.1	2.0	127.2	2.4	1.7	119.8	1.6	107.6	2.3	113.8	6.1	1.0	102.0	-5.6
RO	-9.2	4.4	63.6	-4.6	5.1	132.6	5.0	126.8	6.0	134.4	7.7	4.1	119.6	-7.2
SI	-4.1	2.0	79.8	0.7	1.0	76.7	1.0	79.1	1.8	84.1	5.0	0.2	74.4	-4.7
SK	-5.3	1.8	67.6	-0.8	1.1	83.0	1.1	84.2	1.9	89.0	4.8	0.3	79.8	-4.4
FI	-2.1	0.8	72.5	-0.9	0.6	73.8	0.5	70.5	1.2	74.4	3.9	-0.2	66.8	-3.6
SE	-0.1	0.1	40.3	-0.1	0.1	40.3	0.4	30.6	1.1	32.4	1.8	-0.3	28.9	-1.7
EU	**-2.3**	**1.3**	**94.9**	**-0.1**	**1.0**	**89.0**	**1.0**	**90.1**	**1.8**	**95.9**	**5.8**	**0.2**	**84.7**	**-5.4**
EA	**-2.3**	**1.2**	**102.6**	**0.0**	**0.8**	**96.9**	**0.8**	**98.2**	**1.6**	**104.5**	**6.4**	**0.0**	**92.3**	**-5.9**

Source: Commission services.

3.1.1.2. Sensitivity analysis on deterministic debt projections

A set of sensitivity tests around the baseline adds to the information provided in the policy scenarios. These sensitivity tests introduce a change or a shock to key underlying assumptions of the baseline scenario i.e. on market interest rates, economic growth, the primary balance and exchange rates (see Graph 3.10 for example).

Main sensitivity tests

Three sensitivity tests – simulating, respectively, a positive shock to interest rates, a negative shock to GDP growth, and a negative shock to the SPB - are particularly important in the DSA risk classification. These scenarios determine, alongside other factors, a country's level of risk – see Annex A9. The remainder of deterministic debt projection scenarios constitute additional information useful in qualifying DSA risks, but they do not influence the DSA risk classification.

A standard permanent shock on interest rates on newly and rolled-over debt (-1 / +1 pp.) would sizeably affect government debt dynamics by 2031, with some country differences. Such a shock would lead to a difference between the most favourable and the least favourable scenarios of around 11 pps. of GDP in 2030 at the aggregate EU / EA level (see Table 3.5). The impact would be particularly large in highly indebted countries such as IT, ES, FR, BE and PT or in countries with a large debt ratio projected in 2031, such as RO. For instance, 1 pp. permanently higher market interest rates would lead to a much higher debt ratio in Italy by 2031 (around +10.5 pps. of GDP compared to the baseline scenario) and in Spain, France, Belgium and Romania (around +7 to +8 pps. of GDP).

Countries' vulnerabilities to interest rate shocks differ, depending on the maturity of government debt. In some countries, the effect of market interest rate shocks on government debt is amplified by the relatively short maturity of government debt (e.g. HU or HR), implying rapid transmission on the implicit interest rate. Other countries, such as AT and IE, where the average maturity of government debt is particularly high,

Table 3.6: **Sensitivity tests on the nominal GDP growth rate (+0.5 / -0.5 pp.) around the baseline, by country**

	End forecast (2022)			The year when the pre-crisis SPB forecast is reached			Baseline		Standardized (permanent) positive shock (+0.5p.p.) on GDP growth			Standardized (permanent) negative shock (-0.5p.p.) on GDP growth		
	SPB	Actual GDP growth	Debt	SPB	Implicit interest rate	Debt	Actual GDP growth (average 2022-31)	Debt 2031	Actual GDP growth (average 2022-31)	Debt 2031	*Debt (diff. with Baseline scenario)*	Actual GDP growth (average 2022-31)	Debt 2031	*Debt (diff. with Baseline scenario)*
BE	-3.7	3.5	118.6	-0.5	0.9	124.3	1.1	121.2	1.6	115.4	-5.8	0.6	127.4	6.2
BG	-0.6	3.7	26.3	0.4	2.4	25.8	1.7	23.0	2.2	21.8	-1.2	1.2	24.2	1.3
CZ	-2.5	4.5	42.2	0.1	1.7	45.3	2.1	43.1	2.6	41.0	-2.0	1.6	45.2	2.1
DK	0.7	2.4	40.9	0.7	1.7	40.9	1.8	24.7	2.3	23.2	-1.5	1.3	26.3	1.6
DE	-1.3	2.6	69.0	0.7	0.2	64.6	1.1	57.1	1.6	54.1	-3.0	0.6	60.3	3.2
EE	-3.5	3.5	26.4	-0.5	0.4	33.2	3.3	31.7	3.8	30.5	-1.2	2.8	32.9	1.3
IE	-0.5	2.6	66.0	0.9	1.3	61.0	2.8	48.3	3.3	45.8	-2.6	2.3	51.0	2.7
ES	-5.2	4.8	123.9	-1.0	1.3	140.6	1.5	140.6	2.0	134.2	-6.4	1.0	147.3	6.8
FR	-3.7	3.1	119.4	-1.4	0.6	124.6	1.3	119.9	1.8	114.3	-5.6	0.8	125.9	5.9
HR	-1.3	3.7	81.6	0.9	1.7	83.6	0.8	76.8	1.3	72.6	-4.2	0.2	81.3	4.5
IT	-1.2	2.8	159.1	0.1	1.9	159.9	1.2	155.8	1.7	147.8	-8.0	0.7	164.2	8.5
CY	-0.6	3.0	102.8	2.0	1.7	92.5	1.7	82.6	2.2	77.9	-4.7	1.2	87.5	5.0
LV	-2.4	3.5	45.5	-0.3	0.9	48.2	1.8	45.3	2.3	43.2	-2.1	1.3	47.6	2.3
LT	-1.2	2.6	49.5	-0.3	0.6	47.4	2.5	42.9	3.0	40.9	-1.9	2.0	44.9	2.1
LU	1.2	2.7	28.9	1.2	1.1	28.9	2.3	17.9	2.8	17.0	-0.9	1.8	18.9	1.0
HU	-1.7	4.5	77.2	0.9	3.1	70.8	2.5	64.0	3.0	60.6	-3.4	2.0	67.5	3.6
MT	-1.3	6.2	59.3	1.8	1.8	49.2	3.2	43.3	3.7	40.9	-2.4	2.7	45.8	2.5
NL	-2.3	1.9	65.9	0.4	0.3	67.8	0.8	63.5	1.3	60.4	-3.1	0.3	66.8	3.3
AT	-2.1	2.5	85.1	1.1	0.8	81.2	1.1	76.3	1.6	72.4	-3.9	0.6	80.5	4.2
PL	-1.5	3.5	56.4	-0.3	2.2	54.0	3.0	46.4	3.5	44.1	-2.2	2.5	48.7	2.4
PT	-0.1	3.5	127.2	2.4	1.7	119.8	1.0	107.6	1.5	101.5	-6.1	0.5	114.1	6.5
RO	-9.2	3.8	63.6	-4.6	5.1	132.6	2.6	126.8	3.1	122.3	-4.4	2.1	131.5	4.7
SI	-4.1	3.8	79.8	0.7	1.0	76.7	2.4	79.1	2.9	75.4	-3.7	1.9	83.0	3.9
SK	-5.3	4.3	67.6	-0.8	1.1	83.0	1.4	84.2	2.0	80.7	-3.6	0.9	88.0	3.8
FI	-2.1	2.2	72.5	-0.9	0.6	73.8	1.2	70.5	1.7	67.2	-3.3	0.7	74.0	3.5
SE	-0.1	2.4	40.3	-0.1	0.1	40.3	2.0	30.6	2.5	29.1	-1.5	1.5	32.2	1.5
EU	**-2.3**	**3.0**	**94.9**	**-0.1**	**1.0**	**89.0**	**1.4**	**90.1**	**1.9**	**85.6**	**-4.4**	**0.9**	**94.7**	**4.7**
EA	**-2.3**	**3.0**	**102.6**	**0.0**	**0.8**	**96.9**	**1.3**	**98.2**	**1.8**	**93.3**	**-4.8**	**0.8**	**103.3**	**5.1**

Source: Commission services.

seem less exposed to market interest rate shocks, despite similar or higher government debt levels.

Similarly, a permanent shock on nominal GDP growth would have large effects on debt ratios. The gap between the two extreme standard scenarios (-0.5 / +0.5 pp.) would reach 10 pps. of GDP in the EU / EA by 2031, with larger effects in highly indebted countries (e.g. IT, PT, ES, BE, FR, and CY; see Table 3.6). Importantly, a favourable permanent shock on growth, compared to the baseline, would allow a stronger decline of debt to GDP ratios by the end of the horizon, especially in highly indebted countries. ([45])

A mild 'fiscal fatigue' scenario ([46]) would increase the debt ratio compared to the baseline scenario by around 2 ½ pps. of GDP in the EU / EA by 2031 (see Table 3.7). In this case, the negative effect of a looser fiscal position on government debt compared to the baseline scenario would be partly compensated by some positive feedback effects on growth. Larger gaps are found in FR, PT, RO, LU, MT, CY and IT.

Additional sensitivity tests

A dual stress test of a +1/-1 pp. shock on short- and long-term interest rates coupled with, respectively, a -0.5/+0.5 pps. shock on nominal GDP growth for the adverse / favourable scenario shows the largest effects on debt ratios in 2031. When considering such simultaneous changes in economic conditions, the gap between the debt ratios in the two extreme scenarios – adverse combined and favourable combined – would widen to as much as 16 - 18 pps. of GDP in the EU / EA by 2031 (see Graph 3.10). Assuming a more favourable economic outlook, coupled with loser financial conditions would support a stronger downward path for the debt trajectory.

([45]) In this report, medium term potential growth has been significantly revised downward in several countries compared to the DSM 2019 (see Box 3.1). However, there are large uncertainties related to the COVID-19 developments and its impact on medium term economic prospects.

([46]) This scenario assumes lower fiscal adjustment beyond 2022, such that only 50% of the pre-crisis 2021 SPB forecast is reached.

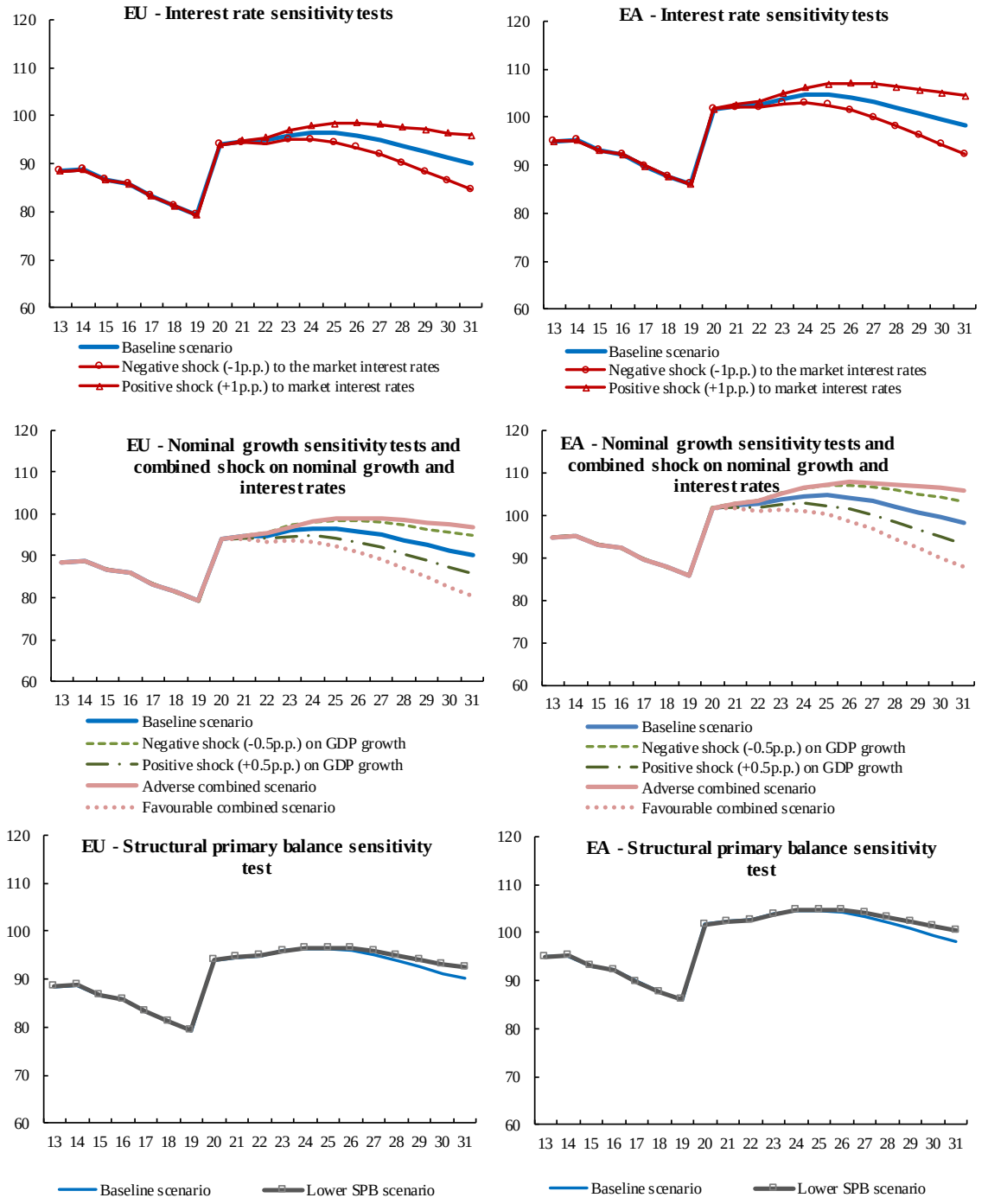
Table 3.7: **Sensitivity test on the structural primary balance around the baseline (lower SPB scenario - only 50% of the pre-crisis SPB forecast is reached), by country**

	SPB 2022	SPB - the year when the pre-crisis forecast is reached	Debt 2022	Debt in the year when the pre-crisis forecast is reached	SPB change 22-the year when the pre-crisis forecast is reached	2031					Year when the pre-crisis forecast SPB is reached
						Baseline		Lower SPB scenario - only 50% of the pre-crisis SPB forecast is reached			
						SPB	Debt	SPB	Debt	*Debt (diff. with Baseline scenario)*	
BE	-3,7	-0,5	118,6	124,3	3,2	-0,5	121,2	-0,8	122,4	1,2	2029
BG	-0,6	0,4	26,3	25,8	1,0	0,4	23,0	0,2	24,4	1,4	2024
CZ	-2,5	0,1	42,2	45,3	2,7	0,1	43,1	0,1	43,5	0,4	2028
DK	0,7	0,7	40,9	40,9	0,0	0,7	24,7	0,3	27,4	2,7	2022
DE	-1,3	0,7	69,0	64,6	2,1	0,7	57,1	0,4	59,2	2,1	2027
EE	-3,5	-0,5	26,4	33,2	3,0	-0,5	31,7	-0,7	32,8	1,1	2029
IE	-0,5	0,9	66,0	61,0	1,4	0,9	48,3	0,4	51,1	2,8	2025
ES	-5,2	-1,0	123,9	140,6	4,2	-1,0	140,6	-1,5	142,4	1,8	2031
FR	-3,7	-1,4	119,4	124,6	2,3	-1,4	119,9	-2,2	123,9	4,0	2027
HR	-1,3	0,9	81,6	83,6	2,2	0,9	76,8	0,4	79,5	2,6	2027
IT	-1,2	0,1	159,1	159,9	1,4	0,1	155,8	0,1	156,3	0,5	2025
CY	-0,6	2,0	102,8	92,5	2,6	2,0	82,6	1,0	87,8	5,2	2028
LV	-2,4	-0,3	45,5	48,2	2,1	-0,3	45,3	-0,5	46,2	0,9	2027
LT	-1,2	-0,3	49,5	47,4	0,9	-0,3	42,9	-0,4	43,8	0,9	2024
LU	1,2	1,2	28,9	28,9	0,0	1,2	17,9	0,6	22,8	4,9	2022
HU	-1,7	0,9	77,2	70,8	2,6	0,9	64,0	0,4	66,4	2,4	2028
MT	-1,3	1,8	59,3	49,2	3,1	1,8	43,3	0,9	47,5	4,2	2029
NL	-2,3	0,4	65,9	67,8	2,8	0,4	63,5	0,2	64,6	1,1	2028
AT	-2,1	1,1	85,1	81,2	3,3	1,1	76,3	0,6	78,9	2,6	2029
PL	-1,5	-0,3	56,4	54,0	1,2	-0,3	46,4	-0,5	47,5	1,1	2025
PT	-0,1	2,4	127,2	119,8	2,4	2,4	107,6	1,2	114,4	6,8	2027
RO	-9,2	-4,6	63,6	132,6	4,6	-5,1	126,8	-7,2	135,7	8,9	2032
SI	-4,1	0,7	79,8	76,7	4,8	0,2	79,1	-0,1	80,2	1,2	2032
SK	-5,3	-0,8	67,6	83,0	4,5	-1,2	84,2	-1,6	85,6	1,4	2032
FI	-2,1	-0,9	72,5	73,8	1,2	-0,9	70,5	-1,4	73,4	2,9	2025
SE	-0,1	-0,1	40,3	40,3	0,0	-0,1	30,6	-0,2	31,2	0,6	2022
EU	**-2,3**	**-0,1**	**94,9**	**89,0**	2,2	**-0,1**	**90,1**	**-0,5**	**92,4**	**2,4**	**:**
EA	**-2,3**	**0,0**	**102,6**	**96,9**	**2,3**	**0,0**	**98,2**	**-0,5**	**100,5**	**2,4**	**:**

(1) This sensitivity test includes a feedback effect from the fiscal balance to growth.
Source: Commission services.

Finally, sensitivity tests on exchange rate fluctuations are presented in the country-specific analysis (see the country fiches in the Statistical Annex A2). As several EU countries issue a non-negligible share of their government debt in a foreign currency (see chapter 5), exchange rate fluctuations may cause some fiscal risks in particular in countries with a floating exchange rate regime. Therefore, a sensitivity shock on the nominal exchange rate is also computed, with substantial effects in a number of countries (see country fiches in the Statistical Annex A2 of this report, and Box 2.2 of the Debt Sustainability Monitor 2016 for more details).

Graph 3.10: **Sensitivity tests around the baseline scenario on interest rates, nominal GDP growth and the structural primary balance, EU and EA (% of GDP)**



Source: Commission services.

Table 3.8: **Gross government debt projections and underlying structural fiscal efforts (% of GDP) under baseline no-fiscal policy change and SGP scenarios, by country**

	End forecast (2022)			Baseline		SGP scenario						
	Structural balance	Structural primary balance	Debt	AVG 22-31 SPB	Debt 2031	Debt 2031	AVG 22-31 SPB (1)	AVG 22-31 SPB percentile rank (1)	AVG 22-31 change in SPB percentile rank (2)	Structural balance 2020	MTO	MTO reached in
BE	-5.3	-0.5	118.6	-1.8	121.2	122.1	-1.7	77%	28%	-6.8	0.0	2032
BG	-1.3	0.4	26.3	0.2	23.0	27.2	-0.5	62%	44%	-2.0	-1.0	2023
CZ	-3.2	0.1	42.2	-0.8	43.1	42.5	-0.8	66%	31%	-4.2	-0.8	2027
DK	0.0	0.7	40.9	0.7	24.7	32.0	0.4	46%	49%	-0.4	-0.5	2022
DE	-1.9	0.7	69.0	0.1	57.1	61.0	-0.5	62%	37%	-3.4	-0.5	2025
EE	-3.6	-0.5	26.4	-1.7	31.7	30.9	-1.6	75%	28%	-4.1	-0.5	2029
IE	-1.5	0.9	66.0	0.6	48.3	50.5	0.1	54%	31%	-5.4	-0.5	2024
ES	-7.2	-1.0	123.9	-3.1	140.6	140.7	-3.1	89%	31%	-6.0	0.0	2036
FR	-4.8	-1.4	119.4	-2.1	119.9	117.8	-1.7	77%	26%	-5.1	-0.4	2031
HR	-3.2	0.9	81.6	0.2	76.8	80.2	-0.1	56%	40%	-4.0	-1.0	2026
IT	-4.3	0.1	159.1	-0.1	155.8	147.4	1.0	36%	24%	-5.8	0.5	2031
CY	-2.5	2.0	102.8	1.1	82.6	82.3	1.0	36%	34%	-4.8	0.0	2027
LV	-3.1	-0.3	45.5	-0.9	45.3	45.8	-1.1	70%	33%	-5.7	-1.0	2027
LT	-1.5	-0.3	49.5	-0.4	42.9	43.1	-0.8	67%	28%	-7.7	-1.0	2025
LU	0.9	1.2	28.9	1.2	17.9	16.3	1.1	34%	42%	-2.2	0.5	2022
HU	-4.0	0.9	77.2	0.0	64.0	63.2	0.1	51%	28%	-6.7	-1.0	2028
MT	-2.6	1.8	59.3	0.6	43.3	46.4	0.1	52%	26%	-6.9	0.0	2028
NL	-2.7	0.4	65.9	-0.5	63.5	65.3	-0.9	67%	31%	-4.6	-0.5	2026
AT	-3.4	1.1	85.1	-0.2	76.3	78.4	-0.6	63%	27%	-6.6	-0.5	2028
PL	-2.8	-0.3	56.4	-0.6	46.4	44.5	-0.4	61%	29%	-8.2	-1.0	2026
PT	-2.6	2.4	127.2	1.6	107.6	108.5	1.4	30%	35%	-3.3	0.0	2027
RO	-11.5	-4.6	63.6	-7.2	126.8	111.1	-5.4	98%	20%	-8.6	-1.0	2042
SI	-5.6	0.7	79.8	-1.9	79.1	81.5	-2.2	82%	26%	-6.9	-0.3	2032
SK	-6.4	-0.8	67.6	-3.3	84.2	84.0	-3.2	90%	24%	-7.8	-1.0	2033
FI	-2.7	-0.9	72.5	-1.1	70.5	65.4	-0.6	64%	30%	-5.3	-0.5	2026
SE	-0.2	-0.1	40.3	-0.1	30.6	32.2	-0.1	56%	44%	-1.4	-1.0	2022
EU	**-3.5**	**-0.1**	**94.9**	**-0.8**	**90.1**	**89.7**	**-0.8**	**67%**	**30%**	**-4.8**	**:**	**:**
EA	**-3.7**	**0.0**	**102.6**	**-0.8**	**98.2**	**97.9**	**-0.8**	**66%**	**30%**	**-4.8**	**:**	**:**

(1) The SGP scenario includes a feedback effect from the fiscal balance to growth.
(2) In a number of countries, debt ratios projected under the SGP scenario are slightly higher than under the baseline. This is mostly the case for countries reaching their MTO during the forecast (2021 or 2022) after which the structural balance is assumed constant until the end of projections. In these cases, debt and interest payment dynamics may result in a higher projected debt path than in the baseline. These cases should not be over- interpreted.
Source: Commission services.

3.1.1.3. Stability and Growth Pact (SGP) scenario

Under the SGP scenario, countries are assumed to adjust their fiscal positions in line with the EU's economic and fiscal co-ordination and surveillance frameworks beyond the short-term forecast. Beyond 2022, a gradual adjustment of fiscal policy is assumed that is consistent with the EU economic and fiscal coordination and surveillance frameworks, including any flexibility applied by the competent EU institutions ([47]) ([48]). In this scenario, changes in fiscal policy are projected beyond the forecast horizon. In particular:

– For countries whose deficit in 2022 is forecasted to be larger than 3% of GDP, fiscal adjustment is assumed as per the corrective arm requirements of the SGP, i.e. yearly adjustment of 0.5 pp. of GDP until the deficit is brought below 3% of GDP.

– For countries whose deficit in 2022 is forecasted to be smaller than 3% of GDP, but that would not be expected to reach their Medium-Term Objective (MTO) in 2022, the fiscal adjustment is included as per the 'matrix of requirements of the preventive arm', until the MTO is reached (considering an yearly adjustment by no more than 0.6 pp. of GDP).

– Last, for countries which are expected to (over-)reach their MTO in 2022, the structural

([47]) See at the following link: http://ec.europa.eu/economy_finance/economic_governance/sgp/pdf/2015-01-13_communication_sgp_flexibility_guidelines_en.pdf.
([48]) The "Commonly agreed position on Flexibility" was endorsed by the ECOFIN Council of 12 February 2016 (Council document number 14345/15, available at http://data.consilium.europa.eu/doc/document/ST-14345-2015-INIT/en/pdf).

primary balance is kept constant at the 2022 forecast value for the rest of the projection period ([49]).

– Moreover, as done in previous reports, this scenario is run by taking into account a feedback effect of fiscal consolidation on GDP growth (a 1 pp. of GDP consolidation effort impacting negatively on baseline GDP growth by 0.75 pps. in the same year ([50])). Due to the slightly different assumptions between the baseline and the SGP scenario, a comparison between both is difficult.

Government debt ratios would decrease in most Member States under the SGP scenario, with a strong decline in certain cases. Particularly large reductions are projected in CY and PT (by more than 25 pps. of GDP by 2031) and non-negligible in countries such as DK, DE, HU, PL, IE and IT (ranging from about 10pps. to 15 pps. of GDP by 2031). For some countries (e.g. ES, SK, NL, CZ, FR, EE, BE and BG), the SGP scenario would only ensure a decline of the debt-to-GDP level late over the projection horizon. In RO, a mere stabilisation is projected.

In only 11 countries government debt will not exceed the Treaty reference value of 60% by 2031. Despite the assumed fiscal consolidation and decreasing debt ratios, government debt burdens would still linger at above 60% of GDP on average in the EA in 2031, close to 150% of GDP in Italy, 140% of GDP in Spain, close or above 120% of GDP in Belgium and France, close or above 100% in Portugal, close or above 80% of GDP in Croatia, Cyprus, Austria, Slovenia and Slovakia These high levels reflect the COVID-19 crisis legacies, and some negative feedback effects on growth in this scenario ([51]).

([49]) The SGP scenario does not take into account the possible further granting of flexibility (on top of the one already granted in the context of the European Semester) to temporarily deviate from the MTO or adjustment path towards it, under the structural reform and / or investment clause. Furthermore, the scenario only mirrors compliance with the adjustment path towards the MTO and does not explicitly incorporate the debt reduction benchmark. Nevertheless, one should keep in mind that in general, though not always, under normal economic circumstances, the convergence to the MTO under the preventive arm tends to ensure compliance with the debt reduction benchmark.

([50]) See Annex A8 for more details on this scenario.

([51]) In a number of countries, debt ratios projected under the SGP scenario are slightly higher than under the baseline. This is mostly the case for countries (over)-reaching their MTO during the forecast (2021 or 2022) after which the structural balance is assumed constant until the end of projections. In these cases, debt and interest payment dynamics may result in a higher projected debt path than in the baseline. These cases should not be over-interpreted.

Table 3.9: **Comparison of the Debt Sustainability Monitor (DSM) 2020 with the Debt Sustainability Monitor (DSM) 2019 (each based on the respective Autumn forecasts), baseline (all variables in differences between DSM 2020 - DSM 2019)**

	End forecast (t+2)			Baseline scenario Debt		
	Structural balance	Structural primary balance	Debt	t+3	t+5	End projection
BE	-3.5	-0.9	19.9	21.1	27.9	21.3
BG	-1.6	-0.5	6.7	8.1	9.2	10.6
CZ	-3.5	-0.8	11.0	12.6	18.2	17.3
DK	-0.8	-1.1	10.4	12.2	11.7	13.9
DE	-3.0	-1.2	15.3	18.3	22.2	19.8
EE	-2.7	0.4	19.0	19.3	25.1	22.1
IE	-1.2	-0.1	10.0	12.8	11.7	1.6
ES	-4.0	0.0	28.5	28.1	36.7	33.3
FR	-2.6	-1.1	22.2	22.6	27.6	20.2
HR	-2.1	-0.2	13.4	14.9	18.4	12.5
IT	-0.8	-0.3	28.0	27.3	26.0	9.3
CY	-3.2	-0.9	11.8	15.9	18.4	20.7
LV	-1.9	0.1	9.8	10.8	14.7	10.3
LT	-1.1	-0.6	11.9	13.7	12.4	9.5
LU	0.1	0.1	8.3	10.0	8.8	9.0
HU	-1.0	1.5	8.6	9.6	7.9	-4.8
MT	-3.5	-0.4	17.2	20.4	25.4	25.5
NL	-2.7	-0.1	19.1	20.9	26.6	25.3
AT	-3.2	-0.1	17.3	19.9	26.2	25.1
PL	-1.0	0.1	9.0	10.1	8.1	-1.7
PT	-1.6	0.1	10.4	12.6	12.6	0.9
RO	-6.9	-1.6	25.4	23.2	43.2	65.2
SI	-4.6	0.1	17.2	20.2	28.8	25.5
SK	-5.8	-1.2	23.4	25.4	39.0	52.3
FI	-2.0	-1.1	15.0	16.3	18.7	15.4
SE	-1.2	-1.4	6.8	8.9	9.9	15.0
EU	**-2.5**	**-0.8**	**17.3**	**18.9**	**22.6**	**18.2**
EA	**-2.6**	**-0.7**	**19.8**	**21.4**	**25.5**	**20.0**

Source: Commission services.

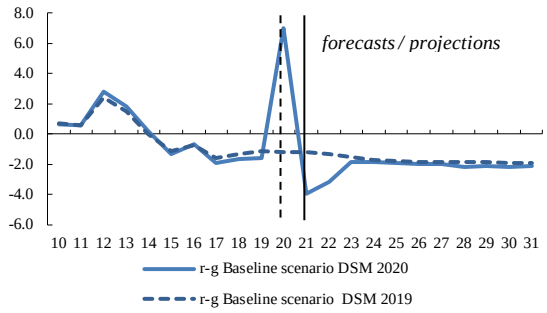
3.1.1.4. Baseline results comparison with the DSM 2019

This round of projections shows a significantly more unfavourable fiscal outlook compared to the Debt Sustainability Monitor (DSM) 2019, reflecting the impact of the crisis and the necessary fiscal response taken. In the short-term, the structural primary balance at the end of the forecast period reflecting the impact of the COVID-19 crisis, exhibits much larger overall deficits with this Autumn 2020 Commission forecast compared to the previous round (difference of -1.5 pp. and -1.7 pp. of GDP at the EU and EA level, respectively, see Table 3.9). Such worsening of the fiscal position (in all countries, except LU) is expected to be particularly significant in RO, SK and SI (between -3.6 and -3.8 pps. of GDP difference), but also non-negligible in almost all the other countries (ranging between -1.3 and -2.9 pps. of GDP difference). Only BG, DK, IE, IT, LT, PL and FI are expected to see a relatively less severe deterioration compared to Autumn 2019 forecast (below a 1 pps. of GDP difference). In the medium-term, end-projection government debt ratios are expected to be significantly higher compared to the DSM 2019 in all countries, by more than 30 pps. of GDP in 8 countries (ES, CY, MT, NL, AT, RO, SI, and SK), by about 20 pps. of GDP in 5 countries (BE, EE, HR, FR, and HU), and by about 10 pps. of GDP in 9 countries (BG, CZ, DE, IE, IT, LV, LU, PT, and SE). Only FI, PL, and DK will see a relatively less severe deterioration of about 9 pps. of GDP. Overall, the 2022 debt aggregates are higher by some 21 pps. and 24 pps. of GDP for the EU and the EA, respectively, compared to the DSM 2019. The less favourable aggregate fiscal outlook

reflects the expected deteriorated fiscal position for the next two years, but also more challenging economic growth conditions for the medium-term,

as opposed to one year ago. However, over the medium-term, the debt trajectory is supported by the assumption of a gradual return to the pre-crisis forecast of the structural balance, which implies a gradual adjustment in the fiscal position, and leads to a decrease in the debt accumulation rate under the baseline. Moreover, past the peak of the crisis, the debt trajectory would still benefit from favourable debt dynamics related to the interest – growth rate differential throughout the projection period (see Graph 3.11).

Graph 3.11: **EU Interest rate - growth rate differentials (%), under the baseline in the DSM 2020 and DSM 2019 (based on the implicit interest rate)**



Source: Commission services.

3.1.2. Stochastic debt projections

Stochastic projections complement the deterministic government debt projections to highlight potential risks for the debt dynamics stemming from the uncertainty surrounding the macroeconomic and fiscal projections. Stochastic projections produce a distribution of debt paths, corresponding to a wide set of possible underlying macroeconomic conditions, obtained by applying shocks to the macroeconomic and fiscal variables (government primary balance, interest rates, economic growth and exchange rate) ([52]) of the baseline. Hence, stochastic projections capture in a more comprehensive way than standard deterministic projections the uncertainty surrounding the macroeconomic projections. The advantages of this approach are three-fold: i) running a very large number of sensitivity tests; ii) calibrating the shocks to past-observed country-specific volatility; iii) capturing the country-specific correlation between the different variables ([53]).

Results presented in the form of fan charts allow assessing the probability of reaching the minimum and maximum levels of government debt ratios under a large range of macroeconomic shocks. Stochastic projection results are generally presented in the form of fan charts, featuring the cone of the debt-to-GDP ratio distribution over the 5-year projection horizon. In the fan charts, the projected debt path under the baseline (around which shocks apply) and the median of the debt ratio distribution are reported respectively (as a dashed and a solid black line at the centre of the cone) (see Graphs 3.12). The cone covers 80% of all possible debt paths obtained by simulating 2000 shocks to primary balance, nominal growth, interest rates and exchange rate (the lower and upper lines delimiting the cone represent respectively the 10th and the 90th distribution percentiles), thus excluding from the shaded area simulated debt paths (20% of the whole) that result from more extreme shocks, or "tail events". The differently shaded areas within the cone represent different portions of the distribution of possible debt paths. The dark blue area (delimited by the 40th and the 60th percentiles) includes the 20% of all possible debt paths that are closer to the baseline.

In this update of the DSM, symmetric fan charts are presented. Upside and downside risks are treated as equally likely, as risks to the primary balances under the baseline are considered to be balanced.

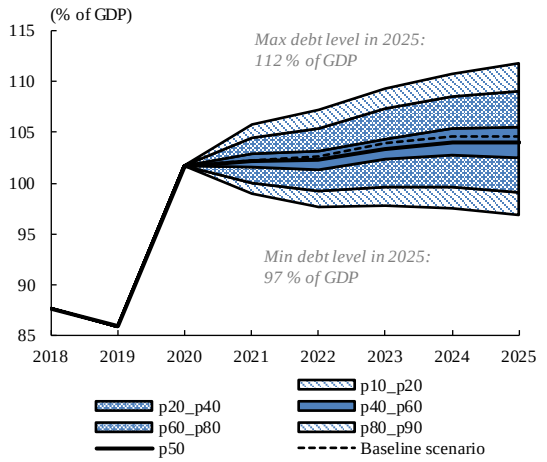
When considering symmetric shocks around the baseline, the government debt ratio in the EA would increase with high probability above current level over the next 5 years. From about 102% of GDP in 2020, the EA debt ratio is projected to lie between 97% and 112% of GDP in 2025 with an 80% probability (see Graph 3.12). In terms of debt dynamics, the probability that the EA debt ratio would rise in 2021 is about 60%, and it is expected to further increase afterwards in 2023 and 2024 with an 100% and 80% probability,

([52]) Shocks to the exchange rate are simulated only for non-EA countries, for which the share of public debt denominated in foreign currency can be significant.

([53]) See Berti (2013) and Annex 7 for more details on the methodology used.

respectively. Therefore, the probability that the EA government debt ratio would be higher in 2025 than its current level is high (around 65%). The uncertainty surrounding the baseline is equally non negligible by historical standards, as the width of the cone reaches about 15 pps. of GDP in 2025.

Graph 3.12: **Gross public debt (% of GDP) from symmetric stochastic projections (2020 - 25), Euro area**



Source: Commission services.

While the probability of a continuing rise of EA government debt over the next 5 years is high, some countries are even more likely to experience upward trends. The relatively high probability of higher EA government debt in 2025 than its current level reflects a probability of a debt increase of more than 70% over the next five years in seven countries. Relatively high probabilities of increasing debt are in particular estimated in some medium to high debt countries such as Spain (95%), Netherlands (94%), France (93%), Slovakia (91%), Belgium (71%), and Finland (71%) (see Table 3.10). Some of the highly indebted countries such as Portugal and Cyprus have a lower probability of debt increase, at around 20%, while others such as Italy remain at close to 50%.

Cross-country differences in terms of width of the cone of the distribution reflect underlying uncertainty surrounding the baseline. In countries such as Estonia, Sweden, France, the Netherlands and Germany, the distance between the upper and the lower tails of the debt ratio distribution is relatively limited (a difference below 16 pps. of GDP). For instance, in France, the debt ratio is projected to lie between 117% and 133% of GDP with an 80% probability. On the other hand, in countries such as BG, CY, PT, HR, HU and RO, a higher historical volatility of macro-financial and fiscal conditions lead to much wider debt distribution cones (of around 35 to 50 pps. of GDP). This reflects the underlying heterogeneity of Member States business cycle, and clearly points to higher uncertainty surrounding baseline projections for this latter group of countries, but also to some extent the fact that their historical past includes an episode of prolonged high volatility of macroeconomic conditions during the global financial crisis (see Table 3.10).

Stochastic debt projections can also be used to derive 'non-increasing debt caps'. Non-increasing debt caps are defined as the median level of public debt to target in 2025 to ensure that, even in the case of adverse shocks, public debt ratios will not increase relative to their current values with a 90% probability (see FSR 2015 and DSM 2017 for more details). These values may provide useful insights compared to conventional uniform targets used in fiscal rules, by taking into account country-specific economic features. In other words, countries, characterised by large uncertainties, such as the Baltics or Ireland, may need to target lower debt levels, than more stable economies.

Non-increasing debt caps largely differ between Member States depending on current debt levels, and country-specific economic volatility. The EA non-increasing debt cap is estimated at around 94% of GDP, with values ranging from 46.7% of GDP in Slovakia to 143% of GDP in Italy among EA countries (see Graph 3.13).

For the vast majority of countries under examination, the debt ratio that is projected to be reached in 2025 under the baseline would not be sufficient to contain debt trajectories in case of adverse shocks. Indeed, in all countries the median debt ratio projected in 2025 is above non-increasing debt caps. Therefore, pursuing the policies included in the baseline would not ensure that countries would be immune to continuing debt increases (with a 90% probability) in case of negative shocks. This is particularly true for RO, where despite a level of debt of 46.7% of GDP in 2020, the median debt ratio projected for 2025 is close to 90%, significantly higher than its non-increasing debt cap level (23% of GDP). However,

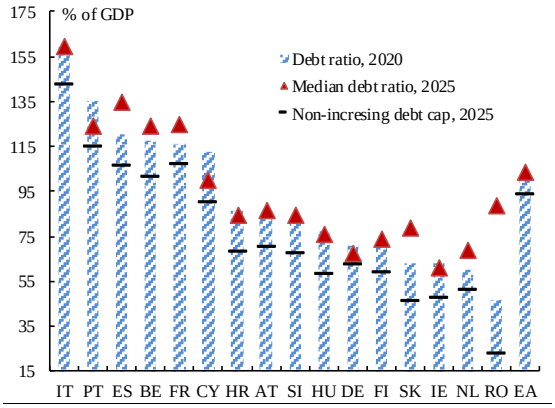
Table 3.10: **Stochastic debt projections results by Member State (% of GDP)**

Country	Debt ratio in 2020	Median debt ratio in 2025	10th percentile of debt ratio distribution in 2025	90th percentile of debt ratio distribution in 2025	Diff. btw. percentiles 90th and 10th of debt ratio distribution in 2025	Probability of debt ratio in 2025 greater than in 2020, symmetric (%)
BE	117.7	124.1	109.8	140.1	30.3	71.1
BG	25.7	25.2	0.3	52.3	51.9	49.1
CZ	37.9	45.7	33.9	57.7	23.7	79.9
DK	45.0	36.6	28.2	45.2	17.1	10.8
DE	71.2	67.7	60.0	76.3	16.4	29.8
EE	17.2	33.9	29.3	39.4	10.1	100.0
IE	63.1	61.5	49.2	77.1	27.9	44.3
ES	120.3	135.1	123.3	148.8	25.5	95.4
FR	115.9	124.7	117.1	133.4	16.3	93.0
HR	86.6	84.5	69.0	103.0	34.0	42.7
IT	159.6	160.1	145.7	176.6	30.9	52.2
CY	112.6	100.6	79.1	123.0	43.9	23.4
LV	47.5	49.7	35.6	67.3	31.7	56.1
LT	47.2	47.0	34.2	64.5	30.3	49.6
LU	25.4	2.4	14.1	35.5	21.4	43.9
HU	78.0	7.6	58.7	96.0	37.4	45.5
MT	55.2	58.5	46.8	72.5	25.8	61.7
NL	60.0	69.1	61.7	77.9	16.2	93.8
AT	84.2	87.0	73.5	101.0	27.5	60.4
PL	56.6	54.7	46.4	63.6	17.2	38.7
PT	135.1	124.4	106.0	144.2	38.2	23.5
RO	46.7	89.1	69.4	113.0	43.6	99.7
SI	82.2	84.7	72.0	99.0	27.0	59.8
SK	63.4	78.7	63.9	95.5	31.6	90.9
FI	69.8	74.0	64.8	84.7	19.9	70.5
SE	39.9	38.4	32.5	44.2	11.7	36.4
EA-19	**101.7**	**103.9**	**96.8**	**111.8**	**15.0**	**65.3**

Source: Commission services.

this is also valid for countries such as IT, ES, BE, FR, HU, SK and NL, where the median debt ratio is also significantly higher than its non-increasing debt cap level (with a gap ranging from 17 pps. of GDP in IT to 32 pps. of GDP in SK).

Graph 3.13: **Non-increasing debt caps and median debt ratio in 2025 in selected Member States**



Source: Commission services.

Table 3.11: **Medium-term government gross financing needs (% of GDP) under the baseline, by country**

	2012	2019	2020	2021	2022	2031	Average 23-31	Average 20-31
BE	26.3	15.6	26.0	21.1	21.5	19.9	20.7	21.2
BG	3.0	1.0	5.8	3.2	2.7	2.0	2.0	2.4
CZ	11.6	5.3	10.6	9.2	9.3	7.1	7.9	8.3
DK	8.0	6.3	16.2	5.1	7.0	2.1	4.1	5.5
DE	23.2	11.0	22.0	15.9	15.1	10.9	12.9	14.1
EE	4.5	1.2	8.5	6.3	5.5	2.0	3.2	4.1
IE	18.7	5.8	12.4	10.1	6.3	4.9	5.1	6.3
ES	28.8	15.7	27.8	25.6	25.7	24.5	25.4	25.7
FR	21.8	16.8	26.5	25.2	23.5	20.0	21.3	22.3
HR	15.4	14.4	18.6	14.4	15.8	12.6	14.4	14.8
IT	26.8	20.4	32.7	29.0	27.4	25.7	25.7	26.7
CY	26.8	14.8	23.5	9.4	7.4	11.0	11.5	12.0
LV	4.0	4.5	13.0	6.1	6.4	5.0	5.9	6.6
LT	10.6	6.1	15.4	11.2	7.0	5.9	6.1	7.4
LU	4.6	3.0	7.2	3.7	3.3	0.8	0.6	1.6
HU	14.2	17.8	28.2	23.8	23.2	16.5	19.5	20.9
MT	9.6	5.7	15.4	14.0	11.0	4.5	7.2	8.8
NL	20.4	7.7	18.4	15.6	15.1	11.5	12.9	13.8
AT	9.3	8.6	18.4	14.9	12.5	7.8	9.9	11.3
PL	8.9	4.6	13.9	7.6	7.0	5.6	6.1	7.0
PT	27.9	11.0	20.0	15.1	14.7	12.8	13.3	14.2
RO	13.0	7.6	14.3	15.5	18.2	24.5	21.8	20.4
SI	10.3	6.9	21.8	12.9	12.9	10.5	12.8	13.6
SK	13.9	3.6	16.8	10.3	10.4	7.4	9.3	10.1
FI	13.6	7.5	18.0	15.0	13.3	9.6	10.7	11.9
SE	10.1	5.6	10.7	9.6	8.5	5.4	6.3	7.2
EU	**20.9**	**12.7**	**22.8**	**19.0**	**18.0**	**14.9**	**16.1**	**17.1**
EA	**22.6**	**13.7**	**24.3**	**20.5**	**19.4**	**16.2**	**17.5**	**18.5**

(1) Medium-term government GFN are calculated as the sum of the government budgetary deficit (+) / surplus (-), debt amortisations and other debt-creating / reducing flows (stock-flow adjustments – SFA) - see also Section 2.2 Table 2.1 for the definition of medium-term government GFN. Debt amortisations cover both debt securities and all types of loans, but not currency and deposits. The data sources used are Eurostat for the share of short-term and long-term public debt and the ECB (Centralised Securities Database) for the share of outstanding debt securities maturing within the year. For post-programme surveillance countries, official loans' repayments are taken into account. Discrepancies may appear with other institutions' estimations (e.g. ECB, IMF) due to differences in the scope and sources used. Forecasts and projections are based on the assumptions of the baseline. More information on these calculations can be found in the DSM 2016.
Source: Eurostat, ECB, Commission services.

3.2. MEDIUM-TERM FINANCING NEEDS

The COVID-19 pandemic drew attention to the governments' financing needs and especially to these needs' volume in the short-term, when liquidity pressures tend to tower in a crisis. This section looks at how post-COVID-19 gross financing needs (GFN) are projected to develop over the medium term. As already mentioned in Section 2.2 and in past reports, GFN is a measure able to serve a variety of fiscal analysis purposes, besides being quantifiable from diverse sources and with different methods.

For the purposes of medium-term analysis, this section examines GFN projections, which follow the same definition and components as short-term GFN. Medium-term GFN include a broad range of government liabilities (debt instruments). Specifically, GFN are calculated as the sum of the budget deficit, debt amortisations, and stock-flow adjustments (SFA) ([54]) - see also Section 2.2, Table 2.1. Similarly to short-term GFN shown under S0, GFN values for 2019 are outturn data, whereas 2020-31 figures represent estimations / projections closely associated to the Commission's debt projection model, to which they are linked.

([54]) Debt amortisations include both securities and loans, but not 'currency and deposits'- see also Section 2.2 Table 2.1 for the definition of government GFN. Stock-flow adjustments (SFA) include other 'below the line' (i.e. not affecting the deficit) net debt-creating items such as the net acquisition of financial assets (e.g. accumulation of cash/deposits, nationalisation, participation in a (new) common financial instrument at EU level, etc.).

Medium-term GFN projections capture the maturity of government debt and thereby provide key complementary information on liquidity-related vulnerabilities. If the debt to GDP ratio remains a crucial metric to assess fiscal sustainability, the current context of widened deficits, low interest rates and, country-varying debt maturities call for a careful account of gross financing needs ([55]). Gross financing needs provide a measure of a government's liquidity, or its facility to face upcoming financial obligations. Hence, the projected dynamics of gross financing needs usefully measure the extent to which governments may need to tap financial markets over the current and the coming years, thus enabling an assessment of roll-over risks ([56]).

Average medium-term GFN would not reach the levels seen during the economic and financial crisis, and would generally decrease over time. Though average GFN-to-GDP ratios over the projection period would exceed the values recorded pre-COVID-19, in 2019, these averages are still below the liquidity stress seen in 2012. Specifically, medium-term gross financing needs for the EU/EA would average 17.1%/18.5% of GDP over 2020-31, respectively, which compares with 12.7%/13.7% of GDP in 2019 and 20.9%/22.6% of GDP in 2012 (see Table 3.11). Moreover, they would generally decline by the end of the projection period.

While easing over time, part of the COVID-19 impact is expected to linger on EU governments' liquidity needs for some years. At aggregate level, EU/EA liquidity pressures are set to ease by 2022, by some 5 pps of GDP compared to 2020 (see Table 3.11 and section 2.2). However, given the large scale of the 2020 upsurge, debt stocks have been affected more durably, and financing requirements would decline more modestly further ahead, over the medium term. Specifically, EU/EA GFN ratios are expected to average, respectively, some 16.1%/17.5% of GDP over 2023-31, which outnumber the respective aggregates' levels in 2019.

([55]) The indicator is also used by other institutions such as the IMF, the ECB and the ESM.

([56]) Medium-term GFN projections have been introduced with the DSM 2016. Outturn values for this variable have been used in the S0 indicator since 2012 (see chapter 2). More details on the calculations can be found in the DSM 2016.

Important cross-country differences exist. These differences reflect heterogeneity in terms of government debt stock, maturity structure, financing conditions, and government primary balance. 2023-31 average gross financing needs are estimated above their 2019 levels for 20 governments, with the largest increases projected in RO, ES, SI, SK, IT, NL, BE and FR (by more than 4 pps. of GDP). Only a few countries are projected to see their 2023-31 average gross financing needs fall compared to 2019 (IE, DK, LU, CY), while in Lithuania and Croatia 2023-31 average GFN would return to their 2019 levels. Over 2023-31, medium-term GFN would remain below their 2012 peak in all countries except RO, HU, SI, LV and AT (see Table 3.11).

3.3. MEDIUM-TERM FISCAL SUSTAINABILITY INDICATOR: THE S1 INDICATOR

Sustainability gap indicators measure the additional budgetary adjustment that would ensure sustainable public finances. Medium-term sustainability is captured by the S1 indicator ([57]). Specifically, S1 shows the additional adjustment to the (baseline) structural primary balance (cumulated over 5 years) that is required to bring the debt-to-GDP ratio to 60% in 15 years, including any expenditure arising from an ageing costs. ([58]) Alternative simulations assume a debt target at the pre-crisis debt ratio. The timescale of the indicator has been chosen sufficiently long to allow the impact of ageing to be analysed in a meaningful way, while still remaining subject to influence from decisions by current taxpayers and policy makers.

3.3.1. Results of the medium-term sustainability indicator S1

The S1 indicator captures medium-term fiscal sustainability risks linked to the government's capacity to bring the debt ratio to 60% of GDP over the medium-term. Table 3.12 shows the

([57]) The medium term here refers to horizon at which the debt target is reached (Y+15), as defined below.

([58]) In line with the adjusted definition of the baseline this round (see Box 1.1), for the S1 indicator, the fiscal adjustment is assumed to start as from the year the pre-crisis forecast SPB is reached (year Y), with the debt target assumed to be reached 15 years thereafter (year Y+15).

results for the S1 indicator computed by reference to the baseline. The table also reports the indicator's breakdown into: i) the initial budgetary position; ii) the debt requirement to reach the 60% target debt; and, iii) the required adjustment to cover the ageing costs.

EU and EA aggregates

The EU / EA aggregate structural primary balance must significantly improve to achieve a government debt ratio of 60% of GDP over the medium term. ([59]) The required improvement for the EU and the EA amounts, respectively, to a cumulative fiscal effort of 2.3 and 2.8 pps. of GDP, i.e. a sustained average budgetary consolidation effort of around 0.5 and 0.6 percentage points per year, respectively (see Table 3.12).

For the EU and the EA, the main drivers pushing up the S1 sustainability gap indicator are the debt requirement component and the cost of ageing. The additional adjustment needed to meet the debt target of 60% of GDP by the end of the horizon considered accounts for the largest positive component of the S1 indicator in both the EU and the EA, respectively 2.3 and 2.9 pps. of GDP. The cost of ageing component accounts for 0.9 pps. of GDP of the S1 sustainability gap in the EU, and 1.0 pps. of GDP in the EA. On the other hand, the initial budgetary position overall contributes to reducing the S1 fiscal gap (by approximately 1 pps. of GDP).

([59]) See note ([21]) above regarding the definition of the medium term.

Table 3.12: **The medium-term sustainability indicator (S1) and its components, pps. of GDP**

	S1	Due to		
		Initial Budgetary position (IBP)	Debt requirement	Ageing costs
BE	4.3	-1.2	4.6	0.9
BG	-3.1	-1.2	-2.5	0.7
CZ	-0.9	-0.8	-1.2	1.1
DK	-4.2	-2.8	-1.5	0.1
DE	-1.1	-2.3	0.2	1.0
EE	-2.9	-0.7	-2.3	0.1
IE	-1.8	-2.8	-0.1	1.0
ES	7.7	0.8	5.4	1.5
FR	4.4	-0.6	4.8	0.3
HR	-1.5	-2.2	1.6	-0.9
IT	9.2	1.4	6.5	1.4
CY	-0.6	-3.4	2.2	0.6
LV	-1.8	-1.1	-1.0	0.3
LT	-1.0	-0.9	-1.0	1.0
LU	-3.9	-2.8	-2.6	1.4
HU	-0.3	-1.8	0.6	0.9
MT	-3.5	-3.3	-1.1	0.9
NL	0.1	-1.8	0.3	1.6
AT	-0.3	-2.9	1.4	1.2
PL	-1.6	-1.2	-0.5	0.1
PT	2.0	-2.9	4.0	0.9
RO	14.8	8.8	4.3	1.7
SI	1.6	-1.6	0.9	2.2
SK	3.2	-0.2	1.5	1.9
FI	0.9	-0.8	1.0	0.8
SE	-3.1	-1.8	-1.6	0.3
EU	2.3	-0.9	2.3	0.9
EA	2.8	-1.1	2.9	1.0

Source: Commission services.

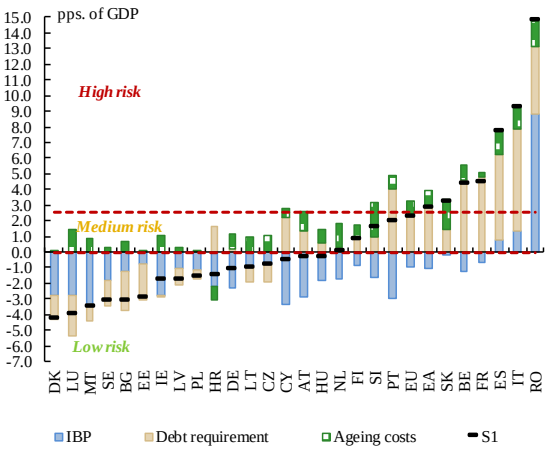
Cross-country results

The S1 indicator flags Romania, Italy, Spain, France, Belgium and Slovakia to be at high risk in the medium term. These six countries would require a significant fiscal adjustment to achieve the debt target of 60% of GDP over the medium term. Other four Member States, PT, SI, FI and NL are flagged to be at medium risk, requiring additional consolidation efforts, although not exceeding 0.5 pps. of GDP per year, to achieve the 60% of GDP debt target. ([60]). Finally, sixteen countries (DK, LU, MT, SE, BG, EE, IE, LV, PL, HR, DE, LT, CZ, CY, AT and HU) have an S1 indicator with a negative value, indicating that, under the baseline, these countries are expected to stay below the 60% of GDP threshold over the horizon considered (Y+15). Almost half of the low-risk countries (PL, MT, LV, LT, CZ, DK, SE) are expected to meet the debt target already by

([60]) The thresholds used to assess the scale of the sustainability challenge based on the S1 indicator are as follows: 1) if S1 is less than zero, the country is assigned low risk; 2) if S1 is between 0 and 2.5 (thus requiring a further adjustment in the structural primary balance of up to 0.5 pps. of GDP per year in the 5 years following the SPB return to its pre-crisis level), the country is assigned medium risk; 3) if S1 is greater than 2.5 (implying an adjustment in the structural primary balance of more than 0.5 pps. of GDP per year), the country is assigned high risk.

year Y, when the SPB is assumed to return to its 2021 pre-crisis forecast value ([61]).

Graph 3.14: **The S1 sustainability indicator and its components**

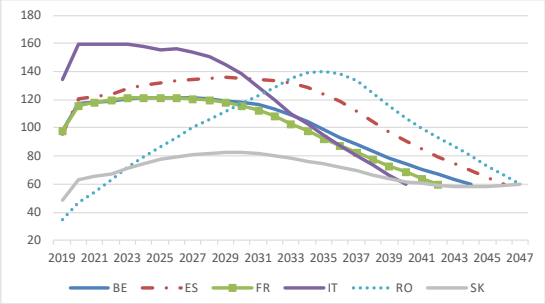


Source: Commission services.

In most countries at high-risk according to S1, the main driver of the medium-term fiscal gap is the debt requirement, Given the high accumulated stock of debt, debt requirement constitutes the largest component of S1 in BE, ES, FR and IT (see the debt trajectories of countries at high risk according to S1, in Graph 3.15). In the case of Romania, the initial budgetary position strongly contributes to the large value of S1, given a very deteriorated fiscal balance, which improves only gradually over time, under the baseline. Ageing costs are the main driver of S1 in Slovakia; they compound the challenges derived from other components especially in Romania, Spain and Italy.

([61]) See Section 3.1.1.1 Table 3.3 for the exact years Y and the debt levels reached at that point.

Graph 3.15: **Debt path to reach 60% of GDP (as per the S1 indicator), selected high-risk countries, % of GDP**



Source: Commission services.

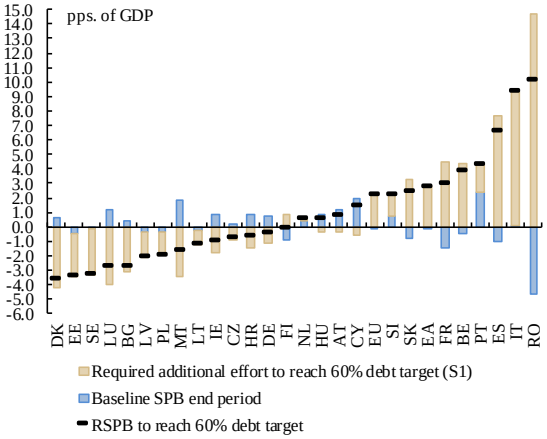
3.3.2. The required structural primary balance

The required structural primary balance (RSPB) informs about the fiscal policy that needs to be sustained in order to achieve a debt ratio of 60% of GDP over the medium term. The RSPB reflects the overall size of the structural primary balance required to close the medium-term sustainability gap, i.e. to reach a debt ratio of 60% of GDP over the medium term. It is calculated as the sum of the pre-crisis structural primary balance forecast for 2021, as estimated in the DSM 2019, and the required adjustment quantified by S1.

The overall required structural primary balance to ensure a debt ratio of 60% of GDP over the medium-term varies significantly across EU countries. Graph 3.16 shows the RSPB for each EU country and its breakdown into the structural fiscal position forecast pre-crisis and the S1 sustainability gap. At the individual country level, the size of the RSPB varies substantially from -3.5% of GDP for Denmark to more than 3%, 4% or 6% of GDP for Belgium, Portugal and Spain respectively, and 9.4% of GDP for Italy and 10.1% for Romania. The latter are rather high by historical standards. During the past three decades, there have been 14 episodes in advanced economies and 26 episodes in emerging economies when individual countries adjusted their structural primary balance by more than 7 pps. of GDP ([62]).

([62]) See IMF (2010). The list includes the following countries (end date of episodes in parentheses): BE (1998), CY (2007), DK (1986), FI (2000), GR (1995), IE (1989), IT (1993), PT (1985), SE (1987, 2000), UK (2000).

Graph 3.16: **The required structural primary balance by year Y+5 to reach 60% debt target at the end of the debt adjustment period (Y+15)**



Source: Commission services.

Sensitivity to debt targets and interest rates

To offset the increase in debt-to-GDP ratio during the COVID-19 crisis over the medium term, the structural primary balance would require a lower adjustment than to reach a debt ratio of 60% of GDP by the same horizon. For the EU as a whole, the fiscal effort to absorb the COVID-19 crisis debt (i.e. to return to the 2019 debt levels) in Y+15 would be lower than to meet the 60% of GDP debt target the same year (Table 3.13 reports the cumulated adjustment needs for different debt end-points). This is a direct consequence of the fact that pre-COVID-19 crisis debt levels exceeded 60% of GDP in several EU countries. The structural primary balance adjustment required to bring the debt-to-GDP ratio at pre-crisis levels would be nonetheless still demanding for ES and SK, with a cumulated budgetary consolidation effort around 4 pps. of GDP. ([63])

Conversely, a higher adjustment of the structural primary balance would be required to offset higher interest rates. Specifically, if the interest rate on new and rolled over debt increased by an additional percentage point compared with the reference assumption, the required fiscal adjustment to achieve a debt ratio of 60% of GDP over the medium term would increase by 2 pps. of GDP for RO, by 1 pp. of GDP or more for ES, IT, BE, FR, and by 0.5 pps. of GDP or more for all EU countries except LT, EE, DK, SE, BG and LU (see Table 3.13) ([64]). These results illustrate the importance of the favourable financing conditions, as assumed in the baseline, for ensuring that the fiscal effort to bring down debt remains at a manageable level.

Table 3.13: **Required fiscal adjusmement to bring debt to GDP to 60% over the medium term versus to its pre-crisis level (2019) and sensitivity to interest rates (pps. of GDP)**

			+ 1pp in the short-term / long-term interest rate on maturing and new debt from 2022	
	Budgetary effort (cumulated SPB)		Difference in budgetary effort (cumulated SPB)	
	60% of GDP (S1)	Pre-crisis levels (2019)	60% of GDP (S1)	Pre-crisis levels (2019)
BE	4.3	0.8	1.1	1.2
BG	-3.1	0.4	0.3	0.1
CZ	-0.9	1.7	0.6	0.4
DK	-4.2	-1.6	0.4	0.3
DE	-1.1	-1.1	0.7	0.7
EE	-2.9	1.7	0.4	0.2
IE	-1.8	-1.6	0.5	0.5
ES	7.7	4.5	1.6	1.7
FR	4.4	0.8	1.0	1.2
HR	-1.5	-2.6	0.8	0.9
IT	9.2	2.8	1.2	1.5
CY	-0.6	-3.6	0.8	0.9
LV	-1.8	0.3	0.5	0.4
LT	-1.0	1.2	0.4	0.3
LU	-3.9	-0.1	0.3	0.1
HU	-0.3	-0.8	0.8	-0.1
MT	-3.5	-1.9	0.5	0.5
NL	0.1	1.2	0.7	0.6
AT	-0.3	-1.3	0.7	0.8
PL	-1.6	-0.3	0.5	0.4
PT	2.0	-3.1	0.9	1.1
RO	14.8	16.7	2.0	1.9
SI	1.6	1.1	0.9	1.0
SK	3.2	4.2	0.9	0.8
FI	0.9	0.9	0.5	0.5
SE	-3.1	-0.7	0.4	0.2
EU	2.3	0.8	0.9	0.9
EA	2.8	0.6	0.9	1.0

Source: Commission services.

([63]) In some cases, the required fiscal effort to reach the pre-COVID-19 debt level would in fact be higher than measured by the standard S1 indicator, there where pre-COVID-19 debt ratios were lower than 60% of GDP in 2019, thus constituting a more stringent debt target (e.g. BG, CZ, DK, EE, LV, LT, NL, RO and SK).

([64]) The shock is implemented only on new and rolled over debt beyond the last year of the forecast (2022), and for this reason, it takes time to have significant large effects on the implicit interest rate.

3.3.3. Comparison with results in the DSM 2019

This section compares the results of the S1 indicator with those of the Debt Sustainability Monitor 2019 (DSM 2019 henceforth).

The comparison of the S1 indicator results between this round and the DSM 2019 should be interpreted with caution, given the exceptional crisis context and the ensuing adjustment of the baseline. This round, the baseline has been adjusted to reflect the extraordinary impact of the crisis on public finances, by assuming a gradual return of the structural primary balance to the pre-crisis forecast level (as explained before, and in Box 1.1). Hence, the S1 indicator, whose computation is anchored to the baseline, has also been adapted (see definition above and Table3.14).

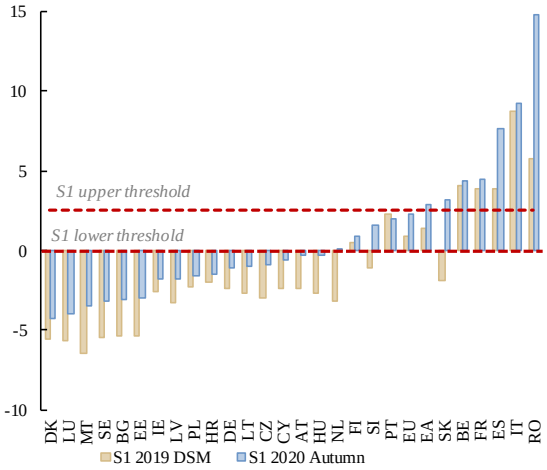
Table 3.14: **S1 fiscal sustainability indicators' definition**

DSM 2019	*DSM 2020*
Required fiscal adjustment, measured as cumulated adjustment of the SPB over 5 years *as from the last forecast year (t+2),* to bring the debt to GDP ratio to 60% in *13 years* from present *time t* (2034)	Required fiscal adjustment, measured as cumulated adjustment of the SPB over 5 years *as from the year when the baseline SPB would return to its pre-COVID crisis value (year Y),* to bring the debt to GDP ratio to 60% *15 years after year Y* (country-specific year)
End of adjustment period (SPB adjusted and/or maintained): t + 15	End of adjustment period (SPB adjusted and/or maintained): Y + 15

(1) For country-specific years Y, see Section 3.1.1.1.
Source: Commission services:

On the back of debt surges fuelled by the crisis, sustainability gaps measured by the S1 indicator have increased in all but one EU country. Most EU countries have maintained their risk category, except for NL, SI and SK, which have deteriorated their risk classification, the latter significantly, moving from low to high risk (see Graph 3.17). Although several Member States remain in the same risk categories as in the DSM 2019, the S1 current update shows a larger fiscal adjustment needed to ensure medium-term sustainability, except for PT. Member States with a substantial increase in their required S1 adjustment include RO (with a 9 pps. of GDP increase in S1), SK, ES, NL, MT and SI, with an increase between 2.6 and 5.1 pps. of GDP. Portugal is the only country for which the S1 gap is slightly lower this round, by 0.3 pp. of GDP. The latter improvement is associated to a slightly more favourable IBP, notably reflecting the downward revision of interest rates beyond T+10 (see Graph 3.18), which ensures more favourable debt dynamics (for some countries, over that horizon - see Box 4.1).

Graph 3.17: **S1 comparison DSM 2020 vs DSM 2019 (pps. of GDP)**

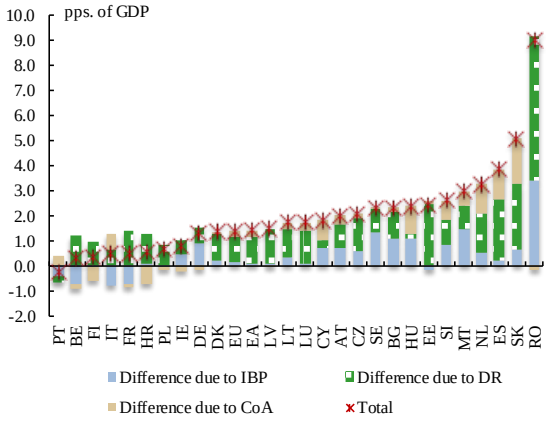


Source: Commission services.

The variation in the medium-term sustainability risks is still mainly driven by changes in the requirement to meet the debt target and the initial budgetary position ([65]). The role played by the debt requirement component is more important this round and reflects the government debt shock associated to the COVID-19 crisis, which will take larger fiscal efforts to adjust (Graph 3.18). All cases of significant S1 increases flagged above (RO, SK, ES, NL, MT, SI) are particularly driven by higher debt requirement component this round. Similarly, the case of a lower S1 this round, PT, is the only one where the debt requirement is now lower (see explanations above).

([65]) The positive changes mean that the fiscal indicators and/or their components have increased between the 2019 DSM and this report. This report includes the same costs of ageing from the Commission - EPC Ageing Report 2018, except for four countries (HR, IT, RO and SK, see Chapter 4).

Graph 3.18: **Components of change in S1 (DSM 2020 based on Commission 2020 Autumn forecast compared to DSM 2019 based on Commission 2019 Autumn forecast)**



Source: Commission services.

Box 3.1: **Economic impact of COVID-19 over the next 10 years – a comparison of the Autumn 2020 T+10 projections with the pre-COVID-19 projections from Autumn 2019**

Although the start of national vaccination programmes give grounds for optimism, the degree of uncertainty surrounding the pandemic is still extremely large (with specific risks linked to virus mutations & problems in accessing adequate vaccine supplies). In addition, many commentators expect a 'new normal' to emerge in the way we live and work and the pandemic could have economic effects that last well beyond the medical emergency.

The direct economic impact of the pandemic is affected by policy measures as well as behavioural changes aimed at reducing the spread of the virus and avoiding contagion. Massive policy initiatives have been deployed by the EU and Member States to avoid bankruptcies, of otherwise viable firms, and employment losses. These measures, and the temporary nature of the health crisis, should make the economic impact of the pandemic largely temporary, as discussed in the Commission's Autumn forecast for the years 2020-2022. ([1]) Nonetheless, some long-term economic effects of COVID-19 could arise from delayed or cancelled investment, disrupted education and training, hysteresis on the labour-market and frictions in the reallocation of capital and labour. ([2])

This box compares the 10-year ahead ('T+10') projections of potential GDP growth based on the Commission's Autumn 2020 forecast with those based on the Autumn 2019 forecast (before the emergence of COVID-19). This allows gauging the longer run economic impact of COVID-19 under certain assumptions. The T+10 projections are given in Table 1, with a short technical description of the methodology used for the projections provided in annex 6. In interpreting these numbers, and especially in terms of deciphering the impact of COVID-19 on the economic prospects of individual EU countries and the EU as a whole, a number of points need to be stressed.

Firstly, these T+10 baseline projections are calculated using a very stable methodology endorsed by EU Member States back in 2014. The only change which has been introduced over the intervening 6-year period was an update of the calculation method for the NAWRU anchor introduced in the Spring 2020 forecasts. Since the effects of the change to the NAWRU anchor were relatively small, it is clear that methodological factors are not driving the changes to the T+10 projections shown in Table 1 between Autumn 2019 and Autumn 2020. Whilst the T+10 numbers for some EU countries are to some extent affected by demographic, ageing-related, factors, nevertheless Table 1 underlines the fact that the most significant changes to the T+10 projections, relative to Autumn 2019, are driven by the changes to the short term forecasts over the period 2020-2021. The T+10 implications of these changes to the short run forecasts are therefore essentially a second-round effect, with the Commission's latest Autumn 2020 forecasts being the primary driver. A number of technical adjustments have been introduced in 2020 to smoothen the overall potential output estimations in view of the large but temporary shifts in hours worked. By cushioning the labour market impact (in line with the widespread resort to short-time working schemes), these adjustments avoid excessively pro-cyclical movements of estimated potential growth.

Secondly, these no policy change T+10 projections are by no means a forecast – they are simply a non-judgemental, rules based, extrapolation of recent developments in the key structural growth drivers for the individual Member States. Their purpose is to illustrate what would happen to the Member State's potential growth rates if the labour, capital and total factor productivity trends, which have emerged over the years running up to the end of Autumn 2020 short term forecasts (i.e. up to 2022), were to persist over the medium to long run. We know that in the Autumn 2020 forecast, the coverage of Member States' Recovery and Resilience Programmes (RRP's) is very incomplete, which makes the no-

(Continued on the next page)

([1]) Autumn 2020 Commission Forecasts.
([2]) See for example Bodnár, et al. (2020), Mattana et al.(2020), Jordà, et al. (2020) and Barrero, et al. (2020).

Box (continued)

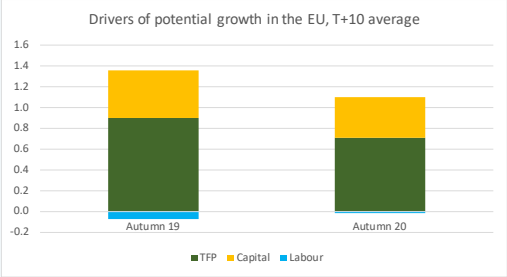
policy-change assumption more problematic than usual. The picture is likely to look quite different in Spring 2021, when the RRPs are fully reflected in the T+10 projections.

Thirdly, given that the bulk of the effects of the COVID-19 shock should be mainly cyclical, not structural, in nature, the extent of the long-term pass through from actual to potential is actually small. For the euro area as a whole, the economic pass through rate from the short term forecasts to the final T+10 impact is much lower than would be expected from an economic shock of the magnitude of COVID. This smaller pass through reflects the enormous levels of short term support which is helping to temporarily protect the EA's labour potential and firms. At the level of the EA as a whole, one can see the extent of this cushioning impact in the Autumn 2020 forecasts, since the contribution from labour to overall potential output is expected to slightly increase relative to the Autumn 2019 projections.

Fourthly, whilst the pass through rate for the EA as a whole is relatively subdued, this is not the case for a small number of the countries shown in Table 1. Two factors are central in understanding these country specific differences. The first factor is the dynamic pattern of the evolution of GDP over the short term forecasting horizon, 2020-2022. Essentially the shallower and more delayed the recovery, the greater the negative potential output impact. This pattern for the evolution of some EU economies is consistent with an assumption that the impact of COVID is likely to extend beyond a cyclical time horizon, with medium to long run implications in terms of scarring effects for some of these economies. The impact of a more protracted drop in activity mostly translates into lower TFP growth, with the economic interpretation being that a necessary reallocation of labour and capital depresses productivity for some time. The second factor driving country specific differences are compositional issues. If there are big changes to the investment or the population of working age forecasts over the period 2020-22, since neither of these variables are smoothed, the effect on potential is large since changes to these specific variables feed directly into the potential numbers.

Finally, some structural effects may also be included in the Autumn 2020 Forecasts (possibly stemming from expectations about liquidity constraints, zombie firms, skill losses, sectoral reallocation). These effects would also affect T+10 values (see Annex 6 for details on extension methods from T+2 to T+10). A graphical analysis of the drivers for the EU as a whole given in Graph 1 below, show that the revisions between Autumn 2019 and Autumn 2020 are driven mainly by drops in productivity and investment. As stressed earlier, the labour market effects are cushioned by the current array of discretionary policies.

Graph 1: **Drivers of potential growth in the EU over the 10 years 2020-2029 (Differences between the Autumn 2019 vs Autumn 2020 T+10 Projections)**



Source: Commission services.

(Continued on the next page)

Box (continued)

Table 1: **Potential GDP developments over 2 years 2020-2021 and the 10 years 2020-2029 (Differences between the Autumn 2019 vs Autumn 2020 T+10 Projections)**

	Actual GDP		Potential GDP				Contributions to Potential GDP					
							Labour		Capital		TFP	
	2020-2021 Avg		2020-2021 Avg		2020-29 Avg		2020-29 Avg		2020-29 Avg		2020-29 Avg	
	Aut20	Aut19	Aut20	Aut19	Aut20	Aut19	Aut20	Aut19	Aut20	Aut19	Aut20	Aut19
AT	-1.5	1.4	0.7	1.7	0.8	1.5	0.1	0.3	0.5	0.6	0.3	0.7
BE	-2.1	1.0	0.6	1.5	0.7	1.0	0.2	0.3	0.3	0.5	0.1	0.3
DE	-1.0	1.0	0.8	1.4	0.8	1.1	-0.1	-0.1	0.3	0.4	0.6	0.8
DK	-0.2	1.6	1.9	1.7	1.6	1.4	0.2	0.2	0.5	0.5	0.9	0.7
ES	-3.5	1.4	0.2	1.4	0.9	1.2	0.2	0.2	0.4	0.5	0.3	0.5
FR	-1.8	1.3	0.8	1.3	0.9	1.1	0.2	0.1	0.4	0.4	0.3	0.6
IE	0.3	3.4	2.2	4.1	2.6	2.9	0.5	0.6	0.5	0.8	1.5	1.5
IT	-2.9	0.6	-0.2	0.4	0.5	0.4	0.2	0.0	0.1	0.2	0.2	0.3
LU	-0.3	2.6	2.0	2.7	1.9	2.5	1.1	1.5	0.7	0.8	0.1	0.2
NL	-1.6	1.3	0.7	1.5	0.6	0.9	0.1	0.1	0.3	0.4	0.1	0.5
PT	-2.0	1.7	1.0	1.9	0.8	1.2	0.0	-0.1	0.2	0.4	0.7	0.9
FI	-0.7	1.0	0.9	1.2	1.0	1.0	-0.1	-0.2	0.5	0.5	0.6	0.7
SE	0.0	1.2	1.5	1.7	1.6	1.9	0.4	0.6	0.6	0.6	0.6	0.7
CZ	-1.9	2.2	1.4	2.6	1.6	2.1	0.1	0.1	0.6	0.7	1.0	1.4
EE	-0.6	2.3	3.3	3.5	3.1	3.0	-0.1	-0.2	1.2	1.2	2.0	2.0
HU	-1.2	2.8	2.5	3.9	2.3	3.4	0.1	0.3	1.1	1.5	1.2	1.5
LV	-0.3	2.6	2.3	3.4	1.8	2.4	-0.9	-0.7	0.9	1.0	1.7	2.0
LT	0.4	2.4	3.7	3.9	2.6	2.4	-0.5	-0.6	1.2	1.2	1.9	1.8
PL	-0.1	3.3	2.7	4.0	2.9	3.4	-0.6	-0.4	1.1	1.2	2.3	2.6
SK	-1.4	2.7	1.0	2.8	1.3	2.5	-0.3	-0.3	0.7	1.0	0.9	1.8
SI	-1.0	2.7	1.6	3.0	2.3	2.9	0.3	0.2	0.5	0.8	1.5	1.8
CY	-1.2	2.5	1.6	2.6	1.6	2.1	0.4	0.7	0.8	1.1	0.4	0.2
MT	-2.2	4.0	2.7	5.1	2.6	4.5	0.9	1.3	1.2	1.6	0.6	1.6
BG	-1.3	2.9	1.3	2.7	1.5	2.1	-0.5	-0.6	0.7	0.9	1.3	1.7
RO	-0.9	3.4	2.4	3.7	2.3	3.3	-0.6	-0.6	1.3	1.3	1.6	2.6
HR	-1.9	2.5	1.1	2.6	0.7	1.4	-0.2	-0.3	0.6	0.8	0.3	0.8
EA	**-1.8**	**1.2**	**0.6**	**1.4**	**0.9**	**1.1**	**0.1**	**0.0**	**0.3**	**0.4**	**0.5**	**0.7**
EU	**-1.6**	**1.4**	**0.8**	**1.6**	**1.0**	**1.3**	**0.0**	**0.0**	**0.4**	**0.5**	**0.7**	**0.9**

Source: Commission services.

Box 3.2: Debt sustainability analysis for Greece

Greece successfully completed its European Stability Mechanism (ESM) stability support programme on 20 August 2018. Following the end of the programme, Greece has been integrated into the regular economic surveillance framework for EU Member States under the European Semester for economic policy co-ordination. In order to cater for the specific needs and challenges of Greece, the Commission has activated enhanced surveillance for Greece under Regulation (EU) No 472/20131, effective as from 21 August 2018. The last 8th Enhanced Surveillance Report was issued in November 2020 ([1]) – alongside the 2020 autumn European Semester package – including an update of the debt sustainability analysis (DSA) and capacity to repay.

Following the integration of Greece into the EU regular surveillance framework, this edition of the Debt Sustainability Monitor (DSM) provides an analysis of Greece's debt sustainability challenges. The European Institutions have carried out a comprehensive revision of the debt sustainability framework for Greece in the 8th Enhanced Surveillance Report published in November 2020 ([2]). The revised framework includes a baseline scenario, which is aligned with the Commission framework applied to assess the debt sustainability challenges for all Member States. In case of countries with clear policy commitments, the framework allows for an explicit assumption on the path of the primary balance to reflect such commitments. Therefore, the fiscal assumption continues to be based on the conclusions reached at the June 2018 Eurogroup ([3]). The revised framework also includes a country-specific scenario analysis to assess the long-term risks. This Box reports on the revisions of the DSA baseline and underlying macro assumptions since the 2019 European Semester package published with the 2019 DSM for the entire 40-year projection horizon ([4]), and, in addition, presents the standard Commission alternative scenarios and sensitivity tests for assessing medium-term risks.

Debt sustainability analysis

The DSA update published with the 2020 autumn Semester package (henceforth, the 2020 DSA) shows that the COVID-19 crisis has increased the medium-term debt sustainability risks relative to the previous update of the 2019 autumn Semester package (henceforth, the 2019 DSA). The changes in the 2020 DSA are due to both changes in methodology and the large revision in macroeconomic projections in the near- and medium-term due to the impact of the COVID-19 crisis (see Table 1) ([5]).

([1]) European Commission (2020d).

([2]) Until the 8th Enhanced Surveillance Report, the assumptions for Greek debt sustainability analysis have followed the methodology described in the June 2018 Fourth Review Compliance Report, based on which Greece was put under enhanced surveillance as of August 2018. For details on the revised methodology, see 2020 November Enhanced Surveillance Report, available online. https://ec.europa.eu/info/publications/enhanced-surveillance-report-greece-november-2020_en

([3]) The details on the standardised horizontal approach for the baseline assumptions are presented in Box 1.1, Chapter 1. In addition to the fiscal path assumption, the inflation assumption slightly differs from the horizontal assumption beyond the last forecast year. In order to enhance consistency with inflation expectations as reflected by the markets in the sovereign's financing costs, the country-specific GDP deflator was anchored to euro area inflation expectations measured by the '5-year 5-year' inflation-linked swaps until the fifth forecast year, while assuming a gradual convergence to the 2% inflation target by 2030. For details, see 2020 November Enhanced Surveillance Report. The difference to the standardised horizontal assumption for inflation is negligible.

([4]) The revisions of the DSA baseline and underlying macro assumptions are taken from the November 2020, and respectively, November 2019 Enhanced Surveillance Reports.

([5]) The 2020 DSA update also includes: updated methodology, updated debt data for 2019, updated macroeconomic projections, interest and amortization payments on Greek Loan Facility (GLF) as well as other loans, new bond issuances, and an updated privatisation schedule. The income equivalents from the SMP-ANFA profits are assumed to be disbursed and used for debt service purposes only.

(Continued on the next page)

Box (continued)

Table 1: **Main macro assumptions underlying the baseline (2020 DSA vs. 2019 DSA update)**

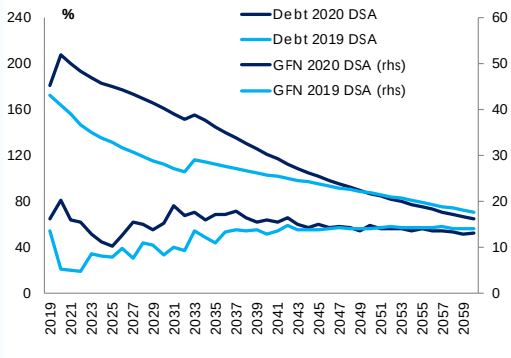
		2020	2021	2022	2030	2040	2050	2060	Average 2020-29	Average 2030-60
Primary surplus (% of GDP)	2020 DSA	-3.8	-3.6	-0.8	2.2	2.2	2.2	2.2	0.7	2.2
	2019 DSA	3.5	3.5	3.0	2.2	2.2	2.2	2.2	2.6	2.2
Real growth (%)	2020 DSA	-9.0	5.0	3.5	0.7	1.7	1.6	1.5	0.6	1.5
	2019 DSA	1.8	2.3	2.0	1.0	1.0	1.0	1.0	1.4	1.0
Nominal growth (%)	2020 DSA	-10.2	5.5	4.5	2.8	3.8	3.6	3.5	1.6	3.5
	2019 DSA	3.2	3.6	3.3	3.0	3.0	3.0	3.0	3.1	3.0
Re-financing rates (%)	2020 DSA	1.5	1.6	1.6	2.1	3.1	4.0	4.0	1.8	3.4
	2019 DSA	2.7	3.1	3.5	4.6	4.3	3.9	3.4	3.9	4.1

Source: Commission services. Note: The 2020 DSA primary balances until 2022 reflect the short-term Commission Autumn Forecast, and are reported in accrual terms, but the calculations take into account cash-accrual adjustments.

Despite the deteriorated short-term outlook, the baseline scenario shows a return to a declining trend for the government debt-to-GDP ratio. The pandemic is expected to have a sizeable impact on the Greek government debt, which is projected to increase from 180.5% of GDP in 2019 to over 207% of GDP in 2020. However, as the emergency fiscal measures related to the pandemic are expected to be temporary and the economy is projected to start recovering in 2021, the government debt-to-GDP ratio is expected to follow a declining trend as from 2021. However, it would remain at high levels, above 120% of GDP until 2040, which reflects the deteriorated near- and medium-term outlook when compared with the previous 2019 DSA update, where the debt ratio was expected to hover only above 100% at that time ([6]). By 2060, the debt ratio is expected to be about at the same level as in the previous 2019 DSA update (see Graph 1), supported by the expected favourable financing conditions ([7]) over the medium-term, and higher long-term growth rates than in the previous 2019 DSA update ([8]).

Government gross financing needs (GFNs) are expected to hover above 15% of GDP for the next 20 years, before decreasing to about 13% of GDP by 2060. This reflects much larger financing needs than in the previous update over the near- and medium-term, where GFNs were expected to remain below 10% of GDP until early 2030. In the long-term, the GFNs projections are in line with the previous 2019 DSA update (see Graph 1).

Graph 1: **Government debt-to-GDP ratio and GFNs projections, baseline (2020 DSA vs. 2019 DSA)**



Source: Commission services

The baseline assumptions are subject to uncertainty, which is increasing over the projection horizon. Financing conditions could turn out less favourable than assumed, in particular beyond the medium-term. As shown in the 8th Enhanced Surveillance Report, with a higher risk

([6]) In 2033, there is a temporary hike in the debt ratio when the deferred interest payments are capitalised and included in the EDP debt.

([7]) The baseline includes the impact from the EU-level recovery instruments, including the European Central Bank's Pandemic Emergency Purchase Programme, only in so far as sovereign financing conditions are expected to remain favourable and stable over the medium-term, as well as foster convergence in euro area spreads over the long-term, as real convergence occurs in the long-term and the 'flight-to-safety' phenomenon within the euro area is being reduced.

([8]) The long-term growth developments are anchored to the macroeconomic assumptions of the revised 2021 Ageing Report (see European Commission - EPC (2020)). These reflect the recent reforms affecting the sustainability of public finances in the long-term (such as pension reforms, and health and long-term care measures), recent demographic projections with an impact on participation rates and labour market variables, and the assumption of convergence in labour productivity across Member States. The updated long-term growth is on average 0.4 percentage points higher compared to the one assumed before. The projections do not take into account the potential positive impact on potential growth from reforms and investments that could be implemented under the Recovery and Resilience Facility, as these were unknown at the cut-off date of this DSA update.

(Continued on the next page)

Box (continued)

premium in the long-term, the debt ratio – while on a declining path – would remain significantly higher than in the baseline projections. The gross financing needs would also be higher, but remain marginally below 20% of GDP in the long term. Should a higher risk premium be accompanied with lower real GDP growth in the long-term, the debt trajectory would not stabilise, and gross financing needs would exceed 20% of GDP from the mid-2030s onwards. As the 8th Enhanced Surveillance Report argues, this highlights the importance of proceeding with an ambitious growth agenda ([9]).

In addition to the assessment of long-term risks, the medium-term risks are analysed in this Box based on the Commission standard alternative scenarios and sensitivity tests for assessing medium-term fiscal sustainability risks ([10]). Given small rollover risks over the next 10 years, standard negative shocks to growth or interest rates do not have a sizable impact on the debt ratio over the medium-term. Under all stress tests and alternative scenarios considered in this DSM update, the debt trajectory is expected to remain on a downward path over the medium-term. However, as GFNs are expected in the baseline to hover above 15% of GDP and reach about 19% of GDP in 2031, negative shocks to growth over the medium-term could lead to more persistent fiscal deficits, and therefore, lead to further increases in GFNs. Nevertheless, considering the historical distribution of shocks, the probability of the debt ratio being higher in 2025 than its current level is rather low, at about 12% (see fan chart in the statistical annex below).

Additional mitigating and aggravating risk factors exist. The structure of the Greek government debt, in terms of maturity structure and composition helps mitigating vulnerabilities, while additional risks could emerge from sizeable contingent liabilities. As official lenders hold the majority of government debt, Greece is in principle less exposed to rollover risks associated with high debt levels ([11]). A large share of debt is financed at low rates by official lenders and the average maturity increased substantially over the past years (average residual maturity on medium and long-term debt is about 21 years in 2020), effectively insulating the financing costs from short-term fluctuations and reducing rollover risks. Furthermore, the Recovery and Resilience Facility is also expected to be a mitigating factor that could support growth potential through investments and reforms. Aggregate interest expenditure is expected to remain low in the baseline scenario by historical standards. Moreover, risks stemming from an increase in the share of short-term debt are more than offset by the existing substantial cash buffer. State cash reserves remained high at around €19.6 billion as of end-September 2020 ([12]). By contrast, the large negative international investment position could be an aggravating factor, as well as the share of non-performing loans in the banking sector, which points to non-negligible uncertainty related to contingent liability risks. Similarly, the materialisation of contingent liabilities related to state guarantees to firms and self-employed granted during the pandemic could represent a non-negligible risk. Finally, a sudden reversal in the currently observed low-interest-environment over the medium-term could also be considered an aggravating factor, if it materialises.

([9]) For details on the alternative scenarios capturing long-term risks, please see the 8th Enhanced Surveillance Report.

([10]) For details on the calibration of the Commission standard alternative scenarios and sensitivity tests for assessing medium-term risks, please see the methodological annexes of the DSM.

([11]) The share of government debt held by the non-resident external official lenders is currently about 75% for Greece. Given the large weight of the external official sector in total outstanding debt, market perception of rollover risks is negligible.

([12]) This includes the cash buffer account, amounting to €15.7 billion, which was built through disbursements under the European Stability Mechanism programme and dedicated to debt service. Greece may use this amount for other purposes as well, following an approval of the European Stability Mechanism's governing bodies.

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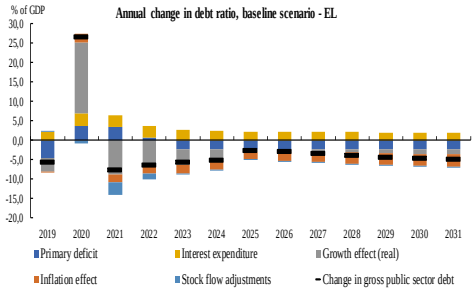
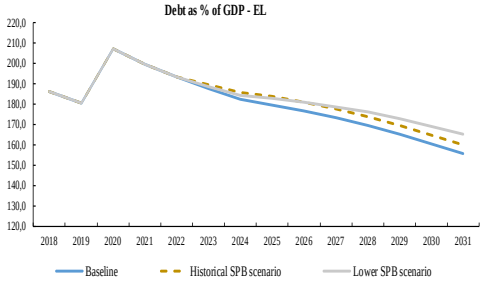
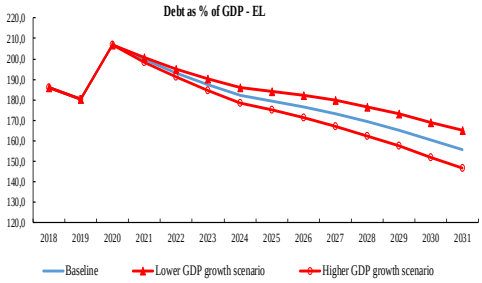
Box (continued)

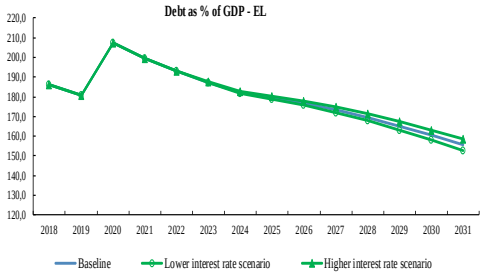
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

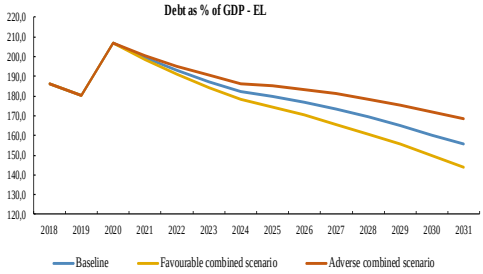
EL - Debt projections baseline scenario	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**180,5**	**207,1**	**199,6**	**193,1**	**187,3**	**182,2**	**179,6**	**176,6**	**173,2**	**169,4**	**165,1**	**160,4**	**155,5**
Changes in the ratio (-1+2+3)	*-5,7*	*26,6*	*-7,6*	*-6,5*	*-5,8*	*-5,1*	*-2,6*	*-3,0*	*-3,4*	*-3,8*	*-4,3*	*-4,8*	*-4,8*
of which													
(1) Primary balance	**4,5**	**-3,8**	**-3,6**	**-0,8**	**2,2**	**2,2**	**2,2**	**2,2**	**2,2**	**2,2**	**2,2**	**2,2**	**2,2**
(2) Snowball effect (2.1+2.2+2.3)	**-1,6**	**23,7**	**-7,9**	**-5,7**	**-3,5**	**-2,9**	**-0,4**	**-0,8**	**-1,2**	**-1,6**	**-2,1**	**-2,6**	**-2,6**
(2.1) Interest expenditure	*2,2*	*3,1*	*2,9*	*2,8*	*2,7*	*2,5*	*2,3*	*2,2*	*2,1*	*2,1*	*1,9*	*1,9*	*1,9*
(2.2) Growth effect	*-3,4*	*18,4*	*-8,8*	*-6,2*	*-4,1*	*-3,4*	*-0,7*	*-0,8*	*-0,8*	*-0,9*	*-1,0*	*-1,2*	*-1,4*
(2.3) Inflation effect	*-0,4*	*2,2*	*-1,9*	*-2,3*	*-2,2*	*-2,0*	*-1,9*	*-2,2*	*-2,5*	*-2,8*	*-3,0*	*-3,2*	*-3,1*
(3) Stock-flow adjustments	**0,4**	**-0,9**	**-3,2**	**-1,5**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**

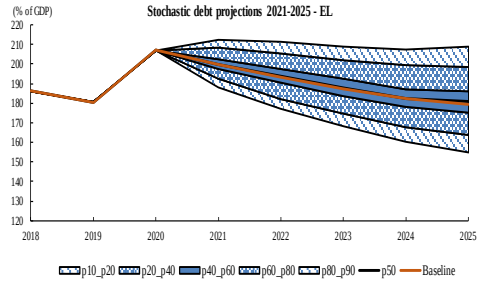












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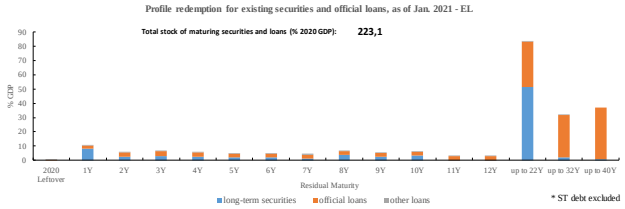
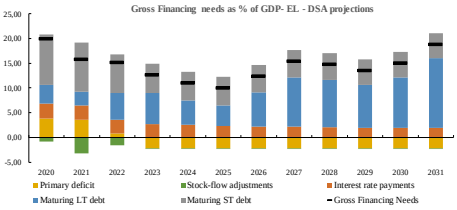
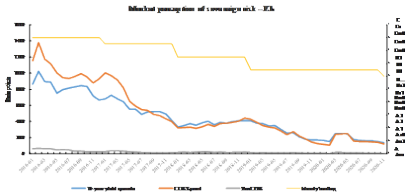
Box (continued)

2. Financing needs and financial information







Sovereign Ratings as of Jan 2021, EL	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Ba3	NP	Ba3	NP
S&P	BB-	B	BB-	B
Fitch	BB		BB	B

Sovereign yield spreads (bp) - as of November 2020	10-year	136.9

3. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - EL (2019)	Share of short-term government debt (p.p.):	Share of government debt in foreign currency (%):	Share of government debt by non-residents (%):
	6.2	1.1	n.a.*

Net International Investment Position (IIP) EL (2019)	Net IIP (% GDP):
	-155.9

*The share of government debt held by the non-resident external official lenders is currently at about 75% for Greece. Given the large weight of the external official sector in total outstanding debt, the signal provided by this indicator becomes less relevant.

4. Risks related to government's contingent liabilities

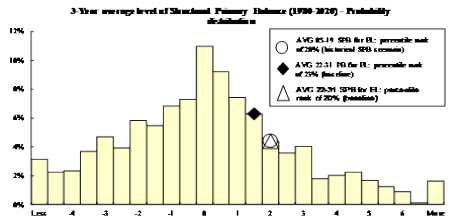
General government contingent liabilities		EL					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		30.9	27.8	6.4	4.3	4.1	6.7
of which	*One-off guarantees*	*30.8*	*27.8*	*6.4*	*4.3*	*4.0*	*6.2*
	Standardised guarantees	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.1*	*0.1*	*0.1*	*0.2*	*0.3*

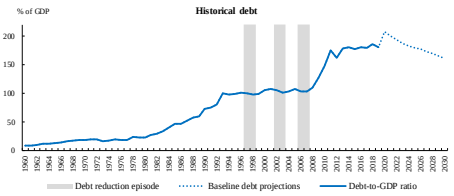
		2013	2015	2016	2018	2019	2019
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	27.0	24.0	2.2	0.2	0.2	1.1
	Securities issued under liquidity schemes	1.3	1.2	0.0	0.0	0.0	0.0
	Special purpose entity	0.0	0.0	0.0	0.0	0.0	0.1
	Total	28.3	25.2	2.2	0.2	0.2	1.2

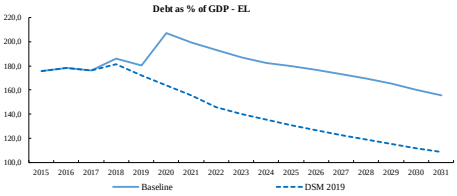
Government's contingent liability risks from banking sector - EL (2019)	Private sector credit flow (% GDP):	Change in nominal house price index:	Bank loans-to-deposits ratio (p.p.):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	NPL coverage ratio
	0.8	7.2	85.0	30.3	-8.9	44.3

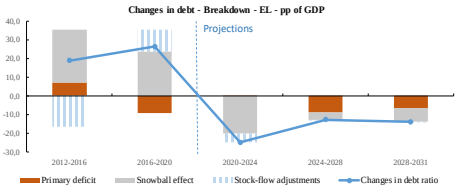
* The bank loans-to-deposits ratio, the share of non-performing loans, and the NPL coverage ratio refer to June 2019.

5. Realism of baseline assumptions









4. LONG-TERM FISCAL SUSTAINABILITY ANALYSIS

4.1. LONG-TERM FISCAL SUSTAINABILITY INDICATOR: THE S2 INDICATOR

4.1.1. Baseline results of the S2 indicator

Fiscal sustainability in the long term relates to the achievement of the government's intertemporal budget constraint. This constraint, which is also known as the solvency condition, refers to the capacity of a country to meet its debt obligations, over an infinite horizon, with a stream of future primary surpluses. This condition requires that the government debt stabilises over the long term (i.e. by 2070). Other things equal, the greater 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 additional costs, in addition to other expenditure, including the cost of servicing the outstanding debt.

The S2 indicator is the central element of the long-term sustainability analysis. Using the infinite version of the government budget constraint, the S2 fiscal sustainability gap indicator measures the budgetary adjustment that would ensure sustainable public finances in the long term. Specifically, this indicator shows the upfront adjustment to the (baseline) structural primary balance (subsequently kept constant at the adjusted value forever) that is required to stabilise debt-to-GDP ratio over the infinite horizon, taking into account any additional expenditure arising from an ageing population ([66]).

([66]) The upfront adjustment to the structural primary balance is anchored to the baseline, and assumed to take place once the structural primary balance reaches its pre-crisis forecast value (see annex A5 for further details).

Table 4.1: **Results of the S2 long-term sustainability indicator**

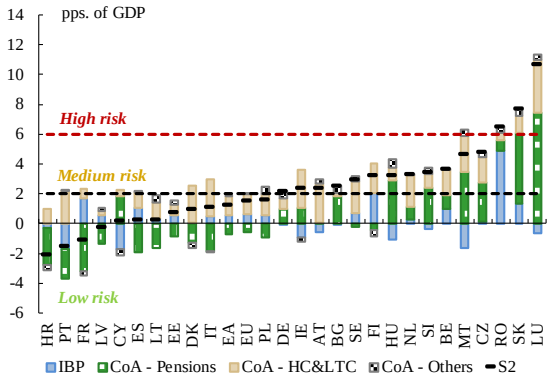
	S2			CoA			
	S2	IBP	CoA	Pensions	HC	LTC	Others
BE	3.7	1.0	2.7	0.9	0.3	1.4	0.0
BG	2.5	-0.1	2.5	1.9	0.1	0.1	0.5
CZ	4.8	0.2	4.6	2.6	0.6	1.1	0.3
DK	1.0	0.1	0.9	-1.3	0.7	1.7	-0.3
DE	2.1	-0.1	2.2	1.0	0.5	0.3	0.5
EE	0.7	0.6	0.2	-0.8	0.4	0.4	0.3
IE	2.4	-0.9	3.3	1.0	0.7	1.8	-0.3
ES	0.2	1.1	-0.8	-1.9	0.0	1.0	0.0
FR	-1.1	1.7	-2.8	-3.2	0.2	0.5	-0.3
HR	-2.1	-0.3	-1.8	-2.5	0.8	0.3	-0.3
IT	1.1	0.5	0.6	-1.8	0.6	1.8	-0.1
CY	0.2	-1.7	1.9	1.8	0.2	0.2	-0.4
LV	-0.3	0.5	-0.8	-1.3	0.2	0.1	0.2
LT	0.3	0.3	-0.1	-1.6	0.2	0.9	0.5
LU	10.7	-0.7	11.4	7.4	1.0	2.6	0.3
HU	3.3	-1.1	4.3	2.9	0.5	0.4	0.6
MT	4.6	-1.7	6.3	3.5	1.5	0.9	0.4
NL	3.3	0.3	3.0	0.9	0.4	1.7	0.0
AT	2.4	-0.6	3.0	0.0	1.0	1.6	0.3
PL	1.6	0.6	1.0	-0.9	0.7	0.7	0.5
PT	-1.5	-1.7	0.2	-2.0	1.5	0.7	0.0
RO	6.5	4.9	1.6	0.7	0.3	0.2	0.4
SI	3.4	-0.3	3.7	2.4	0.3	0.6	0.4
SK	7.7	1.4	6.3	4.7	0.7	0.4	0.4
FI	3.2	2.1	1.2	-0.4	0.5	1.5	-0.4
SE	2.9	0.7	2.2	-0.2	0.6	1.5	0.4
EU	1.5	0.6	0.9	-0.6	0.4	0.9	0.1
EA	1.2	0.5	0.7	-0.7	0.4	0.9	0.0

Source: Commission services.

The S2 indicator points to fifteen Member States at high or medium fiscal risk in the long term ([67]). The upfront adjustment to the primary structural primary balance implied by the S2 indicator in the EU is shown in Table 4.1 and Graph 4.1. Luxembourg, Slovakia and Romania, the countries for which the S2 indicator stands above the high risk threshold (with an S2 level of 10.7, 7.7 and 6.5 pps. of GDP, respectively), face substantial long-term sustainability challenges. The large long-term fiscal gap for these countries is related in particular to an unfavourable initial budgetary position (IBR) in the case of Romania, and to the projected pressure stemming from an ageing population and more specifically pension spending, in the case of Luxembourg and Slovakia. The other countries with fiscal gaps pointing to medium risk are CZ, MT, BE, SI, NL, HU, FI, SE, BG, AT, IE and DE.

([67]) The calculation of the S2 indicator is based on the cost of ageing reported in the Ageing Report 2018 and subsequent updating of the pension spending related to reforms between 2018 and 2019 in the following countries: Croatia, Italy, Romania and Slovakia.

Graph 4.1: **The S2 sustainability indicator and its components**

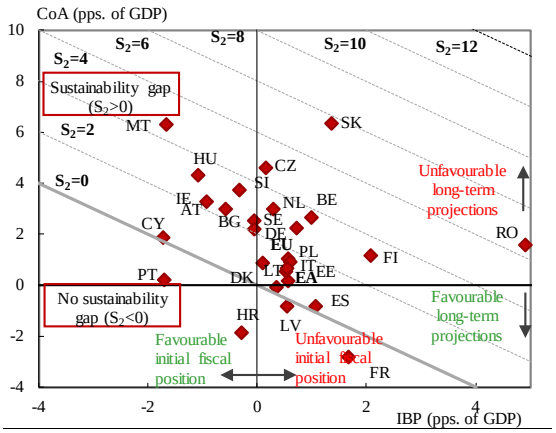


(1) For the long-term sustainability indicator S2, the following thresholds are used to assess the scale of the sustainability challenge: 1) if S2 is lower than 2, the country is assigned low risk; 2) if S2 is between 2 and 6, the country is assigned medium risk; 3) if S2 is greater than 6, the country is assigned high risk (see European Commission, 2012 and 2016a).
Source: Commission services.

Government spending on health and long-term care contributes to widening the fiscal sustainability gap in all the Member States. Graph 4.1 shows for each Member State a disaggregation of the S2 indicator in terms of the initial budgetary position (IBP) ([68]) and the three components of the long-term cost of ageing (CoA) ([69]), namely pensions, healthcare, long-term care, and other determinants (education expenditure and unemployment benefits, see also Table 4.1). The contribution of government spending on health and long-term care to the sustainability gap is particularly high (greater than or equal to 2.0 pps. of GDP) for LU, AT, IE, IT, DK, MT, PT, SE and NL. Expenditure on pensions is estimated to widen the sustainability gap in fourteen countries, especially in LU, SK, MT, HU, CZ, SI, BG and CY (greater than or equal to 1.5 pps. of GDP). Overall, the contribution of the total cost of ageing to long-term sustainability risks is expected to be very significant, exceeding 2 pps. of GDP in LU, SK, MT, CZ, HU, SI, IE, NL, AT, BE, BG, SE and DE.

In a bit less than half of the Member States the sustainability gap is due to both an unfavourable initial fiscal position and the cost of ageing. This is reflected in the position of a significant number of countries in the top right quadrant in Graph 4.2, which maps the Member States according to their respective values for the S2 indicator and the two components (costs of ageing and IBP).

Graph 4.2: **The EU countries mapped across the S2 components**



Source: Commission services.

Almost all Member States have an unfavourable initial fiscal position and/or adverse expected developments in the cost of ageing. Only HR has both a favourable initial fiscal position and a favourable impact from the projected budgetary cost of population ageing. Among the eleven Member States that have a low long-term sustainability risk (S2 less or equal to 2.0 pps. of GDP), Croatia, Portugal, France, and Latvia are the only Member States that have a negative S2 sustainability gap (lying in the area south-west of the solid diagonal line). BG, DE, IE, CY, LU, HU, MT, AT, PT and SI enjoy a favourable initial budgetary position but an unfavourable impact of projected age-related costs (located in the top left quadrant). With the exception of Cyprus and Portugal, the favourable initial budgetary position in these countries is not sufficient to guarantee long-term sustainability, given the expected long-term increase in ageing-related expenditure. Other countries (Spain, Latvia, Lithuania and France) face favourable

([68]) More specifically, this component of S2 is given by the gap between the initial structural primary balance, and the debt-stabilising primary balance, and thus abstracting from future changes due to the cost of ageing.

([69]) The long-term budgetary projections (incorporated in the calculation of the sustainability indicators presented here) have been published in European Commission - EPC (2018). For Croatia, Italy, Romania, and Slovakia, pension expenditure projections have been updated following recent reforms (see European Commission, 2020a).

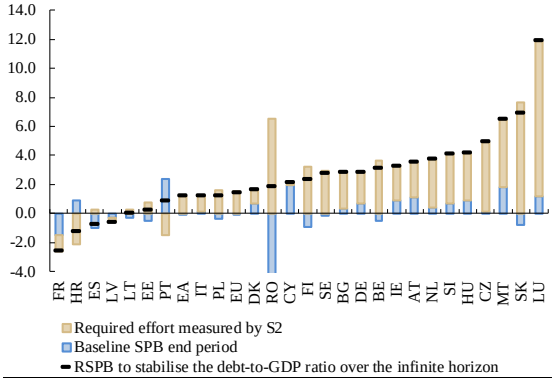
developments in long-term age-related spending but an unfavourable initial budgetary position (lying in the bottom right quadrant). For France and Latvia the drop in age-related spending offsets the unfavourable initial fiscal position, thereby leading to a negative reading for the S2 indicator, while for Spain and Lithuania the drop in age-related spending does not offset the unfavourable initial fiscal position but still yields a low S2 level. In Italy, while recent reforms yield a less adverse age-related spending development, this component remains on an upward path.

Besides the S2 indicator, the overall long-term sustainability risk takes into account the overall results of the DSA. The results of the overall long-term sustainability risks are presented in chapter 6, while the methodology used is presented in Annex A9 ([70]).

4.1.2. The required structural primary balance

The overall size of the required structural primary balance (RSPB) is informative about the overall fiscal policy that needs to be sustained to close the sustainability gap. The RSPB is the sum of the structural primary balance reached in the baseline (i.e. the pre-crisis forecast value) and the required additional effort measured by S2 to stabilise the debt ratio in the long term. The RSPB is estimated at 11.9% of GDP for Luxembourg, 6.9% of GDP for Slovakia and at 6.5% of GDP for Malta. Graph 4.3 shows that for fifteen Member States the structural primary surplus required to stabilise debt in the long term exceeds 2% of GDP.

Graph 4.3: **The required structural primary balance to stabilise debt-to-GDP ratio over the infinite horizon (% and pps. of GDP)**



Source: Commission services.

The percentile rank of the RSPB implied by the S2 indicator gives an indication of the degree of the plausibility of the implied adjustment. The RSPB can be benchmarked to the history of primary balances in the EU, hence allowing an assessment of how common (or uncommon) the fiscal position assumed in the projections is, relative to the structural primary balance distribution for all EU countries over 1980-2020. In particular, it indicates where a very large primary balance implied by the S2 is unlikely to be sustained in the long term, based on historical evidence. The required structural primary balances appear particularly large in LU, MT, SK, CZ, HU, SI, NL, AT, IE, BE, BG, DE and SE (see Table 4.2) – as the associated percentile rank is below 20%.

([70]) Box 4.1 of the Fiscal Sustainability Report 2018 also discusses more extensively the approach used to assess long-term sustainability challenges.

Table 4.2: **Plausibility of the S2 implied fiscal adjustment**

	Baseline SPB end period	S2	RSPB (% of GDP)	Percentile rank
BE	-0.5	3.7	3.1	13%
BG	0.4	2.5	2.9	15%
CZ	0.1	4.8	4.9	5%
DK	0.7	1.0	1.6	27%
DE	0.7	2.1	2.9	15%
EE	-0.5	0.7	0.3	49%
IE	0.9	2.4	3.3	12%
ES	-1.0	0.2	-0.8	66%
FR	-1.4	-1.1	-2.6	84%
HR	0.9	-2.1	-1.2	71%
IT	0.1	1.1	1.2	33%
CY	2.0	0.2	2.1	21%
LV	-0.3	-0.3	-0.6	64%
LT	-0.3	0.3	0.0	55%
LU	1.2	10.7	11.9	0%
HU	0.9	3.3	4.2	8%
MT	1.8	4.6	6.5	1%
NL	0.4	3.3	3.7	10%
AT	1.1	2.4	3.5	11%
PL	-0.3	1.6	1.2	33%
PT	2.4	-1.5	0.9	39%
RO	-4.6	6.5	1.9	25%
SI	0.7	3.4	4.1	8%
SK	-0.8	7.7	6.9	1%
FI	-0.9	3.2	2.3	20%
SE	-0.1	2.9	2.8	16%
EU	-0.1	1.5	1.4	30%
EA	0.0	1.2	1.2	33%

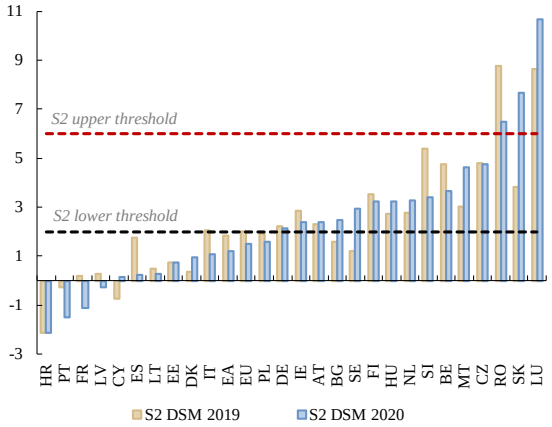
Source: Commission services.

4.1.3. Comparison with previous results

This section compares the results of the S2 indicator with those presented in the Debt Sustainability Monitor 2019 (DSM 2019 henceforth). As in the DSM 2019, the cost of ageing in this report refers to the long-term projections reported in the Ageing Report 2018, although such projections were updated to reflect recent pension reforms.

The decrease in the long-term fiscal sustainability gaps in the EU and the EA hides differences across Member States. Compared to the DSM 2019, the S2 sustainability gap has decreased by 0.5 pps. of GDP for the EU27 ([71]) and by 0.6 for the EA, notably driven by a change in the interest rate assumption to reflect the past decades' decline of interest rates. ([72]) Still, the required permanent fiscal adjustment to ensure long-term sustainability is higher in eleven Member States, notably given the deteriorated initial budgetary position. As Graph 4.4 shows, for Bulgaria and Sweden the risk category according to the S2 indicator changes from low to medium, while Slovakia is the only country for which the category moves from medium to high risk. The risk category improved only for Italy, from medium to low risk. Indeed, in this highly indebted country, the downward revision of the interest rate assumption has a substantial (favourable) impact on projected interest payments, and hence, on the gap to the debt-stabilising primary balance. ([73]) Among countries at medium and high risk, the latest S2 results indicate greater long-term sustainability challenges by more than 0.5 pps. of GDP compared to DSM 2019 for SK, LU, SE, MT, BG, HU and NL. In the case of SK, the revision is largely driven by the updated projected costs of ageing, in line with recent pension reforms.

Graph 4.4: **S2 comparison with DSM 2019 (pps. of GDP)**



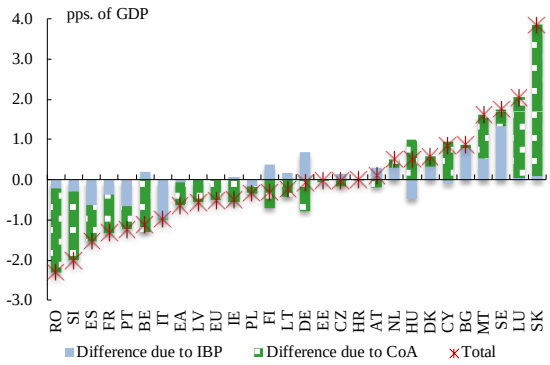
Source: Commission services.

([71]) Note that in the DSM 2019 reference was still made to EU28, with an S2 level of 2.4 for that aggregate (as shown in Graph 4.6). The S2 for the EU27 computed on the basis of DSM 2019 was instead 2.0. The EU27 aggregate has now declined to 1.5 in the present report.

([72]) The long-term convergence value of long-term market interest rates has been generally revised from 5% to 4% in nominal terms (see Box 4.1).

([73]) Assuming a long term interest rate at 5% in nominal terms (as in the DSM 2019), the S2 indicator would reach 2.6 pps. of GDP for IT, hence a higher value compared to the DSM 2019, signalling medium risk (see Table 4.3).

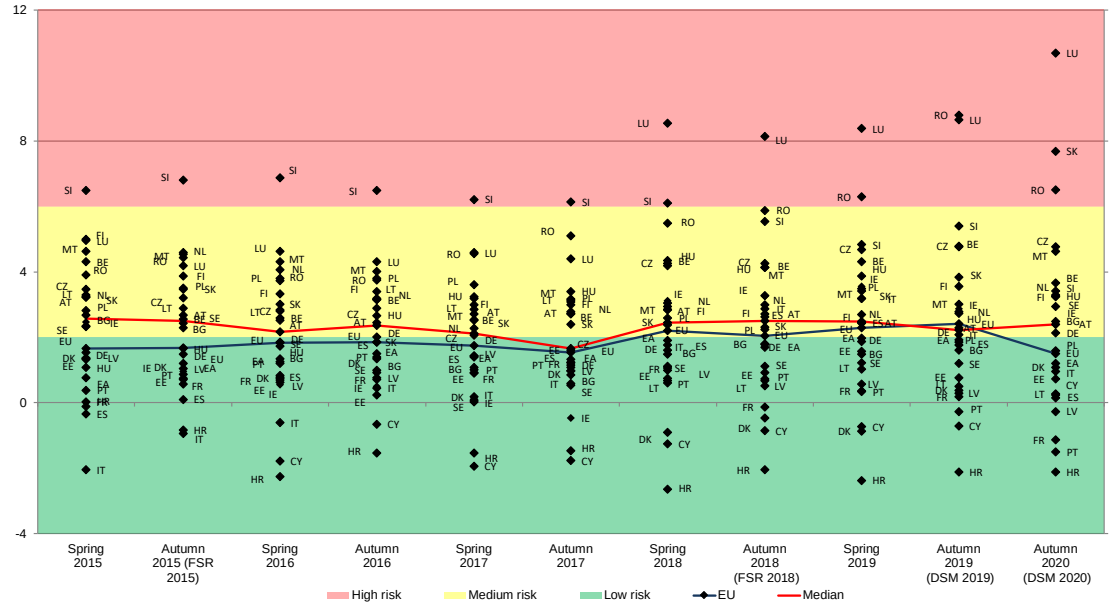
Graph 4.5: **Components of change in S2 (2020 Autumn Forecast compared to DSM 2019 based on 2019 Autumn Forecast)**



Source: Commission services.

According to the S2 indicator, the number of Member States with a low risk for long-term sustainability increased from seven in 2014 to eleven in Autumn 2020, while it was twelve in Autumn 2019**.** This can be seen in Graph 4.6, which allows a comparison between values of the S2 indicator across consecutive Commission forecast vintages (from spring 2015 to autumn 2020). The S2 sustainability gap for the EU as a whole, after reaching a low risk level in 2015, returned to a value corresponding to the medium risk category in 2018. The low risk level of the S2 indicator between 2015 and 2017 reflects the fiscal consolidation undertaken following the economic and financial crisis, as well as general improvement in pension projections in the 2015 Ageing Report, as a result of more favourable demographic assumptions and the impact of enacted pensions reforms. Higher long-term sustainability challenges in the EU as a whole since 2018 reflect the slight increase in age-related spending of about 0.6 pps. of GDP in the long term in the 2018 Ageing Report compared to the 2015 Ageing Report. The slight decrease this round reflects the downward revision of the interest rate assumption, with favourable impacts in some large and highly indebted countries. In the case of Ireland, Spain and Latvia, the volatility of the long-term fiscal sustainability gap across forecast vintages reflects an initial weak budgetary position around the years of the economic and financial crisis, followed by a substantial consolidation after. The increase in the S2 indicator level seen in the latest vintage for Slovakia, Luxembourg, Malta, Cyprus, and Hungary are driven largely by higher projected age-related costs in the long term, largely driven by the updated projected costs of ageing in the case of Slovakia, in line with recent pension reforms, while in the other countries it reflects mainly the impact of the revision to the interest rate assumption, with lower assumed interest rate implying lower interest expenditures but also a higher present value of the cost of ageing, underpinning a noticeable increase of that component in the case of Luxembourg, Malta, Cyprus, and Hungary. For Sweden, Bulgaria, Denmark and the Netherlands, the increase in the S2 indicator is driven by a less favourable initial budgetary position.

Graph 4.6: **The S2 sustainability indicator across the Commission forecast vintages (pps. of GDP)**



Source: Commission services.

4.2. SENSITIVITY ANALYSIS OF THE S2 INDICATOR

The S2 indicator is sensitive to changes in key assumptions of the baseline. Fiscal projections under the baseline are surrounded by uncertainties over a longer horizon. Given these uncertainties, risks can be assessed by comparing the baseline with alternative scenarios. The two alternative scenarios considered in this section are (i) the TFP risk scenario and (ii) the interest rate scenario ([74]). The S2 results of each sensitivity scenario are reported in Table 4.3.

The S2 fiscal gap varies widely across Member States and sensitivity scenarios. In some countries, the S2 fiscal gap indicator appears overall more sensitive to underlying assumptions than others. This reflects mainly differences in structural and institutional factors, such as the presence of automatic adjustment mechanisms in social security systems, indexation rules of social benefits (for the TFP risk scenario), and the outstanding level of debt (for the interest rate scenario).

([74]) The alternative scenarios are specified as follows: (i) the 'TFP risk scenario' assumes a negative shock to the long-term economic outlook in the form of a lower total factor productivity (e.g. TFP growth converges to 0.8% in the long term instead of 1%); and (ii) the 'interest rate scenario' tests the impact of a higher interest rate paid by the government on its newly issued debt over the long term - i.e. the nominal short- and long-term interest rate converging, by T+30, to 2.5% and 5%, respectively instead of 2% and 4% in the baseline.

Table 4.3: **S2 results of sensitivity analysis and associated long-term risk**

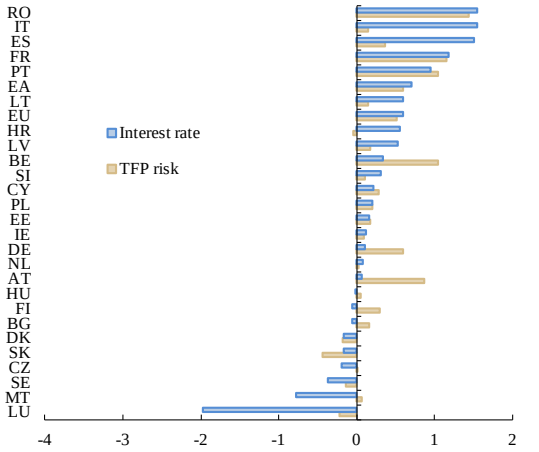
	S2 baseline scenario	*S2 alternative scenarios*	
		TFP sensitivity risk	Interest rate sensitivity risk
BE	3.7	4.7	4.0
BG	2.5	2.7	2.4
CZ	4.8	4.8	4.6
DK	1.0	0.8	0.8
DE	2.1	2.7	2.2
EE	0.7	0.9	0.9
IE	2.4	2.5	2.5
ES	0.2	0.6	1.7
FR	-1.1	0.0	0.0
HR	-2.1	-2.2	-1.6
IT	1.1	1.2	2.6
CY	0.2	0.4	0.4
LV	-0.3	-0.1	0.3
LT	0.3	0.4	0.9
LU	10.7	10.5	8.7
HU	3.3	3.3	3.2
MT	4.6	4.7	3.9
NL	3.3	3.3	3.4
AT	2.4	3.3	2.5
PL	1.6	1.8	1.8
PT	-1.5	-0.5	-0.6
RO	6.5	7.9	8.0
SI	3.4	3.5	3.7
SK	7.7	7.3	7.5
FI	3.2	3.5	3.2
SE	2.9	2.8	2.6
EU	1.5	2.0	2.1
EA	1.2	1.8	1.9

Source: Commission services.

The lower TFP growth scenario tends to have overall small – yet non-negligible - impacts on the long-term fiscal gap. The difference in the sustainability gaps of the TFP risk scenario (compared to the baseline) is highest for Romania, France, Portugal, Belgium and Austria. This notably reflects the fact that pension indexation rules in place tend to affect differently the magnitude of the sustainability gaps. When pension benefits are indexed to wages, the pension-to-GDP ratio is largely invariant to changes in labour productivity developments, compared to countries where they are linked to prices (e.g. France and Austria).

The impact of a higher interest rate in the long term on the sustainability gaps appears overall similar, though higher in highly indebted countries. In particular, a higher interest rate would be more challenging for Italy, Spain, France and Portugal (see Graph 4.7). Under the interest rate scenario, an overall lower long-term fiscal gap under the interest rate scenario, as observed for some countries (e.g. LU and MT), is explained by two counter-acting effects: on one hand, higher interest rates increase future interest payments, entailing a higher fiscal adjustment needed to meet the IBC; on the other hand, as future ageing costs enter the S2 calculation in discounted terms, higher interest rates decrease their weight in present value.

Graph 4.7: **S2 – Difference between interest rate/TFP risk and baseline scenarios (pps. of GDP)**



Source: Commission services.

Box 4.1: **A downward revision to long-term interest rates**

Risk-free interest rates have been falling across the globe for some decades, as acknowledged by a rich literature. In this environment, the conventional interest rate assumptions used for projections in different institutional reports appeared increasingly contrasting ([1]). For improved realism, interest rate assumptions have been progressively revised after 2019.

In early 2020, the Commission adjusted the interest rate assumption underpinning its debt projections up to t+10 to reflect market expectations, ([2]) and deferred the former conventional T+10 target of 3% real (5% nominal) to T+30. This revision has applied since the Debt Sustainability Monitor (DSM) 2019. Later in 2020, the Council's working group on Ageing Populations and Sustainability (AWG) further agreed on lower target values for interest rates by T+30, as reflected in the Ageing Report (AR) 2021 ([3]).

The Box describes these new assumptions for setting interest rates' targets over the long term. In particular, long-term interest rates on new and rolled-over debt are assumed to first converge to country-specific forward market rates at T+10 (2031) (as revised since the DSM 2019), then converge to 2% real by T+30 (2051) (4% nominal for most EU countries), remaining constant thereafter. ([4]) The latter assumption is in line with the assumption of the Ageing Report 2021.

The remainder of this box is organised as follows: the first section describes the rationale behind the downward revision to interest rates' targets over the long term; the second section presents the revised assumptions; finally, the third section analyses the impact of this revision on the long-term fiscal sustainability gap (the S2 indicator), and the related risk classification.

Economic rationale revisited

Interest rate decline preceded COVID-19. Even before the COVID-19 crisis, risk-free nominal interest rates in advanced economies had been trending downward for several decades (see Graph 1). Real rates declined in parallel, though to a slightly lesser extent. Persistently low inflation and sluggish economic growth suggest a secular decline of the real equilibrium rate to historically low levels, as reflected in market expectations of persistently low interest rates in the years to come.

This global phenomenon is well documented in the literature, being associated to both structural and circumstantial drivers. The forces pulling down interest rates are attributed both to 'structural factors' having triggered an excess of real savings over investment and to more circumstantial or policy-related drivers. Structural factors include demographic changes such as expected ageing (precautionary savings inducing), income growth in emerging economies (especially China), rising income or wealth inequality, low productivity, sluggish invention and innovation, and low investment profitability, also associated to depressed investment and deleveraging. Circumstantial drivers include the scarcity of safe assets and increased demand thereof amidst global uncertainty, as seen in the euro area after the sovereign debt crisis. Moreover, monetary and

(Continued on the next page)

([1]) Before 2020, the Ageing Reports, Debt Sustainability Monitors and Fiscal Sustainability Reports used a 3% real (5% nominal) (target) value to project (long-term) interest rates. Recent reports considered a slower linear convergence to this value, pushing this target further into the future. The reference value of 5% reflected historical interest rate averages in some countries, including the largest EU members - see European Commission – EPC (2017), Part I.4. Table I.4.1.

([2]) This approach is similar to that used in the Commission Forecasts. For details, see Chapter 3 and Box 3.1 of the European Commission (2020a).

([3]) See Part I.4 of European Commission - EPC (2020).

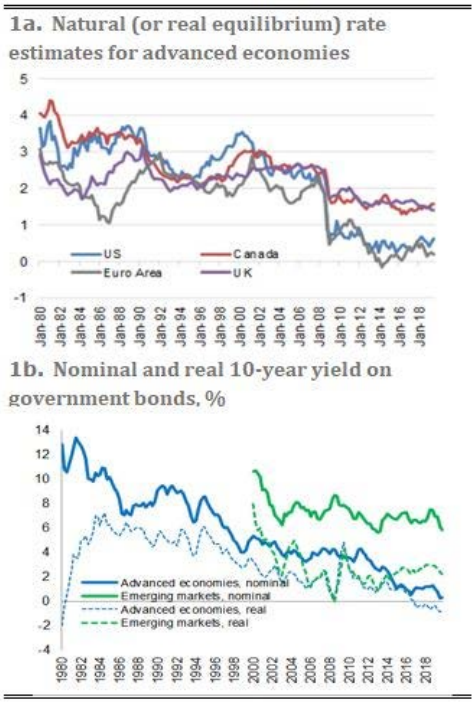
([4]) 4.5% nominal for Poland and Romania, and 5% nominal for Hungary, given these countries' higher inflation targets).

Box (continued)

prudential policy may also play a role as circumstantial factors, since they can regulate destabilizing financial cycles, modulate their booms and busts, influence portfolio management, and thereby keep the real economy out of a low interest, low output trap.

The pandemic is expected to leave a legacy of even lower interest rates. Currently, several economists take the view that the COVID-19 crisis could further depress the equilibrium real interest rate, possibly for decades ahead. Recent evidence indicates that the real natural rate of interest could decline for decades in the aftermath of pandemics, as the latter induce labour scarcity, a shift to greater precautionary savings (Jordà *et al*, 2020)([5]), a boost to income inequality (The Economist, 2020), and changes of beliefs about risk, with long-lasting effects (Kozlowski *et al*, 2020). The channel of excess savings, which played an important role in past decades, is expected to continue to feature prominently during the current crisis. As lockdowns made cash harder to spend, private-sector demand fell, leading to money hoarding and driving down the equilibrium real interest rate (Goy, G. and van den En, 2020; The Economist, 2020). Some upward effects on interest rates could be noted if there was persistent supply of 'safe' government bonds. However, if potential growth falls and shortage of safe assets persists as risk premia remain elevated, or even rise as a result of increased risk aversion and behavioural changes, the crisis would have an additional downward, lasting effect on the equilibrium rate ([6]).

Graph 1: **Interest rate decline**



(1) 1a: Estimates provided by the New York Fed, following Holston, Laubach, Williams (2017).
(2) 1b: Simple averages of available data for selected countries.
Source: DG ECFIN based on New York Fed (1a), Macrobond, and national sources (1b).

([5]) This study focuses on a dataset of European countries: France (1387–2018), Germany (1326–2018), Italy (1314–2018), the Netherlands (1400–2018), Spain (1400–1729, 1800–2018), and the UK (1314–2018).
([6]) See Goy et al. (2020) and Kozlowski et al. (2020).

(Continued on the next page)

Box (continued)

Table 1: **Selected macroeconomic assumptions in subsequent projection rounds (baseline scenario)**

	Long-term market interest rate	Inflation target
Debt Sustainability Monitor 2020	Linear convergence to: - country-specific forward market rates at T+10 (2031) - **2% real** (**4% nominal** in all EU27 except PL, RO (4.5%) and HU (5%)), by T+30 (2051) - maintained thereafter, until the end of projection period T+50 (2070).	2% for all EU27, except PL, RO (2.5%) and HU (3%)
Debt Sustainability Monitor 2019	Linear convergence to: - country-specific forward market rates at T+10 (2030) - **3% real** in all EU28 except PL, RO (2.5%) and HU (2%), (**5% nominal** in all EU28) by T+30 (2050) - maintained thereafter, until the end of projection period T+50 (2070).	2% for all EU28, except PL, RO (2.5%) and HU (3%)

(1) Individual Member States' growth rates are country-specific. See Chapters 3 of the 2018 and 2021 Ageing Reports, Underlying Assumptions & Projection Methodologies.
Source: European Commission

Interest rate assumptions in the DSM 2020

Interest rate assumptions over the long-term in the DSM 2020 are those of the AR 2021, implying that interest rates beyond T+10 are now lower compared to the DSM 2019. In this report, long-term interest rates on new and rolled-over debt will first converge linearly to country-specific forward market rates at T+10 (2031), similarly to the DSM 2019. Between T+10 (2031) and T+30 (2051), however, this report foresees a lower interest rate target compared to the DSM 2019. Specifically, beyond T+10, long-term real rates on new and rolled-over debt are assumed to converge linearly to 2% by T+30 (2051), a target common to all EU countries. This implies convergence to 4% nominal rates by the same year, for most EU countries except Poland and Romania (4.5% nominal) and Hungary (5% nominal), given higher inflation targets in these countries ([7]). All interest rates would remain constant thereafter, until 2070 (see Table 1).

Impact on S2 and the long-term fiscal risk classification

This downward revision to interest rates' targets over the long term generally leads to lower S2 values. This is the case for most countries, but especially for those laden with high debt, such as Spain, Italy, France or Portugal. In these cases, lower interest rates would come with reduced interest payments and thus smaller contribution to the sustainability gaps from the initial budgetary position (reflecting lower future interest payments), compared to the old assumption (see Table 3 and Annex A5). The effect of reduced future interest payments filters through the debt structure, progressively translating into lower implicit interest rates over the projection period (see Table 2).

In a few country cases, S2 increased as interest rates are reduced compared with the previous assumption. In countries with lower debt ratios but with projected ageing costs significantly rising, lower interest rates have a strong gap-increasing effect on S2 components in discounted terms. The latter effect outstrips the fiscal margin expected from the lower future interest payments. Indeed, on one hand, lower interest rates reduce future interest payments, entailing a lower fiscal adjustment needed to meet the IBC; on the other hand, as future ageing costs enter the S2 calculation in discounted terms, lower interest rates increase these terms' weight in present value (see also section 4.2 of the report). This case is best illustrated by Luxembourg and Malta, but applies also to other countries, such as SE, CZ, DK, SK, FI and BG, to a smaller extent (see Table 3).

([7]) Inflation is still assumed to reach 2% for all other countries.

(Continued on the next page)

Box (continued)

Table 2: **Nominal implicit interest rate (IIR), long-term projections (%), by country**

	Current baseline DSM 2020 (4%)	Old interest rate assumption (5%)	Current baseline DSM 2020 (4%)	Old interest rate assumption (5%)	Current baseline DSM 2020	Old interest rate assumption (5%)
	2030	**2030**	**2040**	**2040**	**2070**	**2070**
BE	0.9	0.9	1.3	1.4	3.7	4.7
DE	0.2	0.2	0.8	1.0	3.9	4.9
EE	0.4	0.4	0.7	0.7	3.4	4.2
IE	1.2	1.2	1.2	1.2	3.7	4.7
ES	1.3	1.3	2.0	2.1	3.8	4.8
FR	0.6	0.6	1.3	1.5	3.8	4.7
IT	1.9	1.9	2.5	2.7	3.7	4.6
CY	1.7	1.7	2.2	2.3	3.8	4.7
LV	0.8	0.9	1.4	1.6	3.9	4.8
LT	0.8	0.8	1.7	1.9	3.9	4.9
LU	0.4	0.4	2.0	2.5	4.0	5.0
MT	1.8	1.8	3.0	3.4	4.0	5.0
NL	0.3	0.3	0.7	0.8	3.8	4.7
AT	0.8	0.8	1.0	1.1	3.2	3.9
PT	1.6	1.7	2.0	2.2	3.5	4.4
SI	1.0	1.0	1.4	1.5	3.9	4.9
SK	1.1	1.1	1.1	1.1	4.0	5.0
FI	0.6	0.6	0.6	0.7	4.0	5.0
BG	2.3	2.3	2.6	3.0	4.0	5.0
CZ	1.8	1.8	2.9	3.4	4.0	5.0
DK	1.1	1.0	1.1	1.0	4.0	5.0
HR	1.6	1.6	2.0	2.2	3.9	4.8
HU	3.2	3.2	3.5	3.6	4.0	5.0
PL	2.0	2.0	2.1	2.2	3.9	4.9
RO	4.9	4.9	5.0	5.2	3.9	4.9
SE	0.1	0.1	2.3	2.8	4.0	5.0
EA	0.8	0.8	1.4	1.5	3.8	4.7
EU	1.0	1.0	1.6	1.7	3.8	4.8

(1) Long-term interest assumptions as per Table1 above.
Source: Commission services.

Variation in S2 values aside, the revision to long-term interest rates leaves countries' S2 risk classification largely unaffected. The assumption of a lower long-term interest rate used in this report does not change the S2 risk category for any EU country except for Italy. For Italy, where the new S2 value is now lower, as explained above, the S2 risk classification has moved from medium to low (see Table 3), also implying a reduction in the overall long-term risk category, from high to medium (see Chapter 6).

Table 3: **S2 values and risk categories, under the current DSM 2020 baseline and the old interest rate assumption, pps of GDP**

	Current baseline DSM 2020 (4%)	Old interest rate assumption (5%)	Impact
BE	3.7	3.9	-0.3
DE	2.1	2.2	-0.1
EE	0.7	0.9	-0.1
IE	2.4	2.5	-0.1
ES	0.2	1.6	-1.4
FR	-1.1	-0.1	-1.0
IT	1.1	2.3	-1.2
CY	0.2	0.3	-0.1
LV	-0.3	0.2	-0.5
LT	0.3	0.8	-0.5
LU	10.7	8.8	1.9
MT	4.6	3.9	0.8
NL	3.3	3.4	-0.1
AT	2.4	2.4	0.0
PT	-1.5	-0.8	-0.7
SI	3.4	3.7	-0.3
SK	7.7	7.5	0.2
FI	3.2	3.2	0.1
BG	2.5	2.4	0.1
CZ	4.8	4.6	0.2
DK	1.0	0.8	0.2
HR	-2.1	-1.7	-0.4
HU	3.3	3.2	0.0
PL	1.6	1.8	-0.2
RO	6.5	7.9	-1.4
SE	2.9	2.6	0.4
EA	1.2	1.8	-0.6
EU	1.5	2.0	-0.5

(1) Long-term interest assumptions as per Table1 above.
Source: Commission services.

5. ADDITIONAL AGGRAVATING AND MITIGATING RISK FACTORS FOR FISCAL SUSTAINABILITY

Additional aggravating and mitigating risk factors are taken into account – as a complement to the quantitative results of the framework – in order to ensure a balanced overall assessment of fiscal sustainability challenges. The previous chapters presented quantitative results on the basis of (debt) projections (later summarised in the DSA risk assessment) and fiscal gap indicators. Yet, these quantitative results need to be interpreted against 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 at the current juncture of very high uncertainty.

A number of potential sources of fiscal risks is considered. First, beyond the size of government debt, its composition may give an important indication of potential vulnerabilities. The debt composition, notably in terms of maturity and currency denomination, but also in terms of investor base, matters when projecting debt and financing needs, and assessing rollover risks. Other qualitative, namely institutional factors could also be deemed relevant, as stressed in the academic literature ([75]). Section 5.1 provides a more thorough analysis, by looking at the debt structure by debt holder's profile and country of residence. Additionally, implicit and contingent liabilities need to be carefully monitored, notably the government guarantees granted as a response to the COVID-19 crisis (see section 5.2). Finally, government assets can be relevant, as a mitigating factor, when analysing sustainability issues (see section 5.3). Going forward, the EU NGEU/RRF is expected to contribute to strengthening debt sustainability, but could not be reflected in the projections. A Box tentatively explores the potential impact of the Recovery and Resilience Facility, with a sizable financial envelope of €672.5 billion. (see Box 5.1). 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.

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 of the FSR 2018).

([75]) See Box. 1.2, Chapter 1, 2018 Fiscal Sustainability Report.

5.1. RISKS RELATED TO THE GOVERNEMENT 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. Then, by influencing the degree of risks, notably refinancing and rollover risks. According to 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).

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 ([76]). With this aim, three main variables of debt structure are used: 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.

A risk-based approach is used to capture additional vulnerabilities or mitigating capacity, 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 signalling approach - the same as in the

([76]) 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 5.2 of this chapter).

computation of S0 ([77]). 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. The results are reported for all countries in the form of a joint heat map (see Table 5.1) and separately for each country in the statistical fiches in Annex A2.

The share of short-term government debt matters insofar it captures refinancing and rollover risks. In particular, 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. From this angle, fiscal risks exist for several EU countries (see Table 5.1). The share of short-term debt is particularly high in Sweden (about 20% of total government debt), with the short-term debt ratio also exceeding 10% in Hungary, Portugal, Italy and Denmark. Yet, these results need to be further qualified, as they do not reflect only the shallowness or the saturation of the domestic sovereign debt market. First, treasury cash-flow management has an influence on the headline short-term debt and the availability of other liquid financial assets such as cash deposits could mitigate potential stress. Also, the weight of short-term debt as a share of GDP is worth considering in parallel (e.g. for Sweden, given the low level as a share of GDP, this ratio is limited) ([78]). In the case of external short-term debt of non-euro area countries, the level of a country's international reserves equally deserves consideration ([79]). Looking at historical trends, an overall reduction of the share of government short-term debt has been observed in most countries since the last financial crisis, with limited changes in debt composition since the 2018 Fiscal Sustainability Report ([80]).

The share of debt denominated in foreign currency captures governments' exposure to exchange rate fluctuations. A domestic currency denomination traditionally protects governments against currency mismatches between a government's interest expenditure and tax revenue ([81]). 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 (Eller and Holler, 2018). As advanced economies finance themselves overwhelmingly in their own currency, currency-related fiscal risks are largely absent for the EU countries that have adopted the euro (Table 5.1). Yet, foreign currency-denominated debt may pose risks in some Central and Eastern European countries (CEEC). This is the case of Bulgaria, Croatia and Romania (with a share well above 50% of total debt) ([82]), which have a high exposure to exchange rate risks as well as to a lesser extent Poland, Sweden and Hungary. For all these countries, hedging of foreign currency positions can mitigate such risks ([83]), whereas pegs or currency boards also significantly reduce exposure to fiscal risks from the share of public debt in foreign currency ([84]). All of these countries are not part of the euro area and in most of them, the major share of their foreign currency issuances are denominated in euro. As stressed by Eller and

([77]) For details on the signals approach see Chapter 2. This methodology shows that, based on historical events, the three variables appear to be relatively good leading indicators of fiscal stress. See also Annex A7 for more details.

([78]) See S0 indicator table on fiscal variables.

([79]) 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.

([80]) 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 et al., 2014 and also Box 3.4 in Chapter 3 of the 2018 Fiscal Sustainability Report).

([81]) Note that exchange rate fluctuations not only affect interest payments but also the valuation of the stock of debt. Therefore their impact on the debt dynamic may be particularly large (see European Commission (2017a), Chapter 2, Box 2.2).

([82]) 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.

([83]) Hedging operations are not taken into account in the DSM.

([84]) 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 (2017a) - Chapter 2, Box 2.2.

Holler (2018), while the share of foreign-currency denominated debt has remained largely stable on average across CEEC since 2009, some governments have succeeded in reducing their reliance on foreign currency borrowing, e.g. in Czech Republic, Hungary, Poland and Romania.

Another important composition dimension to consider is the investor base, and in particular the share of debt held by non-residents. On one hand, the foreign investor base tends to be more volatile and prone to sudden stops in situations of heightened uncertainty. On the other hand, a large foreign investor base underlines a country's worthiness and thus contributes to lower funding costs in normal times. 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 (Bouabdallah et al., 2017) ([85]). In the heat map in Table 5.1, 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). Several euro-area countries with large shares of foreign held public debt could be at this juncture associated with creditor confidence (Belgium, Estonia, Ireland, France, Cyprus, Latvia, Lithuania, Austria, Portugal, Slovenia, Slovakia and Finland), whereas for some other non-euro area countries such as Poland, Romania and Hungary, the relatively large share of foreign held debt could be more associated with a search for yield given a more emerging markets status and relatively small local-currency markets.

However, certain financing from international creditors pose no liquidity risks, this being the case for official lenders such as the IMF, ESM or other multilateral institutions associated to financial assistance programmes. A more detailed breakdown of government debt by holder shows that a few countries, which are potentially at some risk according to the broader foreign creditor base indicated above (Cyprus, Ireland and Portugal), feature such stable sources of lending (see Graph 5.1). In other EU countries, debt mostly shifted in the past years either to domestic central banks (and the ECB) or to financial sector holders from the rest of the EA.

([85]) Moreover, when government debt is traded on the secondary market, is it sometimes difficult to keep track of the residency of the creditors.

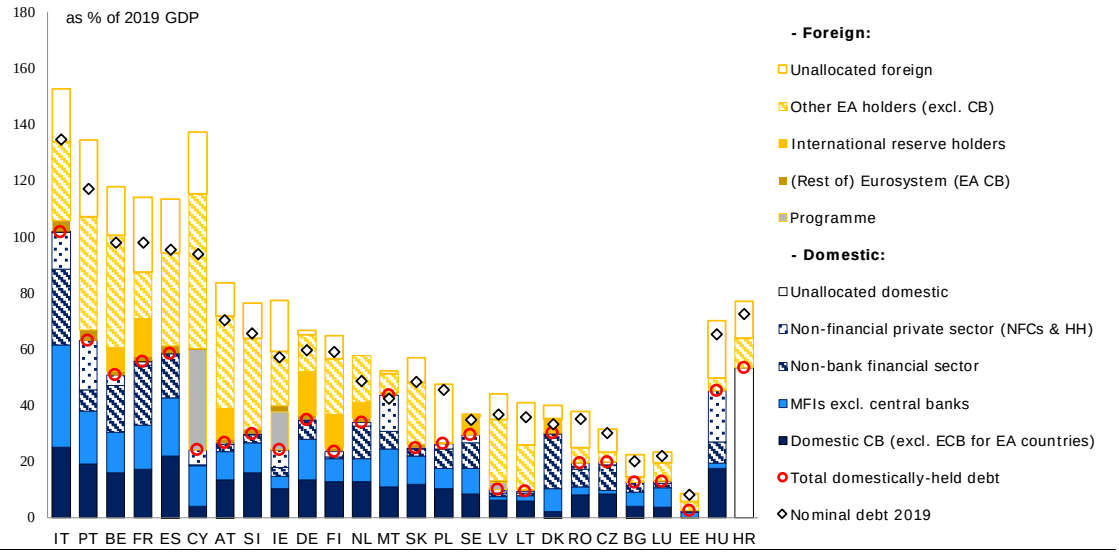
Table 5.1: **Risks related to the government debt structure, by country (20189)**

	Short-term public debt (original maturity)	Public debt in foreign currency	Public debt held by non-residents
	Shares of total debt (%):		
BE	7,6	0,0	55,7
BG	0,1	81,0	43,9
CZ	1,4	11,4	40,5
DK	10,9	0,1	25,8
DE	6,3	3,5	48,3
EE	6,1	0,0	69,8
IE	7,2	1,2	60,2
ES	6,5	0,0	49,0
FR	8,5	2,2	50,2
HR	4,6	71,6	32,7
IT	14,6	0,1	31,5
CY	2,1	3,4	80,1
LV	2,3	0,0	74,3
LT	0,0	0,0	75,6
LU	3,2	0,0	45,3
HU	11,4	20,5	33,9
MT	7,3	0,0	15,2
NL	8,8	0,1	40,0
AT	4,2	0,6	66,5
PL	1,1	28,4	44,1
PT	17,8	0,0	51,7
RO	3,1	48,7	46,3
SI	3,0	0,1	61,1
SK	1,3	0,1	57,5
FI	9,3	2,7	62,3
SE	20,7	21,3	19,3

(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 49.01%; lower threshold 40%. Spread on 10-year; government bonds vs. Germany – 2019 last value - upper threshold 231; lower threshold 185 (see also Annex A8 and A9). (2) Share of short-term debt: based on partially missing information for Netherlands.
Source: Eurostat, ECB.

For almost all EA countries, the signals of investor confidence illustrated in Table 5.1 **emerge also from the overview of government debt allocation to different holders (Graph** 5.1**).** For medium size and larger EA economies, comparatively more significant shares of government debt are currently in the hands of non-EA central banks in the form of reserve assets (the case of German, French, Austrian, Finish, and Dutch government debt). For smaller EA economies (e.g. Latvia, Lithuania, Slovenia and Slovakia), the rest of the EA financial sector has

Graph 5.1: **Holders of government debt, 2019-Q4, market value (% of GDP)**



(1) Debt refers to consolidated general government debt at market value, which for some countries differs from debt at nominal value (EDP debt) used in the rest of the report and represented here by white diamonds. For more details, see https://www.bis.org/publ/qtrpdf/r_qt1509g.htm and https://www.bis.org/statistics/totcredit/credgov_doc.pdf. (2) 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, IMF.

become a more important holder of government debt than these issuers' domestic financial sectors, suggesting that home bias here is disappearing or transforming as the EA grows more integrated financially and financial institutions follow harmonised prudential rules under the Single Rulebook.

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 countries, such as Italy, Netherlands and Malta, a relatively high share of government debt is domestically held. Conversely, in a few 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 reflect risks usually associated to this uncertain, potentially more volatile basis (Poland, Hungary, Croatia, Cyprus) - Graph 5.1.

The analysis of risks arising from the debt profile needs not be confined to these indicators and the associated benchmarks. Other factors, some of which mentioned above, 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.

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

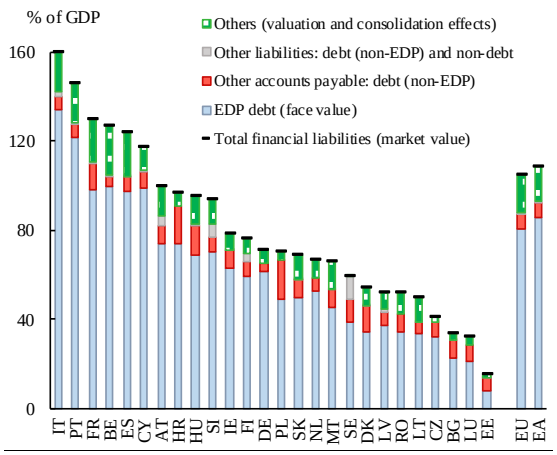
This section provides an analysis of the size and, when possible, the evolution of government liabilities other than 'EDP (or Maastricht) debt' in the EU. Such a complementary analysis allows identifying additional risk factors compared to the results of the standard debt sustainability analysis provided in this report (see chapter 3). The section looks in particular into government direct liabilities that are not included in the EDP debt (sub-section 5.2.1), while sub-sections 5.2.2 to 5.2.3 discuss risks linked to contingent liabilities. The latter are particularly important in the context of the COVID-19 crisis. The analysis of contingent liability risk is organised around three statistical

tools or modules: i) statistics on explicit contingent liabilities (section 5.2.2); ii) statistics on potential triggers for contingent liabilities, complemented by iii) a review of risks stemming from implicit contingent liabilities related to the banking sector (section 5.2.3).

5.2.1. 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 2019 in all Member States. In the EU as a whole, the EDP debt was around 80% of GDP and accounted for more than three-quarters of total gross financial liabilities in 2019 (see Graph 5.2). In terms of instrument coverage, debt securities, commonly in the form of bills, commercial papers and bonds, account for more than two-thirds 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 ([86]).

Graph 5.2: **Debt and non-debt financial liabilities in EU Member States in 2019**



Source: Commission services based on Eurostat data.

The difference between total gross liabilities and the EDP debt varies widely across Member States. In 2019, the portion of total gross government liabilities (at market value) not reflected in the EDP debt (measured at face value) ranged from 45% to 35% of GDP in Estonia, Denmark, Luxembourg and Sweden, and below 15% of GDP in Germany. This difference, as shown in Graph 5.2, consists of other debt instruments (so-called non-EDP debt), non-debt financial instruments and a gap due to different valuation and consolidation methods applied to financial liabilities ([87]).

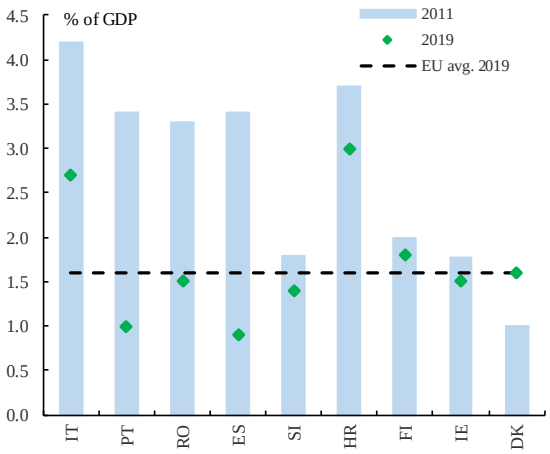
Among non-EDP debt liabilities, "other accounts payable" is the most significant component. Other accounts payable include trade credits and advances. These are in most cases outstanding short-term liabilities of the government from transactions of goods and services, and to a lesser extent other timing 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 Italy, Portugal, Romania, Spain and Slovenia, 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. Belgium and Denmark). In 2019, as a share of GDP, these liabilities were highest in Croatia (3.0%), Italy (2.7%), Luxembourg (2.0%), Finland (1.8%) and Belgium (1.7%), compared to an EU average of 1.6% of GDP (see Graph 5.3) ([88]).

([86]) 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.

([87]) 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.

([88]) Eurostat (2015) and (2019a).

Graph 5.3: **Trade credits and advances in selected Member States in 2011 and 2019**



Source: Commission services based on Eurostat data.

Other liabilities (debt and non-debt financial instruments) are typically a narrow set of total government liabilities. In 2019, these other liabilities were more relevant for Sweden (10% of GDP – of which mainly insurance, pensions and standardised guarantees), Slovenia (5.7% of GDP – of which mainly financial derivatives and employee stock options) and Austria (4.6% of GDP – of which mainly equity and investment fund shares), while accounting for less than 0.6% of GDP in the majority of other Member States.

The gap reflecting valuation and consolidation effects can be relatively large in some Member States. Ranging from 23% to 0.5% of GDP in 2019, this gap was highest in particular in Belgium, Spain, and France. 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 the general government, gross financial liabilities only within subsectors). The consolidation effects are in fact small in most Member States ([89]).

5.2.2. Contingent liabilities in the EU

As part of the analysis of contingent liabilities proposed in this report, this section contains an overview of *explicit* contingent liabilities, as reported by Eurostat. These explicit contingent liabilities include government guarantees, liabilities related to off-balance PPPs (public - private partnerships) and contingent liabilities related to government interventions in the financial sector. This information can also be found in the statistical countries fiches (see Annex A2). 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. However, Eurostat official data are only available with a significant lag (available data on guarantees only cover a period until 2018). Yet, in the current context of the COVID-19 crisis, governments have granted guarantees to the private sector in a number of EU countries, particularly relevant for the analysis of debt sustainability. Therefore, this section also presents more recent data on government guarantees, based on Member States' reporting in their 2021 Draft Budgetary Plans.

Government guarantees and PPPs prior to the COVID-19 crisis

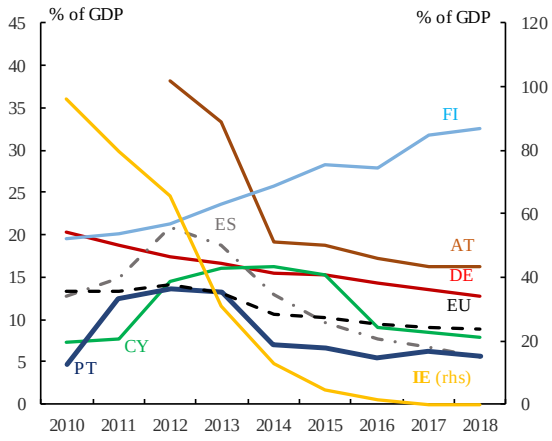
Government guarantees represent a source of potential fiscal cost in several Member States, in case they are called. Government guarantees are typically designed to reimburse a lender in case of possible losses linked to the loans it has provided. Government guarantees are issued to promote economic 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. Before the COVID-19 crisis, in 2018, the highest stocks of outstanding government guarantees were in Finland (32.6% of GDP) and Austria (16.3% of GDP) (see Graph 5.5). In Finland, a sizeable part of the guarantees were related to export guarantees, student loans and funds for supporting housing production ([90]), and have been overall increasing since 2010 (Graph 5.4). In Austria, guarantees were largely provided to nonfinancial private entities for export promotion, to public and private financial institutions during the crisis, and to non-financial

([89]) Eurostat (2019b).

([90]) http://www.treasuryfinland.fi/en-US/Statistics/State_guarantees

public corporations such as road and rail infrastructure companies ([91]). In the EU as a whole, public guarantees declined from around 13% of GDP in 2010 to 9% of GDP in 2018. This largely reflects a decline in the use of government guarantee schemes for financial institutions granted in the context of the financial crisis in number of EU Member States.

Graph 5.4: **Developments in government guarantees in selected EU Member States, 2010-2018**

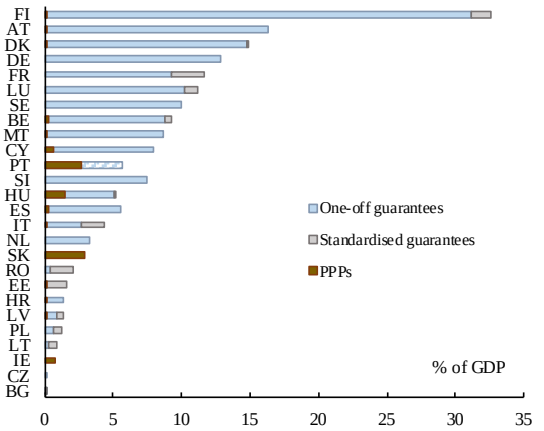


Source: Commission services based on Eurostat data.

Government guarantees can be one-off (based on individual contracts for large amounts) or standardised (issued in large numbers for small amounts). 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 2018, the stock of one-off guarantees ranged from more than 31.0% of GDP in Finland and 16.3% of GDP in Austria to less than 0.5% of GDP in Romania, Lithuania, Czech Republic, Bulgaria, Slovakia, Estonia and Ireland (see Graph 5.5). On the other hand, the total amount committed in standardised guarantee schemes to support public policy objectives carries a modest risk for future public expenditure in most Member States. These schemes account for more than 1% of GDP only in France (2.4%), Romania (1.8%), Italy (1.7%), Estonia (1.5%) and Finland (1.5%).

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 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). For the EU as a whole, contingent liabilities related to off-balance PPPs have modestly accounted for no more than 0.4% of GDP since 2010 and are only affecting few Member States (see Graph 5.5). In 2018, more sizeable contingent liabilities related to off-balance PPPs were recorded in Slovakia (2.9% of GDP), Portugal (2.7% of GDP) and Hungary (1.5% of GDP).

Graph 5.5: **Government guarantees and PPPs in EU Member States in 2018**



Source: Commission services based on Eurostat data.

Government guarantees granted in the context of the COVID-19 crisis

Data on the impact of the COVID-19 crisis on the stock of government guarantees remain scarce. Government guarantees were the largest category of COVID-19-related liquidity support measures and the majority of Member States put in place guarantee schemes to mitigate the economic

([91]) See IMF (2018b).

and social impact of the crisis. According to Commission estimates, Member States have put in place schemes that amounted to around 15% of GDP in the EU in late 2020. This amount, however, represents the maximum size of the guarantee frameworks, while the actual take-up or contractual agreements between households, firms, financial sector and government is smaller. This take-up appears to be uneven across Member States, and was estimated to be around one-fourth on average in the EU in late 2020. The quantification is made difficult by the evolving situation, as some schemes were set up as temporary and some were modified in response to the evolving situation. Schemes put in place in Germany, Italy, France, Spain and Belgium were relatively large, compared to average size reported across countries, with the take-up being higher in Italy, France and Spain ([92]).

The national promotional banks and institutions (NPBIs) and new EU level instruments are involved in liquidity support programmes in response to COVID-19. While some governments have directly guaranteed loans issued by banks to households and firms, other Member States have relied on their national promotional institutions. These institutions include the Bulgarian Development Bank, KfW in Germany, KredEx in Estonia, the Hellenic Development Bank, BPI France, CDP in Italy, Altum in Latvia, INVEGA in Lithuania, the Malta Development Bank, the Polish Development Fund, and Finnvera in Finland. In addition to domestic guarantees, Member States also issued guarantees to support new EU level instruments, in particular the SURE and the European Guarantee Fund ([93]).

Contingent liabilities related to government interventions to support financial institutions

A subset of contingent liabilities related to government interventions to support financial institutions have followed a downwards trend since 2013. Following an increase during and immediately after the financial crisis, the financial exposure of the government due to the financial stability schemes has been declining since 2013-14 in most Member States (see Graph 5.6). Government guarantees to the financial sector peaked in 2008 in Ireland (187.6% of GDP) and in 2009 in the United Kingdom (35.7% of GDP), Belgium (17.9% of GDP) and the Netherlands (12.7% of GDP) ([94]). In 2019, the contingent liabilities linked to financial stability schemes varied from 0.1% of GDP in Germany and 1.2% of GDP in Italy to 6.5% of GDP in Belgium, 2.9% of GDP in Luxembourg and 2.8% of GDP in Spain. Lower 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. Crystallisation of some government guarantees between 2008 and 2019 also contributed to a lower stock of outstanding guarantees, though it resulted in additional government expenditure, liabilities and debt increase ([95]). In particular, government guarantees were called upon in Belgium (2011), Germany

([92]) Some of these Member States provided information on COVID-19 related guarantees and, in some cases, on their take-up, in their 2021 Draft Budgetary Plans. For example, according to the Draft Budgetary Plan of Germany, guarantees adopted or announced in response to COVID-19 outbreak amounted to 19.6% of GDP, while their take-up at the time of the finalisation of the plan was estimated at 1.5% of GDP. According to the Draft Budgetary Plans of France and Spain, size of the guarantee schemes available to the domestic economy was around 14% of GDP in both Member States, but the plans did not provide information on take-up. The Draft Budgetary Plan of Belgium estimated the size of the available schemes at 11.3% of GDP and their take-up at 0.7% of GDP.

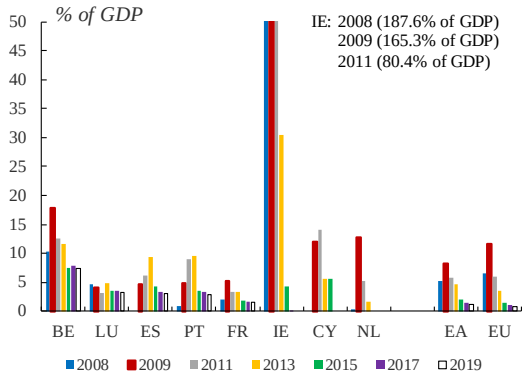
([93]) The temporary Support to mitigate Unemployment Risks in an Emergency (SURE) is available for Member States that need to mobilise significant financial means to fight the negative economic and social consequences of the COVID outbreak on their territory. It can provide financial assistance up to €100 billion in the form of loans from the EU to affected Member States. Loans provided to Member States under the SURE instrument are underpinned by a system of voluntary guarantees from Member States. Furthermore, to support financing of companies, especially SMEs, the EIB Group created the European Guarantee Fund, amounting to €25 billion. This guarantee fund enables the EIB Group – in partnership with local lenders and national promotional institutions – to scale up its support to small and medium-sized companies (SMEs) and others in the real economy by mobilising up to €200 billion. The Fund's operations will be jointly guaranteed by the participating Member States from their national budgets, proportionate to their contribution to the EIB capital.

([94]) See Eurostat (2019c).

([95]) See ECB (2018).

(2011-12, 2014-17), Denmark (2011), Spain (2013-16), Latvia (2014), and Portugal (2010) ([96]).

Graph 5.6: **Contingent liabilities linked to the financial sector interventions in the EU, 2008-2019**



Source: Eurostat.

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

In order to complement the analysis of potential contingent liabilities specifically related to the banking sector, an additional 'module' is provided (as in the previous report). This module consists of a heat map reporting values of variables that indirectly capture potential building risks in the banking sector. Indeed, as seen in the previous section, the banking sector has often been an important trigger for government contingent liabilities. Adverse developments in terms of private sector credit flows, house prices, bank loan-to-deposit ratios and non-performing loans 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 that risk. A set of six variables, which have proven in the past to be good leading indicators of banking – fiscal crises, is assessed against specific thresholds (see Table 5.2) ([97]).

Fiscal risks due to contingent liabilities related to the banking sector are still present, although risks have been reduced. An overall reduction is observed in most countries since 2014 (see also Graph 5.7). Between 2019 and 2020, NPLs ratios continued to decline in most Member States, with more sizeable reductions in Cyprus (-6.0 pps.), Portugal (-3.2 pps.), Slovenia (-2.0 pps.), Italy (-2.0 pps.) and Hungary (-2.0 pps.) ([98]). As of 2020Q2, the NPL coverage ratio shows that in most countries, NPLs are provisioned for in proportions of at least one third. Only in few cases, NPLs appear both high as a share of total loans, and provisioned for a level lower than 33% (e.g. Ireland). Additional indicators point to contained vulnerabilities. Liquidity risks as indicated by the bank loan-to-deposit ratio are identified only in few Member States, e.g. in Denmark, Sweden, and Finland. Finally, developments of private sector credit flows and house prices flag low risks in most Member States.

Caution is however warranted in interpreting these developments as the magnitude of the negative impact of COVID-19 crisis on banks' balance sheets remains uncertain. Recent figures and risk indicators are affected by public support measures adopted by Member States and by monetary policy measures. ([99]) In particular, both may have contributed to the further lowering of NPL ratios in 2020, despite the onset of the crisis. The banks' balance sheets have in many cases grown on the back of government-supported lending, while the underlying quality of the borrowers has overall deteriorated. This should be borne in mind when interpreting recent figures and inferring the impact of the crisis (and of mitigating measures) on credit risk.

In this context, assessing the impact of the crisis using regular tools such as the Symbol model is

([96]) See Eurostat (2019c) for details about the impact of these guarantees on government finances.

([97]) The calculation of the specific thresholds for the six variables used in the fiscal risk heat map to assess the potential exposure of government finances to uncertainty over the banking sector relies on the signals' approach. This approach is explained in detail in Chapter 2 and Annex A4 and Annex A10.

([98]) This overall declining trend is also confirmed by ECB data throughout 2020.

([99]) For a detailed discussion of this point see for instance the latest issue (November 2020) 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. See "Risk reduction monitoring report" https://www.consilium.europa.eu/media/41645/joint-risk-reduction-monitoring-report-to-eg_november-2019_for-publication.pdf

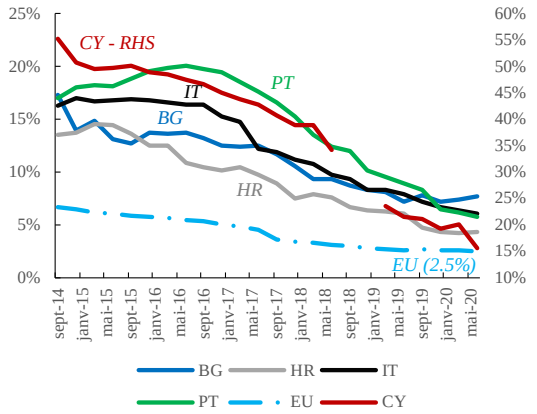
envisaged only at a later stage, when more robust quantitative information becomes available. In particular, predicting NPL ratio developments (e.g. under an adverse scenario) is difficult as the proportion of loans subject to COVID-19 related measures provides only an imprecise estimate of the potential proportion of loans that will be affected by the pandemic, as the impact will also depend on the macroeconomic impact of the crisis, the extent of mitigating country-specific and bank-specific measures provided and the speed of economic recovery.

Table 5.2: **Potential triggers for contingent liabilities from the banking sector, by country**

	Private sector credit flow (% GDP)	House price nominal index change (%)	Bank loan-to-deposit ratio (%)	NPL ratio (% of total gross loans)	NPL ratio change (pps 2020 v 2019)	NPL coverage ratio (%)
BE	3.8	4.0	98.4	2.0	0.0	41.8
BG	5.6	6.0	69.7	**7.7**	**0.5**	48.3
CZ	3.1	9.2	81.3	1.2	0.0	56.0
DK	**12.4**	2.4	**311.2**	1.9	0.2	34.5
DE	5.4	5.8	128.5	1.3	0.0	37.9
EE	3.8	7.0	109.2	1.5	-0.3	**32.9**
IE	-9.1	2.3	88.7	**4.0**	-0.5	**29.8**
ES	1.3	5.2	107.2	**3.0**	-0.5	43.3
FR	8.0	3.3	109.3	**2.3**	-0.3	49.5
HR	1.7	9.0	70.2	**4.3**	-1.8	67.5
IT	0.2	-0.1	104.8	**6.1**	-1.8	52.7
CY	2.7	3.7	56.8	**15.5**	-6.0	46.6
LV	1.5	9.0	73.1	1.8	-0.5	36.9
LT	3.0	6.8	75.3	1.4	-0.5	**31.5**
LU	3.8	10.1	**142.8**	1.1	0.0	38.6
HU	3.2	**16.9**	79.6	**4.4**	-1.2	66.4
MT	8.5	6.1	50.6	**3.5**	**0.5**	**30.6**
NL	0.0	7.3	118.1	2.0	0.0	**27.9**
AT	4.5	5.8	102.2	2.1	-0.4	52.7
PL	3.3	8.7	86.8	**4.9**	0.1	62.3
PT	2.2	9.6	80.1	**5.7**	-3.2	51.7
RO	2.0	3.4	61.0	**4.2**	-0.7	65.5
SI	0.8	6.7	65.7	**3.2**	-2.0	52.3
SK	5.0	9.1	109.6	**2.5**	-0.1	62.5
FI	7.5	1.0	**168.7**	1.5	0.0	**32.6**
SE	9.9	2.5	**186.2**	0.5	0.0	40.9

(1) Upper and lower thresholds (see Annex A7): (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 13.21%; 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 (2019 – for private sector credit flows and change in house price nominal index), EBA(June 2020 – for other variables reported).

Graph 5.7: **Non-performing loans ratio (% of total loans), EU average and countries with a ratio above 6% in Q2 2020**



Source: EBA.

5.3. OTHER FACTORS

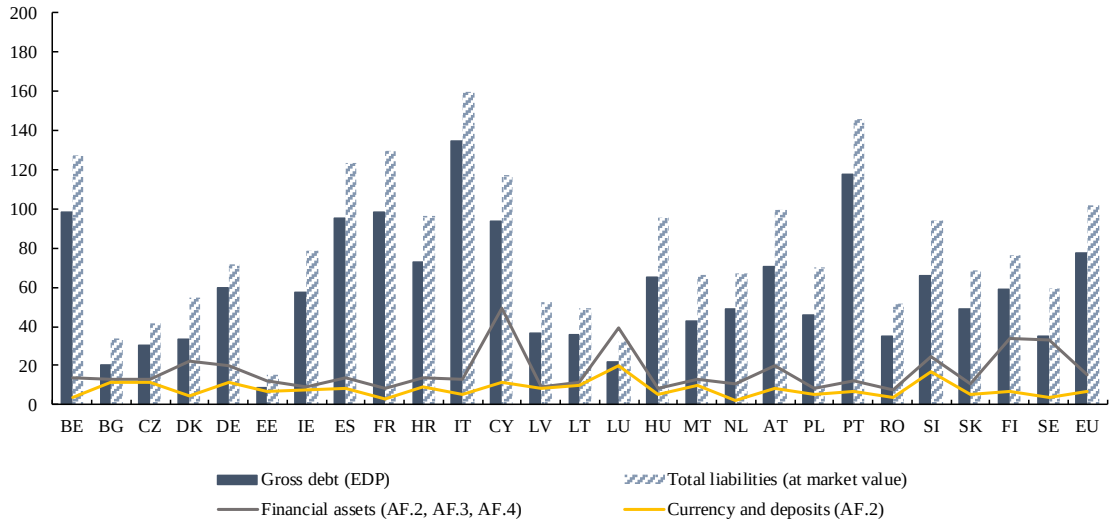
5.3.1. Government assets and net debt

The debt concept used in this report is general government debt, also referred to as 'Maastricht debt' or 'EDP debt' ([100]). It comprises financial liabilities related to the following debt instruments: currency, deposits, debt securities and loans ([101]). The stock of *gross consolidated* debt at year-end is measured at *nominal* (face) value rather than at market value. Making use of gross debt means that government-owned assets vis-à-vis counterparts outside the general government are not netted out. The fact that figures are consolidated across the general government sector means that any liability of which the counterpart is another general government unit is netted out.

The use of gross government debt, which is central in the EU's fiscal surveillance framework, has a number of advantages. The choice of gross debt as benchmark indicator was laid down in the Treaty ([102]). It is a widely used

([100]) General government includes central government, state government, local government and social security.
([101]) Maastricht debt does thus exclude monetary gold and SDRs; equity and investment fund shares; insurance, pensions and standardised guarantee schemes; financial derivatives; and other accounts payable such as trade credits.
([102]) Art. 126 and Protocol 12 of the Treaty on the Functioning of the European Union.

Graph 5.8: **Gross debt, total liabilities, and financial assets in 2019 (% of GDP)**



Source: Commission services based on Eurostat data.

concept, allowing for international comparison. When assessing risks of fiscal stress, gross debt is the obvious starting point considering that it summarises governments' contractual financial obligations and reveals the magnitude of eventual refinancing needs.

Yet, government assets also impact public finances in several ways and might provide useful supplementary insights. On the one hand, government-held assets can become a source of fiscal risks. This is, for example, the case when state-owned companies run into financial difficulties. On the other hand, government assets generate revenue, such as interests or dividends, which are included in the structural balance calculations and thus accounted for in the S1 and S2 indicators. In addition, government assets can theoretically help to reduce debt when sold off. In practice however, effective control, marketability, liquidity, earmarking of financial means and societal concerns can limit this possibility. In addition, the valuation of assets is intricate, in particular for non-financial assets ([103]).

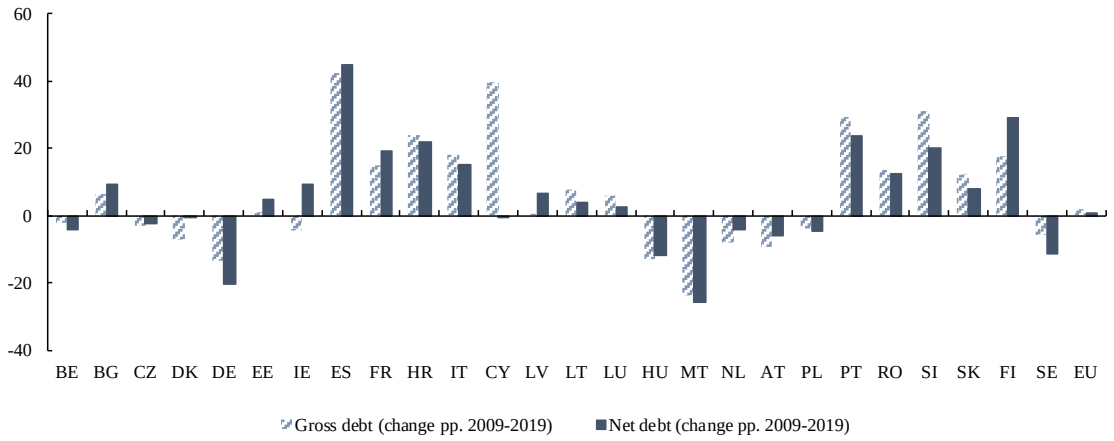
Net government debt offsets gross debt with certain types of financial assets. It is defined as "gross debt minus financial assets corresponding to debt instruments" (IMF, 2013). Net debt thus provides a measurement of how much gross debt would remain after liquidating financial assets to redeem part of the outstanding debt. It should be noted that financial assets are marked-to-market when possible. As a result, in the EU context, net debt entails adding up two items that are valued in a different way as EDP debt is valued at nominal value. This also means that valuation effects will be present only for the marked-to-market financial assets and will fluctuate along the economic cycle. Because of the differences in valuation of assets and liabilities, and, most importantly, given the conceptual shortcomings for policy use, Eurostat does not publish official net debt figures. However, Eurostat does publish total government liabilities, measured at market value, which are generally higher in percent of GDP than the Maastricht debt ratio due to both larger scope ([104]) and valuation effects included on the liabilities side (see Graph 5.8).

Net debt is found to have a significant effect on financing costs and the occurrence of fiscal crises, though the direct impact of assets is less clear. According to Gruber and Kamin (2012) there is a robust and significant effect of fiscal positions, including net debt, on long-term bond yields for OECD countries. Relatedly and in line with previous research, Berti et al. (2012) highlight

([103]) See Box 5.1 of the FSR 2018.

([104]) For more details on the differences in scope and definition between EDP debt (Maastricht definition) and total government liabilities, please see Box 5.1 of the DSM 2019.

Graph 5.9: **Change in gross and net government debt ratio (pp. of GDP, 2009-19)**



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

that net debt is an important predictor of fiscal stress episodes (the European Commission's S0 early-detection indicator of fiscal stress includes the variable). Ichiue and Shimizu (2015) confirm that net debt helps explain forward rates for a group of advanced economies but find that assets as such do not ([105]). Henao-Arbelaez and Sobrinho (2017) find that the presence of financial assets does not significantly reduce sovereign spreads and the probability of debt crises in advanced economies, contrary to what is the case for emerging economies.

The difference between gross and net debt can be substantial. For instance, when governments sell financial assets, this may not immediately affect their gross debt figures (Eurostat, 2014). Alternatively, when governments intervene to recapitalise financial institutions, gross debt rises but the parallel acquisition of a portfolio of financial assets might fully or partly neutralise the operation's impact on net debt ([106]). Evidently, asset quality could be an issue in such a scenario and the marketability of such assets would realistically be limited in the near term. Moreover, the valuation of financial assets is based on observed market values. As a result, their value might drop substantially in the event of rising market pressures. The sale of large amounts of government assets might itself induce negative effects on market valuation. Also maturity mismatches between liabilities and assets need to be reckoned with. In sum, interpreting net debt indicators requires caution and case-by-case analysis.

Which financial assets should be considered to compute a concept of net debt that would be relevant for assessing debt sustainability, varies depending on their capacity to mitigate risks. In keeping with the Maastricht debt definition, the net debt concept discussed hereafter considers financial assets in the form of currency, deposits, debt securities and loans, i.e. the same categories that compose gross debt on the liability side, while debt is measured at nominal (face) value. A more risk-based approach would be to restrict assets to those that are considered highly liquid, such as currency and deposits and certain debt securities, which could be more relevant for determining the capacity to pay debt obligations in stressed situations and assessing liquidity position to

([105]) Assets matter, however, for resilience during crisis episodes: IMF (2018a) found that countries that enter recessions with strong balance sheets seem to experience shallower and shorter recessions.

([106]) Only the operations which are considered to take place at market price are recorded as financial transactions, resulting in acquisition of assets, whereas any excess paid by the government over the market price would require recording of government expenditure (capital transfer). Moreover, even when an operation is deemed to take place at market price, it would impact the net debt calculation used in this chapter when the underlying instruments are debt securities or loans, but not in the case of equity holdings.

honour high gross financing needs. The challenge of conducting the debt sustainability analysis based on a concept of net debt is in determining the appropriate scope and valuation of assets/liabilities ([107]).

In 2019, the average net debt ([108]) was 15 pps. of GDP lower than gross debt in the EU, with differences varying between 7 and 50 pps. of GDP for individual Member States. This essentially reflects the large variation of government financial assets across Member States, which might be due to the set-up of pension systems, the past materialisation 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 Sweden, Finland, Luxembourg and Cyprus (see Graph 5.8) and 20-25 pps. in the cases of Austria, Germany, Denmark, and Slovenia. For Luxembourg and Estonia, among the Member States with the lowest gross debt, net debt is even negative as the value of financial assets exceed the outstanding government debt at face value. The difference between gross and net debt is less than 10 pps. of GDP for Romania, Poland, France, Hungary, Ireland and Latvia. Among the Member States considered, for those with the highest government debt, e.g. Italy, Portugal and Belgium, net debt is 13-14 pps. of GDP lower than gross debt (as seen for France, the difference is a bit below 10 pps. of GDP). 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.

Some exceptions aside, gross and net debt rose synchronously over the past decade in the EU (see Graph 5.9). In Malta and Germany, both variables substantially decreased between 2009 and 2019. A reduction of gross and net debt by at least 5 pps. of GDP is also observed over this period in Hungary, Sweden and Austria. In around half Member States, debt increased under both gross and net terms. A large (positive) difference between changes in gross and net debt is found for Cyprus. In this country, gross debt rose by 40 pps. of GDP, respectively, between 2009 and 2019. By contrast, over the same period, net debt decreased by 1 pp. 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.

5.3.2. Other relevant factors: NGEU/RRF

Additional factors need to be considered in the debt sustainability assessment. This concerns in particular the important EU initiatives adopted in 2020, such as the SURE and, going forward, the NGEU/RRF. The impact of the NGEU/RRF is expected to have a substantial positive and persistent impact on overall EU growth ([109]) in the coming years, and this, ceteris paribus, should contribute to influence positively the debt sustainability of Member states. Yet, the impact of this major initiative could not be reflected in the current debt sustainability analysis, given the fact that the process of assessing and approving the Recovery and Resilience Plans is on-going and their benefit will be deployed upon timely and full implementation. However, some first elements are provided in the Box 5.1, related to the amounts involved, the estimated impact on economic growth and the channels via which the EU recovery plan should support public debt sustainability.

([107]) See for a more detailed discussion, Box 5.1, Chapter 5, 2018 Fiscal Sustainability Report.

([108]) 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).

([109]) See European Commission (2020c).

Box 5.1: The implications of the RRF for debt sustainability: some first elements

Introduction

This box presents some preliminary reflections on the impact of the Recovery and Resilience Facility (RRF) on general government debt projections. It recalls the size of the RRF package and a preliminary assessment of its economic impact as reported in the Autumn 2020 European Commission Economic Forecast. It also discusses channels through which it is expected to affect debt projections, beyond the forecast horizon, under various assumptions.

1. AMOUNT OF RRF SUPPORT

The RRF will make up to €672.5 billion ([1]) in loans and grants available to support reforms and investments in EU Member States ([2]). To this end, Member States should submit Recovery and Resilience Plans (RRPs), covering their reform and investment agenda for the whole period up until August 2026. A pre-financing of 13% is envisaged upon approval of Members States' RRPs, implying that disbursements could start early in the second half of 2021. The disbursement of funds to the Member States by the EU should take place up to the end of 2026, subject to delivery on agreed milestones and targets. Funds borrowed in the market by the EU should be repaid by the end of 2058. Repayment of grants is expected to take place via both the GNI-based contributions and new EU own resources.

([1]) Amount expressed in 2018 price levels.

([2]) The European Commission proposed the RRF on 27 May 2020. The RRF is the centrepiece of the Next Generation EU (NGEU) initiative, a €750 billion temporary recovery instrument to help repair the immediate economic and social damage brought about by the coronavirus pandemic. The NGEU also features the Recovery Assistance for Cohesion and the Territories of Europe (REACT-EU) initiative, which adds €47.5 billion support over 2021-2022 to extend crisis response/repair measures, disbursed via the European Regional Development Fund (ERDF), the European Social Fund (ESF), the European Fund for Aid to the Most Deprived (FEAD). The NGEU also includes €30 billion of support via further European programmes or funds such as Horizon2020, InvestEU, rural development or the Just Transition Fund (JTF). On 21 July 2020 the European Council reached a political agreement on NGEU (and the 2021-2027 long-term EU budget) and by December 2020 a final agreement was reached with the European Parliament on the RRF. The RRF is expected to enter into force in Q1-2021.

Table 1: **Total RRF Grant support, country allocation**

	Maximum RRF Grant available per country		
	Amount (EUR Bls)	Share of GDP (%)	Share of EU (%)
BE	5.9	1.3	1.8
BG	6.3	10.6	1.9
CZ	7.1	3.4	2.1
DK	1.6	0.5	0.5
DE	25.6	0.8	7.6
EE	1.0	3.6	0.3
IE	1.0	0.3	0.3
EL	17.8	10.8	5.3
ES	69.5	6.3	20.6
FR	39.4	1.7	11.7
HR	6.3	13.0	1.9
IT	68.9	4.2	20.4
CY	1.0	4.8	0.3
LV	2.0	6.8	0.6
LT	2.2	4.6	0.7
LU	0.1	0.2	0.0
HU	7.2	5.4	2.1
MT	0.3	2.5	0.1
NL	6.0	0.8	1.8
AT	3.5	0.9	1.0
PL	23.9	4.6	7.1
PT	13.9	7.0	4.1
RO	14.2	6.7	4.2
SI	1.8	3.9	0.5
SK	6.3	7.1	1.9
FI	2.1	0.9	0.6
SE	3.3	0.7	1.0
EU	338.0	2.6	100

(1) Amounts are taken from the RRF regulation (see Annex I c), where they are expressed in current prices. This explains the difference with respect to the originally quoted amount (312.5), which referred to 2018 price levels. (2) The draft regulation envisages two envelopes for grants, which have been merged in the table. The allocation key for one of the envelopes will be revised once finalised macroeconomic data for 2020 and 2021 become available (see section 1). (3) 2020 GDP levels are used to compute GDP shares. Note that this causes some upward bias, as the GDP level for the future years is understated.

Source: RRF regulation (political agreement of December 2020), see https://data.consilium.europa.eu/doc/document/ST-14310-2020-INIT/en/pdf

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Box (continued)

For the RRF grant component, Table 1 below reports maximum amounts available per Member State ([3]). The country allocation key for the grant component is set as follows. Two envelopes are established: (i) for 70% of the total envelope of €312.5 billion (at 2018 prices - or €338 at current prices) of available grants, the allocation key will take into account the Member State's population, the inverse of its GDP per capita, and its average unemployment rate over the past 5 years (2015-2019), all compared to the EU average; (ii) for the remaining 30% of the total envelope, the formula will replace the 2015-2019 unemployment rate indicator by the observed loss in real GDP in 2020 and the observed cumulative loss in real GDP over the period 2020-2021. This allocation key aims at ensuring that more vulnerable countries receive more financial support, while this goal also prevails when accounting for the repayment of grants (i.e. net transfers) ([4]).

For the RRF loan component, it is less straightforward to infer the amounts that will be drawn by each country. Two caps apply for the RFF loans that Member States can access: (i) they may apply for loans under the RRF up to a maximum of 6.8% of their GNI, (2019, current prices); (ii) provided the overall cap of EUR 360 billion (at 2018 prices) for the EU as a whole has not been reached ([5]). In addition, the relative take up rate for RRF loans across countries is likely to be affected by prevailing market financing conditions.

2. TREATMENT OF THE RRF IN THE COMMISSION FORECAST

The Commission 2020 autumn forecast assumes in the budgetary projections for 2021 the 10% pre-financing of Recovery and Resilience Facility grants ([6]). This pre-financing is treated as a financial transaction with no impact on the budget balance, but with a public debt-reducing impact **.** The approach used was as follows. As usual, the forecast incorporated measures that had been credibly announced and sufficiently detailed in (draft) budgets by the forecast's cut-off date of the forecast, irrespective of whether they were planned to be part of the RRPs. Thus, in principle, only measures planned for 2021 could be included. Exceptions apply when the budgetary impact of the measures extends beyond 2021, or in the case of multi-year budgets also covering 2022. The pre-financing of RRF grants (initially 10% of the total envelope – see Table 2 – it has now been revised to 13%) has been included in the forecast as a financial transaction, with a debt-reducing impact via a negative stock-flow adjustment ([7]).

([3]) Figures in Table 1 are expressed in current prices as reported in the draft regulation.

([4]) See e.g. ECB Economic Bulletin Issue 6/2020 Box 8, showing that under the assumption of repayment based on countries share of EUs GNI, Greece would be the largest net recipient of support from the RRF relative to its GDP, among the euro area countries, while Spain and Italy, which are expected to be among the most heavily affected Member States in terms of both deaths and economic fallout, will also receive sizeable fiscal support. Those computations were based on the proposal for an RRF regulation that reflected the European Council conclusions of 21 July 2020.

([5]) Specifically, this prevents a straightforward estimation of the relative amounts that will be drawn by each country because, if all countries were to apply for 6.8% of their GNI, the total loans would amount to EUR 900 billion. Hence, the EUR 360 billion implies a "first come first serve" principle on top of the 6.8% of GNI cap for the granting of loans under the RRF (an increase is possible beyond that cap, under exceptional circumstances, subject to available resources).

([6]) See Box I.4.3 in the Commission 2020 autumn forecast Report entitled: "The inclusion of Next Generation EU and its Recovery and Resilience Facility in the forecast".

([7]) Note that this approach may create a bias in the projections for the general government balance and debt. In particular, the inclusion in the forecast of expenditure measures that may eventually qualify for funding with RRF grants will decrease the general government balance of the Member States, as the corresponding revenue is not (yet) included in the deficit forecast. However, this deficit bias will be reflected in a higher general government debt only to the extent that the total amount of the measures exceeds that of the grants' pre-financing in the stock-flow adjustment.

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Box (continued)

Table 2: **Pre financing of RRF Grants accounted for in the government forecast in 2021**

	Pre-financing of RRF Grants in 2021 (Autumn 2020 forecast)	
	Amount (EUR Mls)	Share of GDP (%)
BE	557	0.1
BG	646	1.0
CZ	734	0.3
DK	168	0.1
DE	2459	0.1
EE	110	0.4
IE	138	0.0
EL	1753	1.0
ES	6392	0.5
FR	4055	0.2
HR	643	1.2
IT	7083	0.4
CY	104	0.5
LV	202	0.7
LT	262	0.5
LU	10	0.0
HU	677	0.5
MT	22	0.2
NL	603	0.1
AT	324	0.1
PL	2485	0.5
PT	1425	0.7
RO	1493	0.7
SI	168	0.3
SK	630	0.7
FI	252	0.1
SE	400	0.1
EU	33797	0.2

(1) The table shows the debt-reducing impact of the pre-financing of RRF grants in 2021, via a corresponding negative stock-flow adjustment, as has been taken into account in the Commission 2020 autumn forecast.
(2) It refers to a 10% level of pre-financing, as reflected in the Commission 2020 autumn forecast, although the amount of pre-financing has now been revised to 13%.
Source: Commission services.

3. IMPACT OF THE RRF ON DEBT PROJECTIONS: FIRST ELEMENTS

The RRF will represent a temporary (yet sustained over several years) fiscal impulse across EU Member States, whose impact on national public debt in the medium term will depend on a number of factors and channels. Section 3.1 reviews the relevant channels through which the RRF is expected to affect debt dynamics, including through indirect economic growth effects, while section 3.2. provides a first broad estimate of the expected overall impact on debt, which notably depends on the assumed fiscal multiplier and additionality of general government expenditures financed by RRF grants ([8]).

3.1. Relevant channels and factors

Direct impact on the budget balance and government debt

The direct impact of the RRF on the budget balance (and government debt) will depend on the degree of additionality of the general government expenditure financed by these funds. The grant component of the RRF represents an additional source of public revenue for national governments, intended to finance investments and support reforms as set out in Member States' Recovery and Resilience Plans. Under the statistical principle of budgetary neutrality ([9]), expenditure reported as RRF-related and financed by RRF grants should not affect the general government budget balance. This is achieved by recording in national accounts the grants from the RRF in the same budgetary year as the underlying expenditure, to avoid any distortions arising from possible lags and leads in the timing of cash inflows and outflows in any given year. However, if RRF grants fund measures that would exist in a counterfactual scenario without the RRF, then the budget balance (and also government debt) would

([8]) Additionality here refers to the fact that RRF funds would serve to finance measures that would otherwise not have been considered. Instead, in the regulation, additionality implies that RRF funds do not substitute for recurring national expenditures nor for other EU funds (see RRF regulation (final compromise text) recital 10a, art. 4a and art. 8).
([9]) See Eurostat's guidance: https://ec.europa.eu/eurostat/documents/1015035/11337978/Draft_guidance_note_on_the_statistical_recording_of_the_recovery_and_resilience_facility.pdf

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Box (continued)

directly be improved by comparison to that counterfactual.

The direct impact of the RRF on government debt at the end of a given year will depend on the actual timing of the disbursement of grants with respect to the expenditure financed by those grants. While in ESA 2010, the budget balance is recorded in accrual terms, ([10]) government debt is directly affected by cash flows. Therefore, the direct impact of RRF grants on government debt will depend on the disbursement profile of those grants with respect to the timing of related outflows. For instance, if RRF grant-funded expenditures take place before funds are actually received, the government will have to issue (short-term) debt to finance this additional spending. In case of (full) additionality, such issuance will add – at least temporarily - to the debt burden ([11]). Yet, such a potential impact should be temporary and contained.

Indirect impact via GDP growth effects

The additional expenditure financed by RRF grants and loans is expected to have a significant impact on GDP growth. The additional expenditure will not only boost aggregate demand during the implementation period of the RRF (up until 2026), it is also expected to increase to some extent potential growth over the medium term, especially if this expenditure increases the physical and human capital, and is accompanied by significant structural reforms. According to the Commission Quest model simulations ([12]), the RRF impact on EU GDP growth will be significant ([13]) and remain positive over the medium term (with a still positive impact in 2030, i.e. beyond the implementation period).

The size and the persistence of such GDP growth effects will however depend on a number of factors. First, the impact of the RRF-financed measures (i.e. reforms and investments) will depend on the degree of additionality of these measures. The higher the additionality, the larger the incremental impact on economic activity will be. On the other hand, crowding-out effects, stemming from potentially adverse effects on financing conditions, should be limited at the current juncture (with monetary policy constrained at the effective lower bound, in many countries). The announcement of the RRF seems in fact to have contributed to the easing of financing conditions, by boosting investors' confidence. Moreover, public investment has the potential to crowd in private investment in some activities. Potential (net) import-leakages should also be mitigated by the fact that the NGEU/RRF is a coordinated fiscal expansion. Moreover, the persistence of economic effects, or the impact of the RRF on potential growth, will depend on the quality of reforms and investment projects financed by this facility (e.g. how effective implementation of reforms and how much additional public spending goes to productive capital) ([14]).

The loan component could impact government debt through different channels. On the one hand, the stock of government debt could increase if RRF loans give rise to additional expenditure. The extent to which it will do so is also not fully straightforward: in case of partial additionality, RRF loans would partially substitute for other financing sources, thus only partially increasing total debt. On the other hand, given the lower cost of RRF loans compared with market financing for some Member States, this debt instrument could

([10]) This means that revenues and expenditure – including interest payments – are recorded when they are incurred, regardless of when the money is actually received or paid.

([11]) As the budget balance (in accrual terms) will not be affected, these amounts will be recorded in stock-flow adjustments.

([12]) Presented in the Commission Staff Working Document, "Identifying Europe's recovery needs", May 2020, which accompanied the Commission proposal for an RRF regulation. The Commission Autumn 2020 Forecast report provides updated simulation results that focus on the GDP growth impact (omitting details of the impact on debt).

([13]) Real GDP in the EU is estimated to be up to 2% higher during the years of the RRF's active operation, compared to a no-policy change baseline, based on the estimations provided ion the Commission Autumn 2020 forecast.

([14]) In the Commission DSA, the short-term fiscal multiplier is fixed at 0.75, in line with past estimates. In the literature, the average elasticity of potential output to public capital is estimated at around of 0.1 (see Bom and Lighthart, 2014).

(Continued on the next page)

Box (continued)

also lead to a debt-reducing effect through lower interest expenditure.

Going forward (beyond the medium term here envisaged), the favourable output effect of the RRF should ease as the fiscal stimulus is withdrawn, depending on the degree of persistence of the effects (discussed above). This, together with the nature of the resources mobilised to repay the EU debt instrument issued to fund the RRF, could have a bearing on long-term debt dynamics.

Overall, the RRF should contribute to cushioning the effect of the economic crisis, thereby dampening its persistent adverse impact (i.e. so-called hysteresis effects). It should also **promote and support a faster and more resilient economic recovery**, and foster favourable macroeconomic spillover effects across the EU. Given its long maturity, the RRF will also contribute to a lengthening of average debt maturity, further insulating Member States' financing costs from short-term fluctuations and reducing rollover risks.

3.2. Impact on debt projections under alternative assumptions

In the Staff Working Document that accompanied the RRF proposal ([15]), the Commission illustrated the potential impact of the RRF package on key macroeconomic variables, including debt-to-GDP. Using QUEST, the Commission macroeconomic model, this analysis illustrated the key aspects of the impact of the RRF package highlighted in the previous section. In particular, it distinguished two stylised scenarios according to the degree of additionality of measures financed by RRF grants, with a high and a low additionality scenario based on 100% and 50% additionality, respectively. Both scenarios assumed that 50% of loans would trigger additional measures.

The results presented by the Commission suggested that the RRF would reduce EU debt-to-GDP by around 1 pps. by 2026. Impacts were shown to be broadly similar under the high and the low additionality scenario (i.e. -1.3 and -1.2 pps., respectively). Larger effects were estimated for highly indebted countries (around -5.5 to -6 pps. of GDP). Those results were based on estimates of RRF based on the original proposal. Since then, the draft regulation has amended the relative size of the grants and loans component, although only to a limited extent. For that reason, and as the analysis presented by the Commission in its Staff Working Document accounted for both components, it is expected that results still provide a relevant benchmark to assess the potential impact of the RRF package. Going forward, such results will be updated using the DSA model once the RRPs are adopted and detailed information on their content is known.

([15]) See Commission Staff Working Document, "Identifying Europe's recovery needs", May 2020. For a discussion of these results see Verwey et al. (2020) VoxEU column entitled "Next Generation EU: A recovery plan for Europe".

6. OVERALL ASSESSMENT OF FISCAL SUSTAINABILITY CHALLENGES

6.1. INTRODUCTION

This chapter summarises the main results of the fiscal sustainability analysis presented in this report. The main results, based on a horizontal assessment framework as in previous reports, ([110]) are presented in an overall summary heat map of debt (fiscal) sustainability risks per time dimension (short, medium and long term), This comprehensive and multidimensional assessment reflects the main debt projection results, and the fiscal sustainability indicators (see Box 6.1 for a summary of the methodological approach used). Owing to the exceptional crisis circumstances, some adjustments to the standard underlying assumptions have been made. ([111])

Given the current high level of uncertainty and key EU initiatives approved last year (not reflected in this assessment), the quantitative results and ensuing risk assessment based on this horizontal framework need, more than ever, to be complemented with a broader reading and interpretation of results. To this end, a number of additional aggravating and mitigating risk factors are also considered, as a complement to model-based quantitative results (see for example Chapter 5), and inform the overall assessment of debt (fiscal) sustainability challenges. Actually, the importance of such factors – sometimes more qualitative in nature (such as institutional factors) and / or country specific, and a prudent application of judgment to reach a final assessment of sustainability risks is a key feature of the Commission DSA framework since 2014, and is in line with other international institutions' practices.

The debt (fiscal) sustainability risk classification, complemented by the consideration of additional factors, allows identifying (sustainability) vulnerabilities that need to be addressed by appropriate economic policies. The framework is meant to allow identifying the scale, nature and timing of debt (fiscal) sustainability challenges. The ensuing results are notably used in the context of the EU integrated system of fiscal and economic surveillance, in particular supporting the formulation of policy recommendations. Importantly, when a country is deemed to be at high risk in the short, medium or long term, it does not mean that fiscal stress is inevitable (in the short term) or that debt is unsustainable (in the medium to long term), but rather that there are significant debt (fiscal) sustainability vulnerabilities that need to be addressed by appropriate policy responses. ([112]), ([113])

6.2. MAIN RESULTS

6.2.1. Short-term fiscal sustainability challenges

As a result of the abrupt and large deterioration of public finances in 2020, due to the COVID-19 crisis and the necessary fiscal response taken, short-term risks of fiscal stress are identified in several countries. In 2020, eleven countries had values of S0 above its critical threshold, signalling risk of fiscal stress in the upcoming year. This concerns in particular Cyprus, Croatia, Portugal, France, Slovakia, Spain, Finland, Romania, Belgium, Italy and Latvia (see Chapter 2). As a comparison, before the Covid-19 crisis, no EU country was deemed to be at short term risk of fiscal stress (as in the DSM 2019). However,

([110]) See for example the Debt Sustainability Monitor 2019.

([111]) In particular, in the baseline, rather than assuming a constant structural primary balance (SPB) at the last forecast value (as in 2022), a gradual correction of the SPB to pre-crisis forecast level is assumed. This adjustment to the standard assumption acknowledges the extraordinary negative impact of the COVID-19 crisis on public finances, which in part carries over to 2021-22, but which can be expected to progressively unwind.

([112]) For instance, the latter assessment is anchored to a baseline assumption, which differs from a 'programme' DSA, where the central scenario reflects policy commitments. In line also with the IMF definition of debt sustainability in the context of financial assistance, the Commission DSA framework deems debt to be unsustainable *only if there is no economically and politically feasible fiscal adjustment that at least stabilises the debt to GDP level, under both baseline and realistic stress test scenarios.*

([113]) In countries already subject to financial assistance, the standard risk classification becomes less relevant, given that risks have already materialised, and that respect of policy commitments ensures debt sustainability. By the same token, for Greece, whose DSA reflects post-programme commitments, no risk classification is provided in the report.

despite the severity of the crisis and the surge in short-term gross financing needs, monetary policy support from the Eurosystem and EU initiatives have helped stabilise sovereign financing conditions and enabled markets to absorb sizeable government financing needs.

Nonetheless, the overall situation appears less critical than during the global financing crisis, notably thanks to sounder private and external positions (with only one country – Cyprus - shown to be at risk along this dimension in 2020 – according to the financial-competitiveness sub-index). In 2009, S0 flagged short-term risks of fiscal stress in as many as seventeen countries, notably due to macroeconomic imbalances. Moreover, the extraordinary monetary policy interventions that took place since March 2020, together with decisive EU actions in 2020, ([114]) contributed to stabilising sovereign financing conditions, lessening significantly risks of short-term fiscal stress. Specifically, a coherent policy mix committed to support the economy for as long as necessary, while maintaining a strong commitment to fiscal sustainability in the medium term, also with respect to other large economies, help mitigate risks of short-term fiscal stress.

6.2.2. Medium-term fiscal sustainability challenges

Over the medium term, eight countries are found to face *high* risk, including Belgium, Spain, France, Italy, Portugal, Romania, Slovenia and Slovakia. These results assume a gradual return to the pre-crisis forecast level of the structural primary balance. They are driven by already high pre-COVID-19 debt ratios in several countries (above 90% of GDP in Belgium, Spain, France, Italy and Portugal), and the significant impact of the crisis, which is projected to only gradually unwind, though resulting in a *late* decline of debt ratios over the projection period in some cases (in particular, in Belgium, Spain and Slovakia). In the case of Romania, the high risk classification reflects a particularly fast-increasing debt path (bringing the debt ratio above the high risk threshold by 2031). For Slovenia and Slovakia, vulnerabilities to more adverse macro-financial developments or to weaker fiscal improvement, than assumed in the baseline, explain the high risk classification. More generally, under-achievement of the assumed gradual return to pre-crisis forecast levels of the structural primary balance would lead to less favourable debt dynamics. In most cases (all but Portugal and Slovenia), the medium term fiscal gap indicator (the S1 indicator) confirms the DSA results (see Chapter 3).

Six additional countries appear at *medium* risk over the medium term (Croatia, Cyprus, Hungary, Netherlands, Austria and Finland), with overall consistent signals across the different scenarios considered. ([115]) The remaining twelve Member States (Bulgaria, Czechia, Denmark, Germany, Estonia, Ireland, Latvia, Lithuania, Luxembourg, Malta, Poland and Sweden) are classified at *low* medium term risk. In some countries however, stochastic projections, featuring the uncertainty surrounding baseline projections, point to some vulnerabilities – due to the historical volatility of the main debt drivers in these countries (Bulgaria, Czech Republic and Latvia). In the case of Ireland, when scaling government debt with GNI, a more accurate measure of repayment capacity in this country, medium term vulnerabilities appear more important than suggested according to the standard GDP metric. ([116])

Average medium-term gross financing needs are set to remain below the levels seen during the economic and financial crisis and to generally decrease over time.

6.2.3. Long-term fiscal sustainability challenges

Over the long term, five countries appear to be at *high* risk, including Belgium, Luxembourg, Romania, Slovenia and Slovakia. In Luxembourg, Romania and Slovakia, this risk classification is due to the large long-term fiscal sustainability gap (the S2 indicator), driven by the projected fast increase of ageing costs (in particular, in Luxembourg and Slovakia; see

([114]) These include the creation of the SURE, the announcement of the NGEU/RRF, as well as the ESM PCS.

([115]) The S1 indicator points to lower risks in some cases (Croatia, Cyprus, Hungary and Austria), although being at borderline values between low/medium risk for Cyprus, Hungary and Austria.

([116]) The debt ratio would still stand at more than 60% of GNI by 2031 (against 48.3% of GDP).

Chapter 4). In Romania (and to a lesser extent in Slovakia), the fast increase of ageing cost is compounded by deteriorated initial budgetary position. In Belgium and Slovenia, the high risk classification reflects a significant fiscal gap to meet the inter-temporal budget constraint combined (S2 at medium risk) with debt vulnerabilities in the medium term (captured by the DSA component being at high risk).

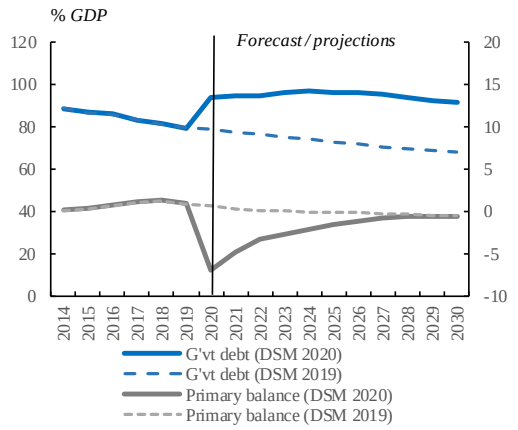
Sixteen additional countries are deemed at *medium* fiscal sustainability risk over the long term (Bulgaria, Czech Republic, Germany, Ireland, Spain, France, Croatia, Italy, Cyprus, Hungary, Malta, Netherlands, Austria, Portugal, Finland and Sweden). The significant long term fiscal sustainability gap (S2) is mostly fuelled by the projected increase in ageing costs. However, in some cases (Spain, France, Croatia, Italy, Cyprus and Portugal), the overall long-term risk classification reflects debt vulnerability in the medium term, (with the DSA risk category being medium or high), while the evolution of the cost of ageing does not appear to be problematic. Only five Member States (Denmark, Estonia, Latvia, Lithuania and Poland) are classified at *low* risk over the long term.

Under more adverse macro-financial assumptions, long-term fiscal challenges would be more acute in most countries. For instance, under the TFP risk scenario (with lower projected economic growth over the long term), the S2 indicator would be substantially higher in many countries. The difference in the long-term sustainability gaps of the TFP risk scenario (compared to the baseline) is highest for Romania, France, Portugal, Belgium and Austria . If financial conditions were permanently worse than assumed in the baseline, long-term fiscal gaps would also be significantly higher in some highly indebted countries (in particular, in Italy, Spain, France and Portugal). In the case of Italy, more adverse financial conditions would lead to a deterioration of the S2-based risk category (from low to medium risk; see Table 4.3 in Chapter 4).

6.2.4. Comparison with the DSM 2019 results

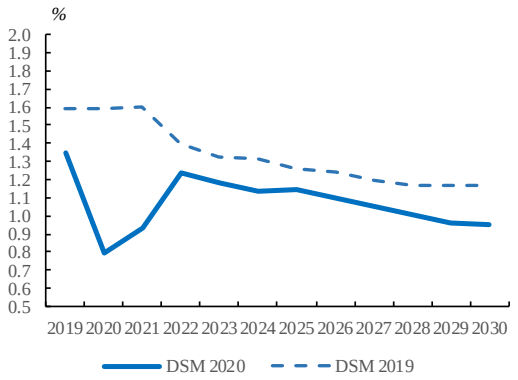
In general, the updated projections show higher levels of debt to GDP ratios, and less favourable trajectories for the debt ratios over the projection period, compared with the DSM 2019, owing to the severe crisis brought about by the pandemic and the necessary fiscal policy response This has led to significantly worse starting budgetary positions (see Graph 6.1), and lower projected medium-term growth (see Graph 6.2). The impact of the COVID-19 crisis is expected to have some scarring effects on the economy, also in light of the fact that the impact of EU recovery strategy, in particular NextGeneration EU/RRF, on growth could not be included in the analysis (see Box 5.1).

Graph 6.1: **Government debt and primary balance for the EU, outturn and forecast / projected values, % of GDP**



Source: Commission services.

Graph 6.2: **Potential GDP growth for the EU, %**



Source: Commission services.

In terms of risk classification, most important changes are observed *over the short term* - with now eleven countries at risk of fiscal stress in the upcoming year, while no country was deemed to face such risks in the DSM 2019.

***Over the medium term*, seven countries exhibit a worsening of their risk category compared to the DSM 2019** (Slovenia and Slovakia – moving to high risk – and Croatia, Cyprus, Hungary, Netherlands and Austria – moving to medium risk). This deterioration is explained by the large increase of debt to GDP ratios in 2020 (with ratios having breached the medium risk threshold in some countries), the (only) gradual reduction of the 2022 (large) primary deficits assumed in the baseline, and the lower growth of potential GDP over the projection period.

***Over the long term*, six countries are deemed to face more acute risks compared to the DSM 2019** (Slovenia and Slovakia – moving to high risk - and Bulgaria, Croatia, Cyprus and Sweden – moving to medium risk). In some countries, this revision reflects the deterioration of the DSA-based risk assessment (Slovenia, Croatia and Cyprus). In others, it is driven by unfavourable changes in the initial budgetary position (Bulgaria and Sweden), or by the revision of projected ageing costs due to recent pension reform (Slovakia). The revision of the long term assumption on nominal interest rates (from 5% in the DSM 2019 to 4% in this report) mitigates to some extent the increase of the (S2) fiscal gaps (see Box 4.1). In the case of Italy, it leads to an improvement of the long term risk category (from high to medium risk).

6.2.5. Additional mitigating and aggravating risk factors

Beyond the debt projections and the risk classification provided in this report, additional risk factors are analysed and considered in the overall assessment:

– On the downside, potential high risks are related to the presence of contingent liabilities, notably related to government guarantees to the private sector, which represents a source of additional vulnerability. These contingent liabilities amounted to about 15% of GDP in 2020, with large differences across Member States, and could be partly reflected in public debt and deficits to the extent they are called. In the banking sector, risk reduction indicators pointed to further improvement up to mid 2020, in particular, regarding the level of non-performing loans ratios. ([117]) However, situations differ across countries (see Chapter 5).

– However, on the upside, there are many factors that contribute to mitigate debt sustainability risks across the EU, notably the lengthening of debt maturities in recent years, relatively stable financing sources (with a diversified and large investors' base; see Chapter 5), and historically low borrowing costs, supported by the ECB's intervention,. Moreover, the implementation of reforms and investments under the NGEU/RRF is expected to have a substantial positive and persistent impact on overall EU growth ([118]) in the coming years (not reflected in the current debt sustainability analysis as the implementation of the RRF is on-going) and this, ceteris paribus, would contribute to influence positively the debt sustainability of Member states by lowering the debt-GDP ratio compared to what is presented in this report (see Box 5.1 in Chapter 5).

([117]) See European Commission, ECB and SRB (2020).
([118]) See European Commission (2020c).

Table 6.1: **Fiscal sustainability risk classification by Member States (in brackets, risk classification in the DSM 2019 whenever the risk classification has changed)**

	Overall SHORT-TERM risk category	Overall MEDIUM-TERM risk category	S1 indicator - overall risk assessment	Debt sustainability analysis - overall risk assessment	S2 indicator - overall risk assessment	Overall LONG-TERM risk category
BE	HIGH (LOW)	HIGH	HIGH	HIGH	MEDIUM	HIGH
BG	LOW	LOW	LOW	LOW	MEDIUM (LOW)	MEDIUM (LOW)
CZ	LOW	LOW	LOW	LOW	MEDIUM	MEDIUM
DK	LOW	LOW	LOW	LOW	LOW	LOW
DE	LOW	LOW	LOW	LOW	MEDIUM	MEDIUM
EE	LOW	LOW	LOW	LOW	LOW	LOW
IE	LOW	LOW	LOW	LOW	MEDIUM	MEDIUM
ES	HIGH (LOW)	HIGH	HIGH	HIGH	LOW	MEDIUM
FR	HIGH (LOW)	HIGH	HIGH	HIGH	LOW	MEDIUM
HR	HIGH (LOW)	MEDIUM (LOW)	LOW	MEDIUM (LOW)	LOW	MEDIUM (LOW)
IT	HIGH (LOW)	HIGH	HIGH	HIGH	LOW (MEDIUM)	MEDIUM (HIGH)
CY	HIGH (LOW)	MEDIUM (LOW)	LOW	MEDIUM (LOW)	LOW	MEDIUM (LOW)
LV	HIGH (LOW)	LOW	LOW	LOW	LOW	LOW
LT	LOW	LOW	LOW	LOW	LOW	LOW
LU	LOW	LOW	LOW	LOW	HIGH	HIGH
HU	LOW	MEDIUM (LOW)	LOW	MEDIUM (LOW)	MEDIUM	MEDIUM
MT	LOW	LOW	LOW	LOW	MEDIUM	MEDIUM
NL	LOW	MEDIUM (LOW)	MEDIUM (LOW)	MEDIUM (LOW)	MEDIUM	MEDIUM
AT	LOW	MEDIUM (LOW)	LOW	MEDIUM (LOW)	MEDIUM	MEDIUM
PL	LOW	LOW	LOW	LOW	LOW	LOW
PT	HIGH (LOW)	HIGH	MEDIUM	HIGH	LOW	MEDIUM
RO	HIGH (LOW)	HIGH	HIGH	HIGH	HIGH	HIGH
SI	LOW	HIGH (LOW)	MEDIUM (LOW)	HIGH (LOW)	MEDIUM	HIGH (MEDIUM)
SK	HIGH (LOW)	HIGH (LOW)	HIGH (LOW)	HIGH (LOW)	HIGH (MEDIUM)	HIGH (MEDIUM)
FI	HIGH (LOW)	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM
SE	LOW	LOW	LOW	LOW	MEDIUM (LOW)	MEDIUM (LOW)

Source: Commission services.

Table 6.2: **Final DSA risk classification: detail of the classification**

HIGH RISK	MEDIUM RISK	LOW RISK
Baseline scenario at high risk BE, ES, FR, IT, PT, RO	**Baseline scenario at medium risk** HR, CY, HU, NL, AT, FI	**Baseline scenario at low risk (confirmed by other scenarios)** BG, CZ, DK, DE, EE, IE, LV, LT, LU, MT, PL, SE
Baseline scenario at medium risk (At least one) other scenario at high risk due to: Debt level at high risk: SI, SK		

Source: Commission services.

Table 6.3: **Summary heat map of fiscal sustainability challenges**

	BE	BG	CZ	DK	DE	EE	IE	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 EU countries																									
S0 overall index	0.48	0.35	0.37	0.41	0.37	0.33	0.42	0.50	0.55	0.61	0.48	0.64	0.48	0.37	0.30	0.46	0.29	0.39	0.40	0.45	0.61	0.49	0.43	0.54	0.49	0.32
Overall SHORT-TERM risk category	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	LOW	HIGH	HIGH	LOW
	Heat map for medium-term risks in EU countries																									
	S1 indicator in the EU countries																									
	BE	BG	CZ	DK	DE	EE	IE	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE
S1 indicator - Baseline scenario	4.3	-3.1	-0.9	-4.2	-1.1	-2.9	-1.8	7.7	4.4	-1.5	9.2	-0.6	-1.8	-1.0	-3.9	-0.3	-3.5	0.1	-0.3	-1.6	2.0	14.8	1.6	3.2	0.9	-3.1
S1 indicator - overall risk category	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	MEDIUM	LOW	LOW	MEDIUM	HIGH	MEDIUM	HIGH	MEDIUM	LOW
	Sovereign-debt sustainability risks in EU countries																									
	BE	BG	CZ	DK	DE	EE	IE	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE
Baseline scenario	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	MEDIUM	MEDIUM	MEDIUM	LOW
Debt level (2031)	121.2	23.0	43.1	24.7	57.1	31.7	48.3	140.6	119.9	76.8	155.8	82.6	45.3	42.9	17.9	64.0	43.3	63.5	76.3	46.4	107.6	126.8	79.1	84.2	70.5	30.6
Debt peak year	2027	2021	2026	2020	2020	2027	2021	2030	2026	2020	2024	2020	2026	2021	2022	2020	2021	2025	2024	2021	2020	2031	2026	2030	2024	2021
Average Structural Primary Balance (2022-2031) Percentile rank	77%	49%	66%	42%	52%	77%	43%	90%	82%	50%	57%	35%	68%	61%	33%	55%	44%	63%	57%	64%	27%	100%	79%	90%	71%	57%
Historical SPB scenario	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	MEDIUM	MEDIUM	LOW	LOW
Debt level (2031)	109.6	23.4	46.7	16.0	50.1	31.1	63.7	128.1	119.6	89.7	145.8	83.3	50.9	48.7	13.0	69.0	45.8	60.8	73.6	54.5	123.2	95.8	78.0	79.2	58.2	20.8
Debt peak year	2025	2023	2031	2020	2020	2026	2021	2026	2026	2030	2024	2020	2031	2021	2022	2020	2021	2025	2024	2021	2020	2031	2025	2031	2024	2021
Average Structural Primary Balance (2022-2031) Percentile rank	67%	56%	73%	26%	44%	80%	75%	82%	83%	71%	41%	39%	77%	73%	24%	66%	57%	64%	62%	77%	60%	97%	82%	90%	55%	37%
Negative shock (-0.5p.p.) on nominal GDP growth	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	HIGH	HIGH	MEDIUM	LOW
Debt level (2031)	127.4	24.2	45.2	26.3	60.0	32.9	51.0	147.3	125.9	81.3	164.2	87.5	47.6	44.9	18.9	67.5	45.8	66.8	80.5	48.7	114.1	131.5	83.0	88.0	74.0	32.2
Debt peak year	2028	2023	2027	2020	2020	2028	2022	2030	2027	2026	2031	2020	2026	2021	2022	2021	2021	2026	2025	2021	2020	2031	2027	2030	2025	2021
Positive shock (+1p.p.) to the short- and long-term interest rates on newly issued	HIGH	LOW	LOW	LOW	MEDIUM	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	HIGH	HIGH	MEDIUM	LOW
Debt level (2031)	127.9	24.2	46.1	26.6	61.5	33.8	51.3	149.1	127.3	82.0	166.3	87.4	48.2	45.8	18.9	68.9	46.6	67.9	81.0	49.1	113.8	134.4	84.1	89.0	74.4	32.4
Debt peak year	2029	2023	2027	2020	2020	2028	2022	2031	2027	2020	2031	2020	2026	2021	2022	2021	2021	2026	2025	2021	2020	2031	2027	2031	2025	2021
Lower SPB scenario (equal to 50% of the pre-crisis forecast SPB)	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW
Debt level (2031)	122.4	24.4	43.5	27.4	59.2	32.8	51.1	142.4	123.9	79.5	156.3	87.8	46.2	43.8	22.8	66.4	47.5	64.6	78.9	47.5	114.4	135.7	80.2	85.6	73.4	31.2
Debt peak year	2028	2021	2026	2020	2020	2028	2021	2030	2027	2020	2024	2020	2026	2021	2022	2020	2021	2026	2025	2021	2020	2031	2026	2030	2025	2021
Stochastic projections	HIGH	MEDIUM	MEDIUM	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	MEDIUM	LOW	LOW	MEDIUM	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	LOW
Probability of debt in 2025 greater than in 2020 (%)	71%	49%	80%	11%	30%	100%	44%	95%	93%	43%	52%	23%	56%	50%	44%	46%	62%	94%	60%	39%	24%	100%	60%	91%	71%	36%
Difference of the 10th and 90th percentile in 2025 (p.p. of GDP)	30.3	51.9	23.7	17.1	16.4	10.1	27.9	25.5	16.3	34.0	30.9	43.9	31.7	30.3	21.4	37.4	25.8	16.2	27.5	17.2	38.2	43.6	27.0	31.6	19.9	11.7
Debt sustainability analysis - overall risk category	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	HIGH	HIGH	MEDIUM	LOW
Overall MEDIUM-TERM risk category	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	HIGH	HIGH	MEDIUM	LOW
	Heat map for long-term risks in EU countries																									
	BE	BG	CZ	DK	DE	EE	IE	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE
S2 indicator - Baseline scenario	3.7	2.5	4.8	1.0	2.1	0.7	2.4	0.2	-1.1	-2.1	1.1	0.2	-0.3	0.3	10.7	3.3	4.6	3.3	2.4	1.6	-1.5	6.5	3.4	7.7	3.2	2.9
Debt sustainability analysis - overall risk category	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	HIGH	HIGH	MEDIUM	LOW
Overall LONG-TERM risk category	HIGH	MEDIUM	MEDIUM	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	LOW	HIGH	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	MEDIUM	HIGH	HIGH	HIGH	MEDIUM	MEDIUM

(Source: Commission services

Source:

Box 6.1: **The methodology underpinning the debt (fiscal) sustainability risk classification and the overall assessment**

Assessment of short-term fiscal sustainability challenges

The fiscal stress risk indicator S0 is used to evaluate fiscal sustainability challenges over the short term (the upcoming year). These challenges can capture situations ranging from a credit event, a large financial assistance programme, to an implicit domestic default (e.g. through high inflation) or (relevant in the EU context) a loss of market confidence. In particular, countries are deemed to face high short-term risks of fiscal stress whenever the S0 indicator is above its critical threshold (see chapter 2). In all other cases, countries are deemed to be at low short-term risk.

Beyond the S0 indicator used to reach an overall short-term risk assessment, additional indicators / variables are considered in the analysis. These indicators / variables are reported in cross-country tables and country by country fiches (see statistical annexes), including i) values of the two fiscal and financial-competitiveness sub-indexes, and ii) the individual variables incorporated in the composite indicator S0 (see also Chapter 2). These variables are meant to support the reading and interpretation of S0 results on a country by country basis.

Finally, a complementary analysis is provided, related to short-term financing needs and financial markets' perceptions of sovereign risk. Short-term financing needs, a particularly important indicator of short-term risks (one component of the S0 indicator) are given particular attention in this report. The analysis of short-term fiscal risks is also complemented by financial markets' information on the ease of (re-)financing government debt (see Chapter 2, as well as the statistical country fiches).

Assessment of medium-term fiscal sustainability challenges

- **Approach used in the overall assessment of medium-term challenges**

Medium-term fiscal sustainability challenges are assessed based on both the S1 indicator and the debt sustainability analysis (DSA). The joint use of the S1 indicator and the DSA, introduced with the FSR 2015, allows capturing medium-term sustainability challenges in a comprehensive way. In particular, the integration of DSA results in medium-term risk assessments enables taking into account the impact of different economic, financial and fiscal assumptions (notably more adverse circumstances than the baseline) on the projected evolution of public debt over the next 10 years. On the other hand, the S1 indicator appears relatively more suited to capture risks for public finances stemming from population ageing. ([1])

A prudent approach is used to determine the overall medium-term risk category. The horizontal assessment framework for fiscal sustainability challenges sets at potential high medium-term sustainability risk countries that are deemed to be either at high risk based on the S1 indicator and / or at high risk based on DSA results. In other words, a country is considered to face high sustainability challenges in the medium term if either its baseline S1 or DSA or both point in that direction. For the attribution of a medium risk level, the criterion applies the same way: a country is considered to be at medium sustainability risk in the medium term if either its S1 or DSA points in that direction (while none of the two indicates high risks).

- **Assessment of medium-term challenges based on the S1 indicator**

The medium-term fiscal sustainability S1 indicator measures the size of the fiscal gap that needs to be closed to bring debt ratios to 60% of GDP. More precisely, the S1 indicator measures the fiscal adjustment required (in terms of structural primary balance) to bring debt ratios to 60% of GDP in 15 years (see chapter 3). For the S1 indicator, the identification of medium-term sustainability challenges relies on calculations grounded on the baseline scenario. Countries are deemed to face potential high / medium / low sustainability risks in

([1]) S1 is a particularly suited tool to assess the impact of ageing, through the decomposition of the indicator that allows singling out the cost of ageing contribution to the fiscal gap.

(Continued on the next page)

Box (continued)

the medium term, according to S1, depending on the value taken by the indicator under the aforementioned scenario. As in previous reports, the values of the S1 indicator are gauged with regard to the benchmark structural fiscal adjustment required in the SGP (a structural adjustment of up to 0.5 pps. of GDP per year). ([2])

Additional calculations are provided in order to measure the sensitivity of this indicator to underlying assumptions. S1 calculations under two alternative scenarios are provided in the cross-country tables (see Chapter 3) and statistical country fiches: i) a higher interest rate scenario and ii) a different debt target (with a debt target set at its 2019 value). These alternative calculations aim at supporting the reading and interpretation of the reference S1 results. For each of the scenarios mentioned, S1 values are accompanied by the indication of the relative position (in the SPB distribution for all EU-28 countries over 1980-2019) of the related required structural primary balance (RSPB). This allows grasping more easily how common / uncommon the implied fiscal position is. Thresholds used for the S1 sub-components and the percentile rank of the RSPB are reported in Annex A6.

- **Overall DSA assessment**

The overall DSA assessment is based on both deterministic debt projections under a set of scenarios and on stochastic debt projections. In particular, two main scenarios are used for the DSA assessment: i) the baseline, and ii) the historical structural primary balance (SPB) scenario. Additionally, the overall DSA assessment relies on results for three adverse sensitivity tests (on nominal growth, interest rates and the government primary balance), as well as stochastic projections, a tool that allows assessing the impact of individual and joint macroeconomic shocks around baseline projections. Finally, due account to the results of the Stability and Growth Pact (SGP) scenario is also made in the DSA section (see Chapter 3). This scenario assumes compliance with the main provisions of the SGP (see Annex A5 for detailed explanations).

The approach used allows for a transparent and comprehensive risk assessment mapping, from individual scenarios to an overall DSA assessment. Practically, for each of the DSA scenarios, sensitivity tests, and stochastic projections, individual assessments are made (in terms of high / medium / low risk for the country under examination) that are then combined into an overall DSA assessment per country. A country is assessed to be at high risk if the baseline projections point to such a high level of risk, or alternatively if they point to an overall medium risk assessment but potential high risks are highlighted by alternative scenarios (historical SPB scenario; sensitivity tests on macro-fiscal assumptions) or the stochastic projections. This second criterion for a high-risk assessment allows prudentially capturing upward risks around baseline projections in cases where the latter appear to entail medium risks. The economic rationale followed to reach the overall DSA assessment is explained in detail through decision trees in Annex A6.

The DSA assessment takes into account debt levels, debt paths, and the plausibility of underlying fiscal assumptions. Variables used in the DSA assessment are: i) the level of gross public debt over GDP *at the end of projections* (currently 2031); ii) the year at which the debt ratio peaks over the 10-year projection horizon (which provides a synthetic indication of debt dynamics); and iii) the country's position of the average SPB (in the overall SPB distribution for all EU-28 countries over 1980-2019) assumed over the projection period under the specific scenario ([3]). The first two variables (end-of-projection debt ratio and debt peak year) are used also in the assessment of each of the sensitivity tests.

Due account is also given to macro-financial uncertainties through stochastic projections. The stochastic projection results are evaluated based on the following two indicators: i) the probability of a debt ratio at the end of the 5-year stochastic projection horizon (currently 2025) greater than the

([2]) Given that the adjustment is assumed to take place over 5 years, according to the S1 standard definition, the upper threshold of risk is therefore set at 2.5 pps. of GDP, while the lower threshold is at 0 pps. of GDP. Countries are considered at high risk when the S1 value is above 2.5 pps. of GDP, and at medium risk when S1 is between 0 and 2.5 pps. of GDP.

([3]) As summarised by its percentile rank, which gives a sense of how common / uncommon the assumed fiscal stance is relative to cross-country historical record.

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Box (continued)

initial debt ratio (in 2020), which captures the probability of a higher debt ratio due to the joint effects of macroeconomic shocks; ii) the difference between the 90th and the 10th debt distribution percentiles, measuring the width of the stochastic projection cone, i.e. the estimated degree of uncertainty surrounding baseline projections. Annex A6 reports all upper and lower thresholds used for each of the individual variables and indicators mentioned above.

Beyond these projections, other scenarios are run to complement the analysis of medium-term fiscal sustainability challenges. These additional scenarios are reported in Chapter 3, and in the statistical country fiches, and are used to complement the analysis of medium-term challenges. These scenarios include the Stability and Growth Pact (SGP) scenario, enhanced / combined sensitivity tests on interest rates and growth, as well as sensitivity tests on exchange rates for relevant countries.

Assessment of long-term fiscal sustainability challenges

- **Approach used in the overall assessment of long-term challenges**

Long-term fiscal sustainability challenges are assessed based on both the S2 indicator and the DSA. The joint use of the S2 indicator and the DSA, introduced in the FSR 2018, allows capturing long-term sustainability challenges in a more comprehensive way than the assessment based only on the long-term fiscal gap indicator S2. In particular, the inclusion of the overall DSA results in the long-term risk assessment framework aims at prudently capturing risks linked to medium to high debt-to-GDP ratios. ([4]) On the other hand, the S2 indicator is particularly well suited to capture risks for public finances stemming from population ageing.

A prudent approach is used to determine the overall long-term risk category. If the DSA indicates a higher risk category as compared to the risk indicated by the S2 indicator, the overall sustainability risk is revised upward by one category. If the opposite applies, such as lower DSA risk than the S2 indicator, the risk category associated with the S2 indicator prevails. A country is assessed to be at a potential high risk if (i) the S2 indicator flags high risk irrespective of the risk category implied by the overall DSA results or (ii) the S2 indicator is medium risk, but the overall DSA is high risk. In turn, a country is assessed at medium risk instead of low risk in the long term if, for instance, the S2 indicator flags low risk and the overall DSA either medium or high risk (see Annex A6). If both the S2 value and the overall DSA point to low risk, the long-term sustainability challenges are assessed as low risk.

- **Assessment of long-term challenges based on the S2 indicator**

The long-term fiscal sustainability S2 indicator allows measuring the fiscal gap to meet the inter-temporal budgetary constraint. The S2 indicator measures the fiscal adjustment required (in terms of structural primary balance) in order to meet the inter-temporal budget constraint over an infinite horizon (including to cover future costs of ageing). Countries are considered at high / medium / low sustainability risk in the long run depending on the S2 indicator value, calculated on the basis of the baseline scenario. These values are considered against a set of relevant thresholds, based on empirical evidence looking at past episodes of fiscal consolidations. ([5])

Furthermore, additional calculations are provided in order to stress test the sensitivity of this indicator to alternative assumptions. Such a sensitivity analysis is all the more needed since any long-term projection exercise is surrounded by important uncertainties. In particular, two alternative scenarios are considered: i) the 'TFP risk scenario'

([4]) Such an integrated approach allows addressing one of the flaws of the S2 indicator, namely that it abstracts from risks related to the level of the stock of debt. Indeed, the S2 indicator, grounded on the inter-temporal budgetary constraint, does not require that the debt-to-GDP ratio stabilises at a specific value and the adjustment implied by the S2 indicator might in fact lead to debt-to-GDP ratio stabilising at relatively high levels (see Box 4.1 in the FSR 2018).

([5]) Lower and upper thresholds of risk for S2 are set at 2 and 6 pps. of GDP respectively, as in previous reports. Countries with S2 above 6 pps. of GDP are therefore deemed to be at high risk, while being at medium risk if S2 is between 2 and 6 pps. of GDP.

(Continued on the next page)

Box (continued)

and ii) the 'interest rate scenario'. These calculations are also meant to support the reading and interpretation of S2 results. Similarly to S1, S2 values under all scenarios are accompanied by an indication of the relative position of the related required structural primary balance (in relation to the SPB distribution for all EU 28 countries over 1980-2019).

Other mitigating and aggravating risk factors considered

In addition to the elements already mentioned, the Commission fiscal sustainability framework provides an analysis of additional mitigating and aggravating risk factors. Some of these additional factors are particularly relevant for the specific time dimension considered (e.g. gross financing needs in the upcoming year and financial markets' perceptions of sovereign risk when analysing short-term risks). Other additional factors are considered horizontally in the overall assessment insofar the identified vulnerabilities or supporting factors may materialize in the short, medium or long term (see Chapter 5). Their consideration is needed to arrive at a balanced assessment of fiscal sustainability challenges.

In this latter additional analysis, three main components are considered: i) the structure of government debt financing, in terms of maturity, currency and debt holders; ii) additional government liabilities (beyond EDP debt) – including contingent liabilities (e.g. government guarantees) – and iii) government assets – notably to derive estimations of net debt.

ANNEX A1

Cross-country tables

A1.1. SHORT-TERM FISCAL SUSTAINABILITY CHALLENGES

Table A1.1: **S0 and sub-indexes heat map**

	S0 overall index			Overall SHORT-TERM risk category
		S0 Fiscal sub-index	S0 Financial competitiveness sub-index	
BE	0.48	0.88	0.27	HIGH
BG	0.35	0.23	0.42	LOW
CZ	0.37	0.37	0.37	LOW
DK	0.41	0.46	0.38	LOW
DE	0.37	0.67	0.21	LOW
EE	0.33	0.40	0.29	LOW
IE	0.42	0.32	0.47	LOW
ES	0.50	0.88	0.30	HIGH
FR	0.55	0.88	0.38	HIGH
HR	0.61	0.84	0.49	HIGH
IT	0.48	1.00	0.21	HIGH
CY	0.64	0.72	0.60	HIGH
LV	0.48	0.49	0.48	HIGH
LT	0.37	0.40	0.36	LOW
LU	0.30	0.23	0.33	LOW
HU	0.46	0.84	0.25	LOW
MT	0.29	0.49	0.18	LOW
NL	0.39	0.60	0.27	LOW
AT	0.40	0.88	0.15	LOW
PL	0.45	0.40	0.48	LOW
PT	0.61	0.96	0.42	HIGH
RO	0.49	0.53	0.47	HIGH
SI	0.43	0.72	0.28	LOW
SK	0.54	0.73	0.44	HIGH
FI	0.49	0.67	0.40	HIGH
SE	0.32	0.18	0.40	LOW

(1) The following thresholds are used to identify countries at risk of fiscal stress: 0.46 for the S0; 0.36 for the fiscal sub-index and 0.49 for the financial-competitiveness sub-index. They have been derived using the signals' approach (see chapter 2).
Source: Commission services.

Table A1.2: **Fiscal variables used in the S0 indicator, 2020**

	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 need (%GDP)	Interest growth rate diff.	Change expend. gen. govt (%GDP)	Change consumpt. gen. govt (%GDP)
BE	-11.2	-9.2	-6.2	9.3	117.7	19.7	7.5	103.8	26.0	8.8	9.4	2.5
BG	-3.0	-2.4	-2.0	1.4	25.7	5.5	0.0	8.8	5.8	6.5	6.2	2.4
CZ	-6.2	-5.4	-4.0	1.9	37.9	7.6	0.5	27.3	10.6	6.1	7.0	2.2
DK	-4.2	-3.5	-1.2	1.9	45.0	11.7	3.4	14.8	16.2	5.5	7.3	1.8
DE	-6.0	-5.3	-3.2	2.6	71.2	11.5	3.8	54.1	22.0	4.3	7.0	2.2
EE	-5.9	-5.8	-3.9	0.4	17.2	8.8	0.5	9.2	:	4.3	6.4	3.0
IE	-6.8	-5.7	-5.3	2.2	63.1	5.7	7.2	58.6	12.4	3.8	6.1	1.9
ES	-12.2	-9.9	-5.5	15.2	120.3	24.8	6.4	106.9	27.8	14.0	11.3	4.4
FR	-10.5	-9.1	-4.8	8.5	115.9	17.8	8.3	110.0	26.5	8.1	7.5	2.5
HR	-6.5	-4.2	-3.8	9.5	86.6	13.8	3.3	60.9	18.6	11.8	8.4	3.3
IT	-10.8	-7.2	-5.1	16.5	159.6	24.9	19.7	148.8	32.7	11.2	10.1	2.8
CY	-6.1	-3.7	-4.7	7.8	112.6	18.5	2.0	47.4	23.5	7.8	7.3	4.7
LV	-7.4	-6.7	-5.5	2.5	47.5	10.6	0.8	35.1	13.0	6.5	7.1	1.6
LT	-8.4	-7.8	-7.6	0.8	47.2	11.3	0.4	42.0	15.4	2.3	9.4	3.0
LU	-5.1	-4.8	-2.1	1.4	25.4	3.4	0.7	-4.8	7.2	6.1	8.6	2.6
HU	-8.4	-5.9	-6.4	3.3	78.0	12.6	7.6	70.4	28.2	4.9	6.7	2.8
MT	-9.4	-8.4	-6.5	4.2	55.2	12.6	5.3	29.6	15.4	9.2	10.3	5.2
NL	-7.2	-6.5	-4.4	2.4	60.0	11.3	4.3	48.1	18.4	4.7	7.3	2.2
AT	-9.6	-8.2	-6.2	5.3	84.2	13.7	3.0	61.0	18.4	7.1	9.1	1.9
PL	-8.8	-7.4	-7.8	1.5	56.6	10.9	0.5	53.5	13.9	3.2	7.6	1.1
PT	-7.3	-4.4	-3.6	12.2	135.1	17.9	20.9	130.3	20.0	9.6	7.4	2.4
RO	-10.3	-8.6	-8.1	2.5	46.7	11.4	1.1	36.6	14.3	7.0	7.3	2.2
SI	-8.7	-7.0	-6.8	5.3	82.2	16.6	2.0	50.2	21.8	7.7	10.5	3.2
SK	-9.6	-8.3	-7.4	3.5	63.4	15.0	0.7	:	16.8	7.0	9.3	4.4
FI	-7.6	-6.9	-5.1	2.4	69.8	10.5	5.5	32.0	18.0	4.0	6.3	2.6
SE	-3.9	-3.5	-1.3	1.0	39.9	4.8	7.3	9.2	10.7	2.8	4.2	1.4

(1) The upper thresholds used for each variable have been derived using the signals' approach (see chapter 2). The lower thresholds have been set at 80% of the original signals' approach thresholds, for prudential reasons.
Source: Commission services.

Table A1.3: **Financial-competitiveness variables used in the S0 indicator, 2020**

	Yield curve	Real GDP growth	GDP per capita in PPP (%US level)	L.Net intern. Invest. position (%GDP)	L.Net savings households (%GDP)	L.Private debt (%GDP)	L.Private credit flow (%GDP)	L.Short-term debt nonfin. corp. (%GDP)	L.Short-term debt households (%GDP)	L.Construction (%value added)	L.Current account (%GDP)	L.Change real eff. exchange rate	L.Change nom. unit labour costs
BE	0.3	-8.4	80.5	50.6	3.4	179.1	3.8	30.2	1.5	5.4	0.1	2.5	5.3
BG	0.3	-5.1	38.0	-31.2	:	91.8	5.6	13.0	1.8	4.5	2.5	8.7	19.5
CZ	-1.2	-6.9	64.6	-20.3	3.9	80.8	3.1	14.1	1.0	5.6	0.6	1.4	14.4
DK	-0.1	-3.9	92.7	76.9	1.8	221.2	11.4	39.6	2.6	6.0	8.0	2.0	1.4
DE	-0.2	-5.6	85.4	71.7	6.4	105.4	5.4	13.4	1.7	5.4	7.4	-0.6	7.9
EE	:	-4.6	59.5	-21.4	5.2	97.8	3.8	7.7	0.9	6.4	1.7	1.8	19.9
IE	0.4	-2.3	141.4	-174.0	2.4	202.4	-9.1	23.9	0.8	2.6	-1.6	-2.2	-4.4
ES	0.7	-12.4	59.3	-73.9	1.2	129.4	1.3	8.2	2.6	6.4	2.3	0.3	4.0
FR	0.2	-9.4	71.4	-22.9	5.4	153.3	8.0	25.3	1.4	5.8	-0.7	-1.4	1.3
HR	0.4	-9.6	44.0	-50.3	:	91.2	1.7	5.9	2.9	5.7	2.6	3.1	4.7
IT	2.0	-9.9	64.1	-1.5	1.6	106.6	0.2	14.7	2.7	4.3	2.7	0.2	3.2
CY	0.9	-6.2	62.6	-122.3	-2.1	259.1	2.7	20.2	5.6	6.4	-5.2	-2.6	5.2
LV	0.4	-5.6	48.9	-41.7	-1.8	67.1	1.5	6.3	1.2	6.5	0.1	2.3	17.0
LT	0.7	-2.2	60.4	-24.1	0.4	55.1	3.0	3.8	0.8	7.3	1.4	3.7	16.4
LU	-0.1	-4.5	182.5	56.2	5.7	318.7	3.8	89.3	1.8	6.0	4.7	7.0	11.9
HU	1.9	-6.4	52.0	-43.7	3.3	66.6	3.2	11.1	2.3	5.6	0.7	-3.0	10.0
MT	0.7	-7.3	67.1	54.6	:	123.0	8.5	10.7	2.2	4.1	5.1	1.9	8.2
NL	0.0	-5.3	90.1	90.0	4.9	234.0	0.0	36.5	2.0	5.0	10.5	1.1	5.9
AT	0.1	-7.1	87.7	12.1	4.6	120.1	4.5	10.9	2.4	6.8	1.8	-0.6	5.5
PL	0.2	-3.6	52.8	-49.4	-0.9	74.0	3.3	7.6	2.4	7.2	-0.4	4.1	9.2
PT	0.6	-9.3	53.3	-100.3	-1.4	149.2	2.2	15.4	2.3	4.3	0.5	1.9	7.6
RO	1.1	-5.2	49.5	-43.5	-3.4	46.7	2.0	9.9	0.7	7.1	-4.0	3.5	24.5
SI	0.3	-7.1	61.0	-15.4	3.3	68.7	0.8	7.3	1.9	6.0	5.9	0.9	8.4
SK	0.3	-7.5	50.6	-66.3	2.7	91.6	5.0	12.9	1.6	7.6	-2.3	-0.1	14.5
FI	0.2	-4.3	79.0	3.6	0.2	147.5	7.6	15.3	3.8	7.5	-0.9	3.3	0.8
SE	-0.4	-3.4	86.4	18.2	8.0	203.7	9.8	37.4	15.2	6.8	3.3	-4.8	8.1

(1) The upper thresholds used for each variable have been derived using the signals' approach (see chapter 2). The lower thresholds have been set at 80% of the original signals' approach thresholds, for prudential reasons.
Source: Commission services.

Additional indicators

Table A1.4: **Risks related to the structure of public debt financing, by country (2019)**

	Short-term public debt (original maturity)	Public debt in foreign currency	Public debt held by non-residents
	Shares of total debt (%):		
BE	**7,6**	0,0	**55,7**
BG	0,1	**81,0**	43,9
CZ	1,4	11,4	40,5
DK	**10,9**	0,1	25,8
DE	6,3	3,5	48,3
EE	6,1	0,0	69,8
IE	**7,2**	1,2	**60,2**
ES	6,5	0,0	49,0
FR	**8,5**	2,2	**50,2**
HR	4,6	**71,6**	32,7
IT	**14,6**	0,1	31,5
CY	2,1	3,4	**80,1**
LV	2,3	0,0	**74,3**
LT	0,0	0,0	**75,6**
LU	3,2	0,0	45,3
HU	**11,4**	20,5	33,9
MT	**7,3**	0,0	15,2
NL	**8,8**	0,1	40,0
AT	4,2	0,6	**66,5**
PL	1,1	28,4	44,1
PT	**17,8**	0,0	**51,7**
RO	3,1	**48,7**	46,3
SI	3,0	0,1	**61,1**
SK	1,3	0,1	**57,5**
FI	**9,3**	2,7	**62,3**
SE	**20,7**	21,3	19,3

(1) The upper thresholds used for each variable have been derived using the signals' approach; the lower thresholds have been set at 80% of the original signals' approach thresholds, for prudential reasons (see Annex A9).
Source: Eurostat, ECB.

Table A1.5: **Potential triggers for governments' contingent liability from the banking sector, by country**

	Private sector credit flow (% GDP)	House price nominal index change (%)	Bank loan-to-deposit ratio (%)	NPL ratio (% of total gross loans)	NPL ratio change (pps 2020 v 2019)	NPL coverage ratio (%)
BE	3,8	4,0	98,4	2,0	0,0	41,8
BG	5,6	6,0	69,7	**7,7**	**0,5**	48,3
CZ	3,1	9,2	81,3	1,2	0,0	56,0
DK	**12,4**	2,4	**311,2**	1,9	0,2	34,5
DE	5,4	5,8	128,5	1,3	0,0	37,9
EE	3,8	7,0	109,2	1,5	-0,3	**32,9**
IE	-9,1	2,3	88,7	**4,0**	-0,5	**29,8**
ES	1,3	5,2	107,2	**3,0**	-0,5	43,3
FR	8,0	3,3	109,3	**2,3**	-0,3	49,5
HR	1,7	9,0	70,2	**4,3**	-1,8	67,5
IT	0,2	-0,1	104,8	**6,1**	-1,8	52,7
CY	2,7	3,7	56,8	**15,5**	-6,0	46,6
LV	1,5	9,0	73,1	1,8	-0,5	36,9
LT	3,0	6,8	75,3	1,4	-0,5	**31,5**
LU	3,8	10,1	**142,8**	1,1	0,0	38,6
HU	3,2	**16,9**	79,6	**4,4**	-1,2	66,4
MT	8,5	6,1	50,6	**3,5**	**0,5**	**30,6**
NL	0,0	7,3	118,1	2,0	0,0	**27,9**
AT	4,5	5,8	102,2	2,1	-0,4	52,7
PL	3,3	8,7	86,8	**4,9**	0,1	62,3
PT	2,2	9,6	80,1	**5,7**	-3,2	51,7
RO	2,0	3,4	61,0	**4,2**	-0,7	65,5
SI	0,8	6,7	65,7	**3,2**	-2,0	52,3
SK	5,0	9,1	109,6	**2,5**	-0,1	62,5
FI	7,5	1,0	**168,7**	1,5	0,0	**32,6**
SE	9,9	2,5	**186,2**	0,5	0,0	40,9

(1) The upper thresholds used for each variable have been derived using the signals' approach, except for the NPL coverage ratio; the lower thresholds have been set at 80% of the upper thresholds, for prudential reasons (see Annex A9 and chapter 5).
Source: Eurostat (2019), EBA (June 2020).

Table A1.6: **Financial market information**

	Sovereign yield spreads (bp.) - 10 year - Nov. 2020
BE	23
BG	81
CZ	173
DK	15
DE	0
EE	:
IE	36
ES	70
FR	28
HR	134
IT	127
CY	90
LV	36
LT	77
LU	7
HU	**276**
MT	98
NL	7
AT	20
PL	181
PT	68
RO	**365**
SI	43
SK	22
FI	21
SE	61

(1) The upper thresholds used for each variable have been derived using the signals' approach; the lower thresholds have been set at 80% of the original signals' approach thresholds, for prudential reasons (see Annex A9).
Source: ECB.

A1.2. MEDIUM-TERM FISCAL SUSTAINABILITY CHALLENGES

Table A1.7: **S1 indicator, cost of ageing sub-component and required SPB related to S1, baseline and alternative scenarios, by country (pps. and % of GDP)**

	S1 indicator - Baseline scenario		S1 indicator - Higher interest	
		of wich		of wich
		Cost of ageing		Cost of ageing
BE	4.3	0.9	5.4	0.9
BG	-3.1	0.7	-2.8	0.6
CZ	-0.9	1.1	-0.3	1.1
DK	-4.2	0.1	-3.8	0.1
DE	-1.1	1.0	-0.4	1.0
EE	-2.9	0.1	-2.5	0.1
IE	-1.8	1.0	-1.3	1.0
ES	7.7	1.5	9.3	1.5
FR	4.4	0.3	5.4	0.3
HR	-1.5	-0.9	-0.7	-0.9
IT	9.2	1.4	10.4	1.4
CY	-0.6	0.6	0.2	0.6
LV	-1.8	0.3	-1.2	0.3
LT	-1.0	1.0	-0.5	1.0
LU	-3.9	1.4	-3.6	1.4
HU	-0.3	0.9	0.4	0.9
MT	-3.5	0.9	-2.9	0.9
NL	0.1	1.6	0.8	1.5
AT	-0.3	1.2	0.4	1.2
PL	-1.6	0.1	-1.1	0.1
PT	2.0	0.9	2.9	0.9
RO	14.8	1.7	16.8	1.6
SI	1.6	2.2	2.5	2.2
SK	3.2	1.9	4.1	1.9
FI	0.9	0.8	1.4	0.8
SE	-3.1	0.3	-2.8	0.3

(1) The upper and lower thresholds used for S1 are 0 and 2.5. The threshold used for the cost of ageing sub-component corresponds to the EU average. The upper and lower thresholds used for the required SPB are 15% and 30%.
Source: Commission services.

Table A1.8: **DSA heat map, by country**

	Sovereign-debt sustainability risks in EU countries																									
	BE	BG	CZ	DK	DE	EE	IE	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE
Baseline scenario	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	MEDIUM	MEDIUM	MEDIUM	LOW
Debt level (2031)	121.2	23.0	43.1	24.7	57.1	31.7	48.3	140.6	119.9	76.8	155.8	82.6	45.3	42.9	17.9	64.0	43.3	63.5	76.3	46.4	107.6	126.8	79.1	84.2	70.5	30.6
Debt peak year	2027	2021	2026	2020	2020	2027	2021	2030	2026	2020	2024	2020	2026	2021	2022	2020	2021	2025	2024	2021	2020	2031	2026	2030	2024	2021
Average Structural Primary Balance (2022-2031) Percentile rank	77%	49%	66%	42%	52%	77%	43%	90%	82%	50%	57%	35%	68%	61%	33%	55%	44%	63%	57%	64%	27%	100%	79%	90%	71%	57%
Historical SPB scenario	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	MEDIUM	MEDIUM	LOW	LOW
Debt level (2031)	109.6	23.4	46.7	16.0	50.1	31.1	63.7	128.1	119.6	89.7	145.8	83.3	50.9	48.7	13.0	69.0	45.8	60.8	73.6	54.5	123.2	95.8	78.0	79.2	58.2	20.8
Debt peak year	2025	2023	2031	2020	2020	2026	2021	2026	2026	2030	2024	2020	2031	2021	2022	2020	2021	2025	2024	2021	2020	2031	2025	2031	2024	2021
Average Structural Primary Balance (2022-2031) Percentile rank	67%	56%	73%	26%	44%	80%	75%	82%	83%	71%	41%	39%	77%	73%	24%	66%	57%	64%	62%	77%	60%	97%	82%	90%	55%	37%
Negative shock (-0.5p.p.) on nominal GDP growth	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	HIGH	HIGH	MEDIUM	LOW
Debt level (2031)	127.4	24.2	45.2	26.3	60.0	32.9	51.0	147.3	125.9	81.3	164.2	87.5	47.6	44.9	18.9	67.5	45.8	66.8	80.5	48.7	114.1	131.5	83.0	88.0	74.0	32.2
Debt peak year	2028	2023	2027	2020	2020	2028	2022	2030	2027	2026	2031	2020	2026	2021	2022	2021	2021	2026	2025	2021	2020	2031	2027	2030	2025	2021
Positive shock (+1p.p.) to the short- and long-term interest rates on newly issued	HIGH	LOW	LOW	LOW	MEDIUM	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	HIGH	HIGH	MEDIUM	LOW
Debt level (2031)	127.9	24.2	46.1	26.6	61.5	33.8	51.3	149.1	127.3	82.0	166.3	87.4	48.2	45.8	18.9	68.9	46.6	67.9	81.0	49.1	113.8	134.4	84.1	89.0	74.4	32.4
Debt peak year	2029	2023	2027	2020	2020	2028	2022	2031	2027	2020	2031	2020	2026	2021	2022	2021	2021	2026	2025	2021	2020	2031	2027	2031	2025	2021
Lower SPB scenario (50% of pre-crisis forecast SPB)	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW
Debt level (2031)	122.4	24.4	43.5	27.4	59.2	32.8	51.1	142.4	123.9	79.5	156.3	87.8	46.2	43.8	22.8	66.4	47.5	64.6	78.9	47.5	114.4	135.7	80.2	85.6	73.4	31.2
Debt peak year	2028	2021	2026	2020	2020	2028	2021	2030	2027	2020	2024	2020	2026	2021	2022	2020	2021	2026	2025	2021	2020	2031	2026	2030	2025	2021
Stochastic projections	HIGH	MEDIUM	MEDIUM	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	MEDIUM	LOW	LOW	MEDIUM	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	LOW
Probability of debt in 2025 greater than in 2020 (%)	71%	49%	80%	11%	30%	100%	44%	95%	93%	43%	52%	23%	56%	50%	44%	46%	62%	94%	60%	39%	24%	100%	60%	91%	71%	36%
Difference of the 10th and 90th percentile in 2025 (p.p. of GDP)	30.3	51.9	23.7	17.1	16.4	10.1	27.9	25.5	16.3	34.0	30.9	43.9	31.7	30.3	21.4	37.4	25.8	16.2	27.5	17.2	38.2	43.6	27.0	31.6	19.9	11.7
Debt sustainability analysis - overall risk assessment	HIGH	LOW	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM	MEDIUM	LOW	HIGH	HIGH	HIGH	HIGH	MEDIUM	LOW

(1) All thresholds used and decision trees to derive the DSA risk assessment are presented in the Annex A9.

Source: Commission services.

A1.3. LONG-TERM FISCAL SUSTAINABILITY CHALLENGES

Table A1.9: **S2, cost of ageing sub-components and required SPB related to S2, baseline and alternative scenarios, by country (pps. and % of GDP)**

	S2 indicator - Baseline scenario	S2 indicator - TFP risk	S2 indicator - Interest rate
BE	3.7	4.7	4.0
BG	2.5	2.7	2.4
CZ	4.8	4.8	4.6
DK	1.0	0.8	0.8
DE	2.1	2.7	2.2
EE	0.7	0.9	0.9
IE	2.4	2.5	2.5
ES	0.2	0.6	1.7
FR	-1.1	0.0	0.0
HR	-2.1	-2.2	-1.6
IT	1.1	1.2	2.6
CY	0.2	0.4	0.4
LV	-0.3	-0.1	0.3
LT	0.3	0.4	0.9
LU	10.7	10.5	8.7
HU	3.3	3.3	3.2
MT	4.6	4.7	3.9
NL	3.3	3.3	3.4
AT	2.4	3.3	2.5
PL	1.6	1.8	1.8
PT	-1.5	-0.5	-0.6
RO	6.5	7.9	8.0
SI	3.4	3.5	3.7
SK	7.7	7.3	7.5
FI	3.2	3.5	3.2
SE	2.9	2.8	2.6

(1) The upper and lower thresholds used for S2 are 2 and 6. The thresholds used for the cost of ageing sub-components correspond to the EU average. The upper and lower thresholds used for the required SPB are 15% and 30%.
Source: Commission services.

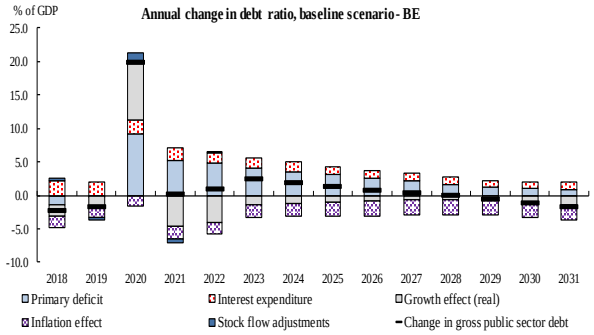
ANNEX A2

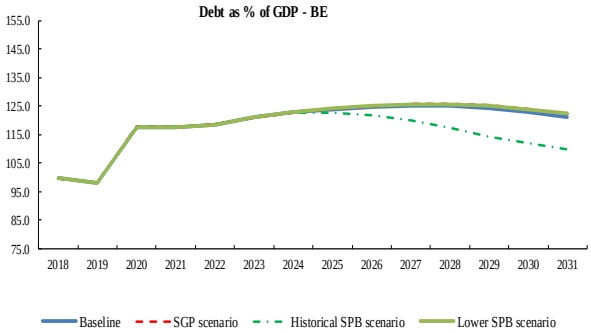
Country fiches

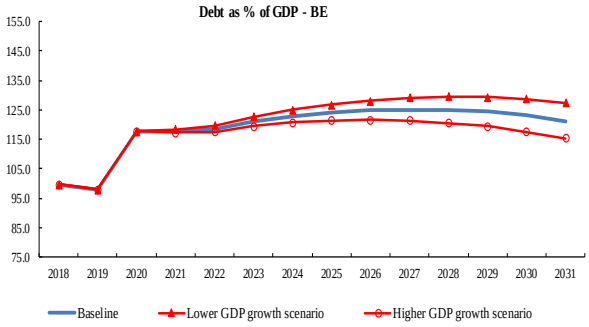
Belgium

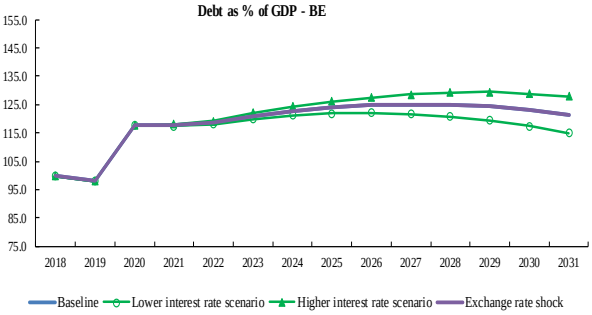
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

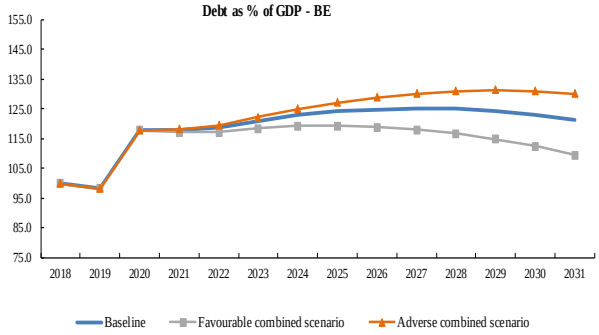
BE - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**99.8**	**98.1**	**117.7**	**117.8**	**118.6**	**121.0**	**122.8**	**124.0**	**124.8**	**125.1**	**124.9**	**124.3**	**123.0**	**121.2**
Changes in the ratio (-1+2+3)	*-2.3*	*-1.7*	*19.7*	*0.1*	*0.9*	*2.4*	*1.8*	*1.2*	*0.8*	*0.3*	*-0.1*	*-0.6*	*-1.3*	*-1.8*
of which														
(1) Primary balance (1.1+1.2+1.3)	**1.3**	**0.0**	**-9.2**	**-5.2**	**-4.7**	**-4.1**	**-3.6**	**-3.1**	**-2.6**	**-2.1**	**-1.6**	**-1.2**	**-1.0**	**-0.9**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***0.0***	***-1.3***	***-4.8***	***-2.8***	***-3.7***	***-3.2***	***-2.8***	***-2.3***	***-1.9***	***-1.4***	***-1.0***	***-0.5***	***-0.5***	***-0.7***
(1.1.1) Structural primary balance (bef. CoA)	*0.0*	*-1.3*	*-4.8*	*-2.8*	*-3.7*	*-3.2*	*-2.8*	*-2.3*	*-1.9*	*-1.4*	*-1.0*	*-0.5*	*-0.5*	*-0.5*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.2*
(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*
(1.2) Cyclical component	***0.8***	***1.1***	***-4.5***	***-2.5***	***-1.0***	***-0.9***	***-0.8***	***-0.7***	***-0.7***	***-0.7***	***-0.7***	***-0.6***	***-0.4***	***-0.2***
(1.3) One-off and other temporary measures	***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***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-1.3**	**-1.3**	**9.3**	**-4.7**	**-4.2**	**-1.8**	**-1.8**	**-1.9**	**-1.8**	**-1.8**	**-1.8**	**-1.8**	**-2.3**	**-2.7**
(2.1) Interest expenditure	*2.1*	*2.0*	*2.1*	*1.8*	*1.6*	*1.5*	*1.4*	*1.3*	*1.2*	*1.2*	*1.1*	*1.1*	*1.0*	*1.0*
(2.2) Growth effect	*-1.8*	*-1.7*	*8.9*	*-4.6*	*-4.0*	*-1.4*	*-1.2*	*-1.1*	*-0.9*	*-0.7*	*-0.6*	*-0.5*	*-0.9*	*-1.3*
(2.3) Inflation effect	*-1.6*	*-1.6*	*-1.6*	*-1.9*	*-1.8*	*-1.9*	*-2.0*	*-2.0*	*-2.1*	*-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	**0.4**	**-0.3**	**1.2**	**-0.5**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*0.4*	*-0.3*	*1.2*	*-0.5*	*0.3*	*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	-2.1	-3.3	-6.8	-4.6	-5.3	-4.7	-4.1	-3.6	-3.1	-2.6	-2.1	-1.6	-1.6	-1.7

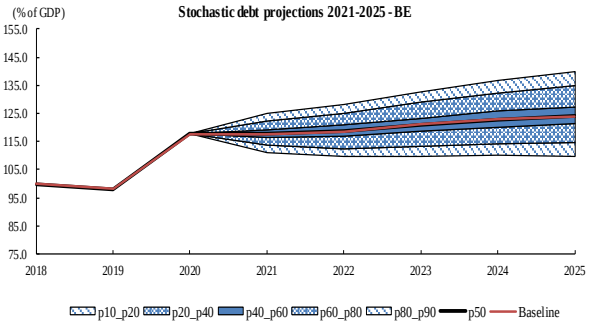












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
HIGH (S0 = 0.5)	HIGH	HIGH (S1 = 4.3)	Risk category	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	MEDIUM (S2 = 3.7)	HIGH
			Debt level (2031)	121.2	109.6	127.4	127.9	122.4				
			Debt peak year	2027	2025	2028	2029	2028				
			Percentile rank	77.0%	67.0%							
			Probability debt higher						71.1%			
			Dif. between percentiles						30.3			

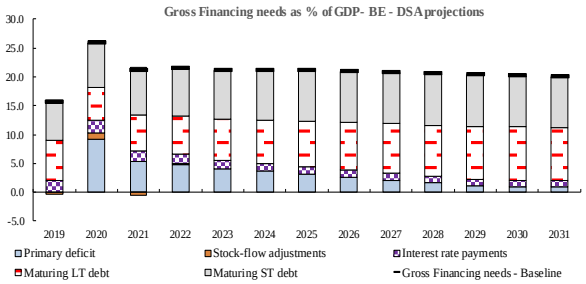
2.2. Sustainability indicators

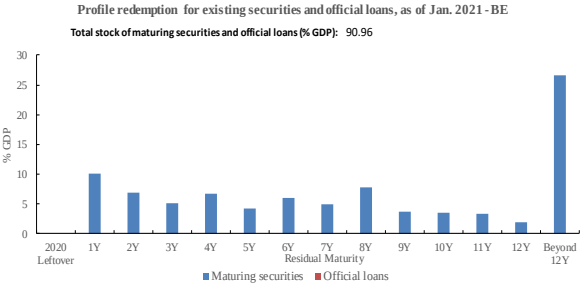
S0 indicator	2009	2020	Critical threshold
Overall index	**0.48**	**0.48**	**0.46**
Fiscal sub-index	0.88	0.88	0.36
Financial competitiveness sub-index	0.27	0.27	0.49

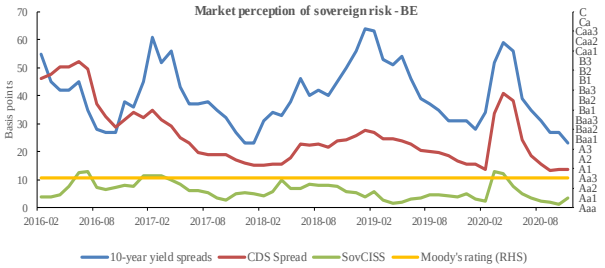
S1 indicator	2019 DSM	2020 DSM
Overall index	**4.1**	**4.3**
of which *Initial budgetary position*	*-0.5*	*-1.2*
Debt requirement	*3.4*	*4.6*
Ageing costs	*1.1*	*0.9*
Required structural primary balance related to S1	**3.5**	**3.8**

S2 indicator	2019 DSM	2020 DSM
Overall index	**4.8**	**3.7**
of which Initial Budgetary position	0.8	1.0
Ageing costs	4.0	2.7
of which Pensions	*1.9*	*0.9*
Health care	*0.4*	*0.3*
Long-term care	*1.6*	*1.4*
Others	*0.1*	*0.0*
Required structural primary balance related to S2	**4.2**	**3.1**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, BE	Local currency long term	Local currency short term	Foreign currency long term	Foreign currency short term
Moody's	Aa3	P-1	Aa3	
S&P	AAu	A-1+u	AAu	A-1+u
Fitch	AA-		AA-	F1+

Sovereign yield spreads (bp)* - as of November 2020	10-year	23.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - BE (2019)	Share of short-term government debt (p.p.): 7.6	Share of government debt in foreign currency (%): 0.0	Share of government debt by non-residents 55.7

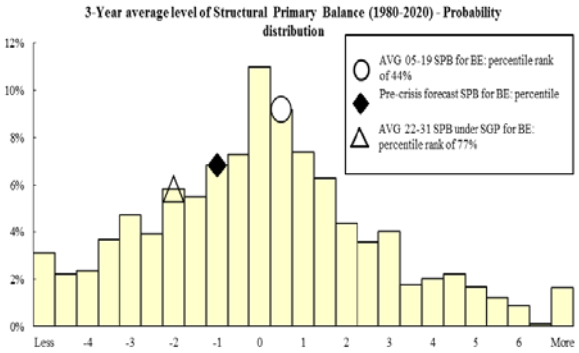
Net International Investment Position (IIP) - BE (2019)	Net IIP (% GDP): 50.6

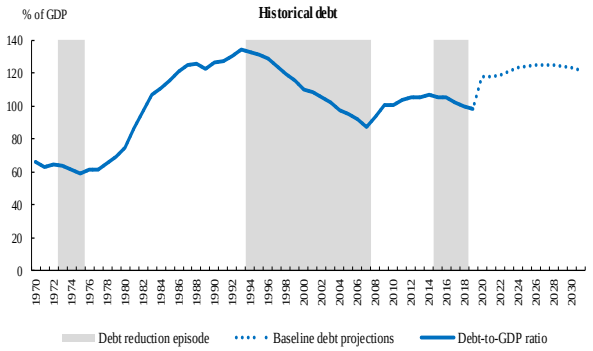
5. Risks related to government's contingent liabilities

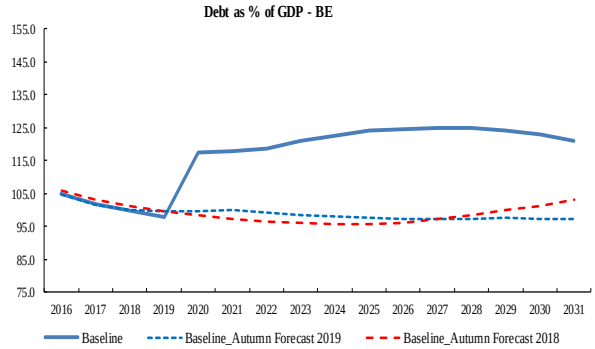
General government contingent liabilities		BE					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		13.8	9.6	10.7	9.8	9.3	6.7
of which One-off guarantees		*13.2*	*9.1*	*10.1*	*9.2*	*8.7*	*6.2*
Standardised guarantees		*0.6*	*0.6*	*0.6*	*0.6*	*0.6*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.1*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*
		2013	2015	2016	2018	2019	2019
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	11.5	7.6	8.5	7.3	6.6	1.1
	Securities issued under liquidity schemes	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	0.1
	Total	11.5	7.6	8.5	7.3	6.6	1.2

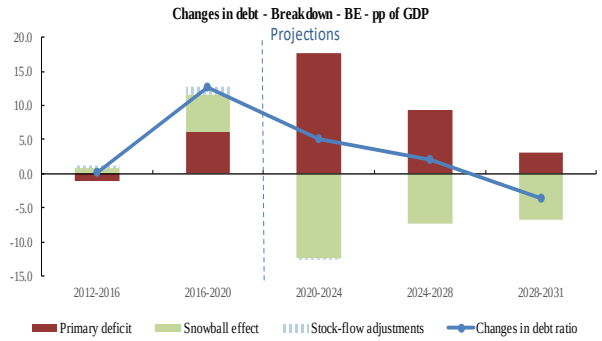
Government's contingent liability risks from banking sector - BE (2019)	Private sector credit flow (% GDP): 3.8	Change in nominal house price index: 4.0	Bank loans-to-deposits ratio (p.p.): 98.4	Share of non-performing loans (%): 2.0	Change in share of non-performing loans (p.p): 0.0	NPL coverage ratio 41.8

6. Realism of baseline assumptions









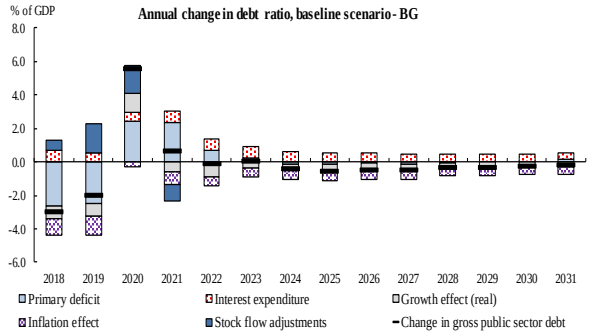
7. Underlying macro-fiscal assumptions

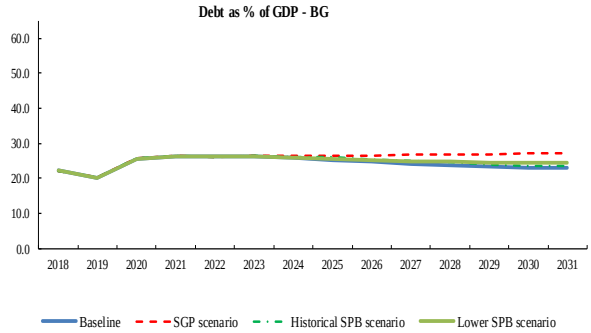
Macro-fiscal assumptions, Belgium	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	117.7	117.8	118.6	125.1	124.3	121.2	118.0	123.5	122.1
Primary balance	-9.2	-5.2	-4.7	-2.1	-1.2	-0.9	-6.4	-2.2	-3.3
Structural primary balance (before CoA)	-4.8	-2.8	-3.7	-1.4	-0.5	-0.5	-3.8	-1.6	-2.1
Real GDP growth	-8.4	4.1	3.5	0.6	0.4	1.1	-0.3	0.8	0.5
Potential GDP growth	0.6	0.6	1.0	0.5	0.4	0.8	0.7	0.7	0.7
Inflation rate	1.7	1.6	1.5	1.8	1.9	2.0	1.6	1.8	1.8
Implicit interest rate (nominal)	2.0	1.6	1.4	0.9	0.9	0.9	1.7	1.0	1.2
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	117.7	117.8	118.6	125.6	125.2	122.1	118.0	124.0	122.5
Primary balance	-9.2	-5.2	-4.7	-2.3	-1.3	-0.2	-6.4	-2.2	-3.3
Structural primary balance	-4.8	-2.8	-3.7	-1.6	-0.6	0.6	-3.8	-1.5	-2.1
Real GDP growth	-8.4	4.1	3.5	0.6	0.3	0.7	-0.3	0.7	0.5
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	117.7	117.8	118.6	119.8	114.2	109.6	118.0	117.9	118.0
Primary balance	-9.2	-5.2	-4.7	-0.4	0.5	0.3	-6.4	-0.9	-2.3
Structural primary balance (before CoA)	-4.8	-2.8	-3.7	0.5	0.5	0.5	-3.8	-0.2	-1.1
Real GDP growth	-8.4	4.1	3.5	1.3	1.2	0.8	-0.3	0.8	0.6
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	117.7	118.0	119.2	128.6	129.4	127.9	118.3	127.1	124.9
Implicit interest rate (nominal)	2.0	1.9	1.7	1.6	1.6	1.6	1.8	1.6	1.6
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	117.7	117.5	118.1	121.7	119.5	115.0	117.8	120.0	119.4
Implicit interest rate (nominal)	2.0	1.4	1.1	0.4	0.2	0.1	1.5	0.4	0.7
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	117.7	117.3	117.6	121.3	119.4	115.4	117.5	119.7	119.2
Real GDP growth	-8.4	4.6	4.0	1.1	0.9	1.6	0.1	1.3	1.0
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	117.7	118.3	119.7	129.1	129.4	127.4	118.6	127.4	125.2
Real GDP growth	-8.4	3.6	3.0	0.1	-0.1	0.6	-0.6	0.3	0.1
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	117.7	117.8	118.6	125.4	125.0	122.4	118.0	123.9	122.4
Primary balance	-9.2	-5.2	-4.7	-2.2	-1.4	-1.2	-6.4	-2.4	-3.4
Structural primary balance (before CoA)	-4.8	-2.8	-3.7	-1.6	-0.8	-0.8	-3.8	-1.7	-2.2
Real GDP growth	-8.4	4.1	3.5	0.6	0.4	1.1	-0.3	0.8	0.5
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	117.7	117.8	118.6	125.1	124.3	121.2	118.0	123.5	122.1
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	117.7	117.0	117.0	118.0	114.8	109.5	117.3	116.4	116.6
Implicit interest rate (nominal)	2.0	1.4	1.1	0.4	0.2	0.1	1.5	0.4	0.7
Real GDP growth	-8.4	4.6	4.0	1.1	0.9	1.6	0.1	1.3	1.0
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	117.7	118.1	119.4	130.0	131.3	130.1	118.4	128.5	126.0
Implicit interest rate (nominal)	2.0	1.8	1.6	1.3	1.2	1.2	1.8	1.3	1.4
Real GDP growth	-8.9	3.6	3.0	0.0	-0.1	0.6	-0.8	0.2	0.0

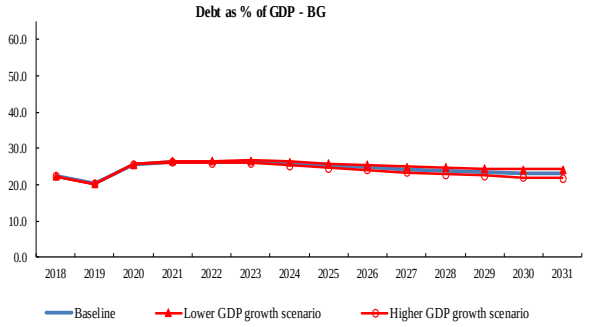
Bulgaria

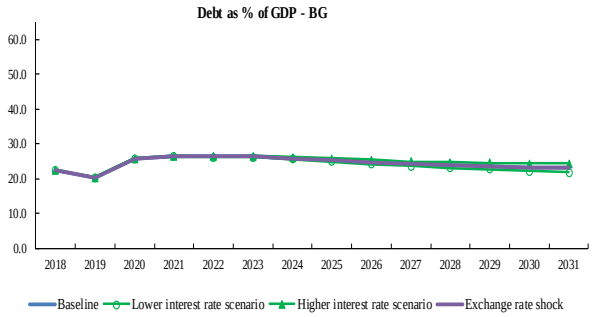
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

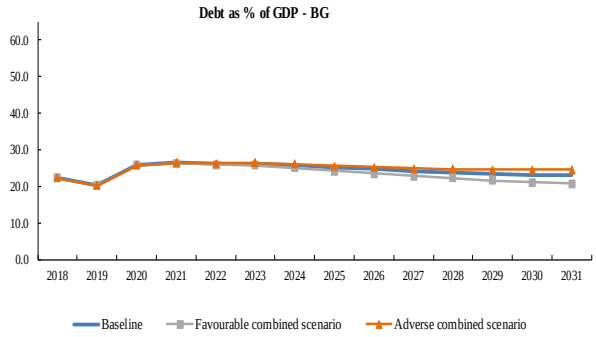
BG - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**22.3**	**20.2**	**25.7**	**26.4**	**26.3**	**26.3**	**25.8**	**25.3**	**24.7**	**24.2**	**23.8**	**23.5**	**23.2**	**23.0**
Changes in the ratio (-1+2+3)	*-3.1*	*-2.0*	*5.5*	*0.6*	*-0.1*	*0.0*	*-0.5*	*-0.6*	*-0.5*	*-0.5*	*-0.4*	*-0.4*	*-0.3*	*-0.2*
of which														
(1) Primary balance (1.1+1.2+1.3)	**2.6**	**2.5**	**-2.4**	**-2.3**	**-0.7**	**-0.3**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**-0.1**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***2.1***	***1.5***	***-1.5***	***-1.7***	***-0.6***	***-0.1***	***0.4***	***0.3***	***0.2***	***0.1***	***0.1***	***0.0***	***0.0***	***-0.1***
(1.1.1) Structural primary balance (bef. CoA)	*2.1*	*1.5*	*-1.5*	*-1.7*	*-0.6*	*-0.1*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.1*	*0.2*	*0.3*	*0.3*	*0.4*	*0.4*	*0.5*
(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*
(1.2) Cyclical component	***0.6***	***1.0***	***-0.9***	***-0.6***	***-0.1***	***-0.2***	***-0.2***	***-0.1***	***-0.1***	***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)	**-1.0**	**-1.3**	**1.4**	**-0.7**	**-0.8**	**-0.2**	**-0.3**	**-0.4**	**-0.4**	**-0.4**	**-0.3**	**-0.3**	**-0.3**	**-0.3**
(2.1) Interest expenditure	*0.7*	*0.6*	*0.6*	*0.7*	*0.7*	*0.6*	*0.6*	*0.6*	*0.5*	*0.5*	*0.5*	*0.4*	*0.4*	*0.4*
(2.2) Growth effect	*-0.7*	*-0.8*	*1.1*	*-0.6*	*-0.9*	*-0.3*	*-0.4*	*-0.5*	*-0.4*	*-0.4*	*-0.3*	*-0.3*	*-0.3*	*-0.3*
(2.3) Inflation effect	*-1.0*	*-1.1*	*-0.3*	*-0.7*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.5*
(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	**0.6**	**1.7**	**1.7**	**-1.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*0.6*	*1.7*	*1.7*	*-1.0*	*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	1.4	1.0	-2.0	-2.4	-1.3	-0.8	-0.2	-0.3	-0.3	-0.4	-0.4	-0.4	-0.5	-0.5

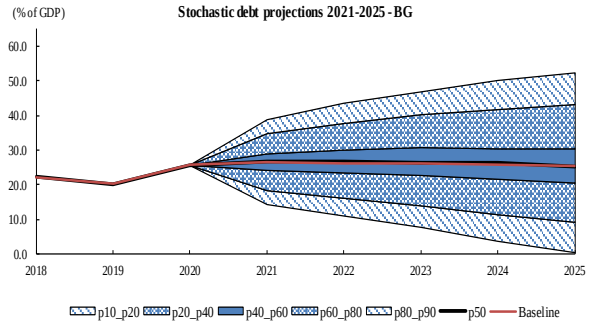












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
LOW (S0 = 0.3)	LOW	LOW (S1 = -3.1)	Risk category	LOW	LOW	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM (S2 = 2.5)	MEDIUM
			Debt level (2031)	23.0	23.4	24.2	24.2	24.4				
			Debt peak year	2021	2023	2023	2023	2021				
			Percentile rank	49.0%	56.0%							
			Probability debt higher						49.1%			
			Dif. between percentiles						51.9			

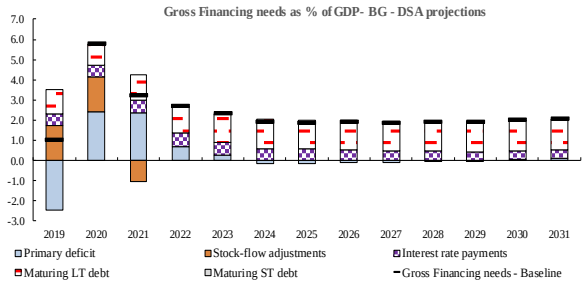
2.2. Sustainability indicators

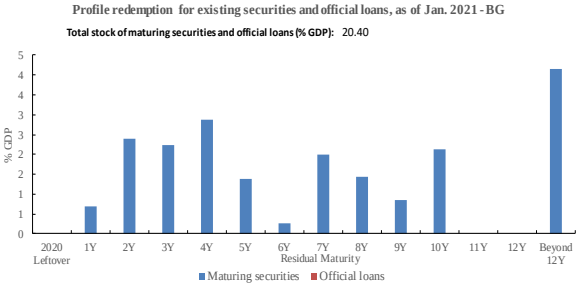
S0 indicator	2009	2020	Critical threshold
Overall index	**0.65**	**0.35**	**0.46**
Fiscal sub-index	0.33	0.23	0.36
Financial competitiveness sub-index	0.82	0.42	0.49

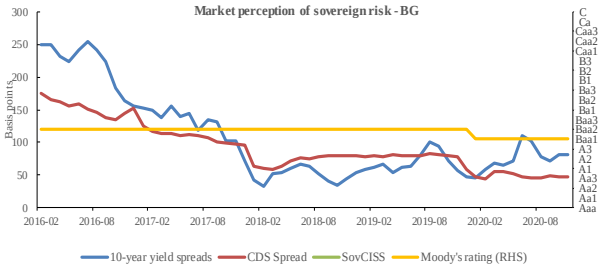
S1 indicator	2019 DSM	2020 DSM
Overall index	**-5.4**	**-3.1**
of which *Initial budgetary position*	*-2.3*	*-1.2*
Debt requirement	*-3.6*	*-2.5*
Ageing costs	*0.5*	*0.7*
Required structural primary balance related to S1	**-4.2**	**-2.7**

S2 indicator	2019 DSM	2020 DSM
Overall index	**1.6**	**2.5**
of which Initial Budgetary position	-0.8	-0.1
Ageing costs	2.4	2.5
of which Pensions	*1.6*	*1.9*
Health care	*0.2*	*0.1*
Long-term care	*0.1*	*0.1*
Others	*0.5*	*0.5*
Required structural primary balance related to S2	**2.8**	**2.9**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, BG	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Baa1		Baa1	
S&P	BBB	A-2	BBB	A-2
Fitch	BBB		BBB	F2

Sovereign yield spreads (bp)* - as of November 2020	10-year	81.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - BG (2019)	Share of short-term government debt (p.p.): 0.1	Share of government debt in foreign currency 81.0	Share of government debt by non-residents (%): 43.9

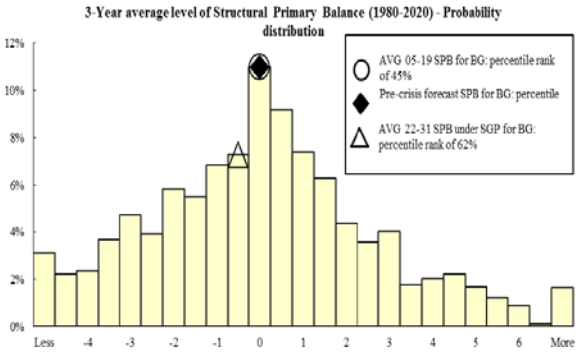
Net International Investment Position (IIP) - BG (2019)	Net IIP (% GDP): -31.2

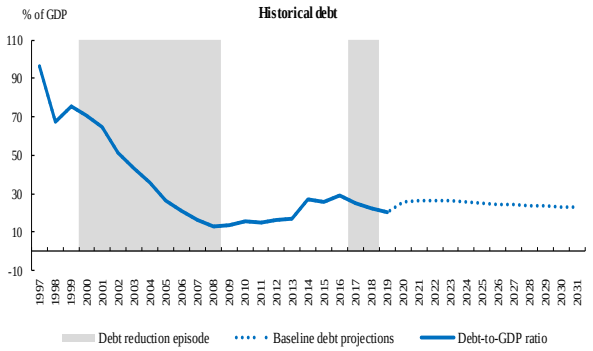
5. Risks related to government's contingent liabilities

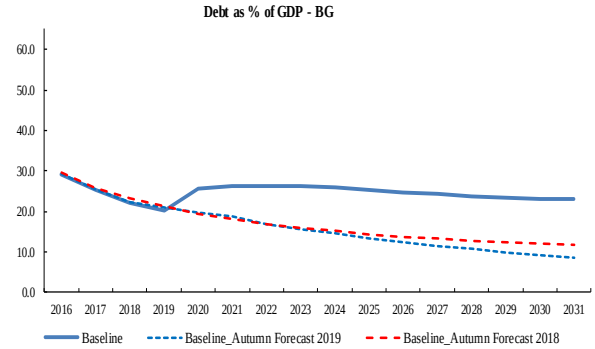
General government contingent liabilities		BG					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		0.7	0.5	0.4	0.3	0.2	6.7
of which One-off guarantees		*0.7*	*0.4*	*0.3*	*0.2*	*0.1*	*6.2*
Standardised guarantees		*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.3*
		2013	2015	2016	2018	2019	2019
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	1.1
	Securities issued under liquidity schemes	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	0.1
	Total	0.0	0.0	0.0	0.0	0.0	1.2

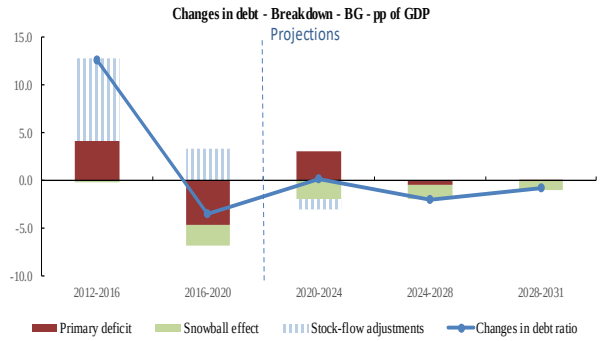
Government's contingent liability risks from banking sector - BG (2019)	Private sector credit flow (% GDP): 5.6	Change in nominal house price index: 6.0	Bank loans-to-deposits ratio (p.p.): 69.7	Share of non-performing loans (%): 7.7	Change in share of non-performing loans (p.p): 0.5	NPL coverage ratio 48.3

6. Realism of baseline assumptions









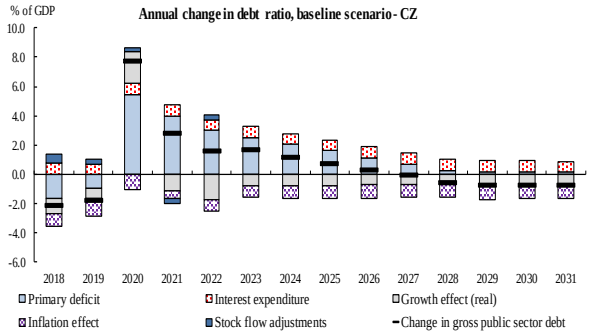
7. Underlying macro-fiscal assumptions

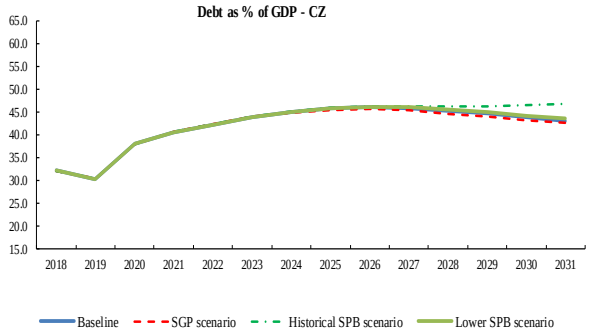
Macro-fiscal assumptions, Bulgaria	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.7	26.4	26.3	24.2	23.5	23.0	26.1	24.4	24.8
Primary balance	-2.4	-2.3	-0.7	0.1	0.0	-0.1	-1.8	0.0	-0.4
Structural primary balance (before CoA)	-1.5	-1.7	-0.6	0.4	0.4	0.4	-1.3	0.3	-0.1
Real GDP growth	-5.1	2.6	3.7	1.7	1.3	1.2	0.4	1.5	1.2
Potential GDP growth	1.2	1.5	1.7	1.5	1.3	1.2	1.5	1.4	1.4
Inflation rate	1.4	2.8	2.1	2.0	2.0	2.0	2.1	2.0	2.1
Implicit interest rate (nominal)	2.7	2.7	2.7	2.1	1.9	1.8	2.7	2.1	2.3
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.7	26.4	26.3	26.7	27.0	27.2	26.1	26.8	26.6
Primary balance	-2.4	-2.3	-0.7	-0.5	-0.5	-0.5	-1.8	-0.5	-0.8
Structural primary balance	-1.5	-1.7	-0.6	-0.5	-0.5	-0.5	-1.3	-0.5	-0.7
Real GDP growth	-5.1	2.6	3.7	1.5	1.3	1.2	0.4	1.5	1.2
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.7	26.4	26.3	25.0	24.1	23.4	26.1	25.0	25.3
Primary balance	-2.4	-2.3	-0.7	0.1	0.1	-0.1	-1.8	0.0	-0.5
Structural primary balance (before CoA)	-1.5	-1.7	-0.6	0.4	0.4	0.4	-1.3	0.3	-0.1
Real GDP growth	-5.1	2.6	3.7	1.6	1.5	1.2	0.4	1.5	1.2
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.7	26.4	26.4	24.9	24.4	24.2	26.2	25.1	25.4
Implicit interest rate (nominal)	2.7	3.0	3.1	2.6	2.5	2.5	2.9	2.6	2.7
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.7	26.3	26.1	23.5	22.6	21.8	26.1	23.7	24.3
Implicit interest rate (nominal)	2.7	2.5	2.4	1.5	1.3	1.2	2.6	1.6	1.8
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.7	26.2	26.0	23.4	22.5	21.8	26.0	23.6	24.2
Real GDP growth	-5.1	3.1	4.2	2.2	1.8	1.7	0.7	2.0	1.7
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.7	26.5	26.5	25.0	24.5	24.2	26.2	25.2	25.5
Real GDP growth	-5.1	2.1	3.2	1.2	0.8	0.7	0.1	1.0	0.7
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.7	26.4	26.3	24.9	24.5	24.4	26.1	25.1	25.4
Primary balance	-2.4	-2.3	-0.7	-0.1	-0.2	-0.3	-1.8	-0.1	-0.6
Structural primary balance (before CoA)	-1.5	-1.7	-0.6	0.2	0.2	0.2	-1.3	0.1	-0.2
Real GDP growth	-5.1	2.6	3.7	1.7	1.3	1.2	0.4	1.5	1.2
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.7	26.4	26.3	24.2	23.5	23.0	26.1	24.4	24.8
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.7	26.2	25.9	22.8	21.6	20.7	25.9	23.0	23.7
Implicit interest rate (nominal)	2.7	2.5	2.4	1.5	1.3	1.2	2.6	1.6	1.8
Real GDP growth	-5.1	3.1	4.2	2.2	1.8	1.7	0.7	2.0	1.7
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.7	26.4	26.3	24.9	24.6	24.4	26.1	25.1	25.4
Implicit interest rate (nominal)	2.7	2.8	2.9	2.3	2.2	2.2	2.8	2.4	2.5
Real GDP growth	-5.6	2.1	3.2	1.1	0.8	0.7	-0.1	0.9	0.7

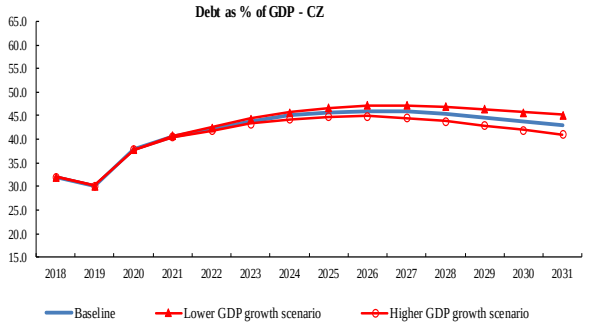
Czechia

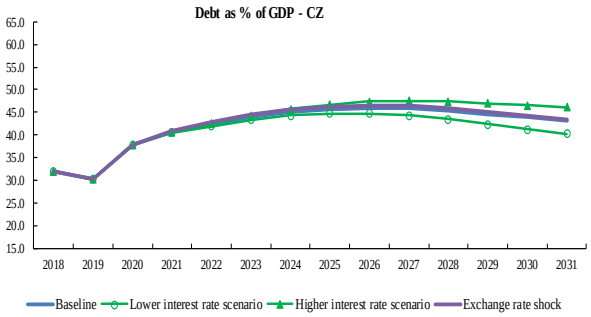
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

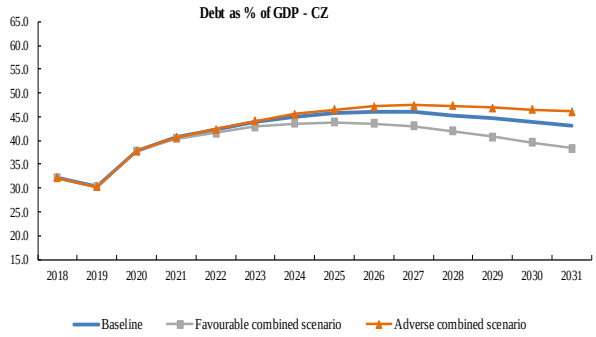
CZ - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**32.1**	**30.2**	**37.9**	**40.6**	**42.2**	**43.9**	**45.0**	**45.7**	**46.0**	**45.9**	**45.3**	**44.6**	**43.8**	**43.1**
Changes in the ratio (-1+2+3)	*-2.2*	*-1.8*	*7.6*	*2.7*	*1.6*	*1.7*	*1.2*	*0.7*	*0.3*	*-0.1*	*-0.6*	*-0.7*	*-0.8*	*-0.8*
of which														
(1) Primary balance (1.1+1.2+1.3)	**1.7**	**1.0**	**-5.4**	**-4.0**	**-3.0**	**-2.5**	**-2.1**	**-1.6**	**-1.1**	**-0.7**	**-0.3**	**-0.2**	**-0.2**	**-0.1**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***0.5***	***-0.3***	***-3.4***	***-2.5***	***-2.5***	***-2.1***	***-1.6***	***-1.2***	***-0.7***	***-0.3***	***0.1***	***0.1***	***0.0***	***-0.1***
(1.1.1) Structural primary balance (bef. CoA)	*0.5*	*-0.3*	*-3.4*	*-2.5*	*-2.5*	*-2.1*	*-1.6*	*-1.2*	*-0.7*	*-0.3*	*0.1*	*0.1*	*0.1*	*0.1*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*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*
(1.2) Cyclical component	***1.2***	***1.2***	***-2.0***	***-1.5***	***-0.5***	***-0.5***	***-0.4***	***-0.4***	***-0.4***	***-0.4***	***-0.4***	***-0.3***	***-0.1***	***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)	**-1.1**	**-1.2**	**1.9**	**-0.9**	**-1.8**	**-0.9**	**-0.9**	**-0.9**	**-0.9**	**-0.8**	**-0.8**	**-0.9**	**-0.9**	**-0.9**
(2.1) Interest expenditure	*0.7*	*0.7*	*0.8*	*0.8*	*0.7*	*0.7*	*0.7*	*0.7*	*0.7*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*
(2.2) Growth effect	*-1.0*	*-0.7*	*2.2*	*-1.1*	*-1.7*	*-0.8*	*-0.8*	*-0.8*	*-0.7*	*-0.7*	*-0.7*	*-0.8*	*-0.8*	*-0.8*
(2.3) Inflation effect	*-0.9*	*-1.2*	*-1.0*	*-0.5*	*-0.8*	*-0.8*	*-0.8*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*
(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	**0.6**	**0.3**	**0.3**	**-0.3**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*0.7*	*0.3*	*0.2*	*-0.4*	*0.3*	*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*	*0.0*	*0.1*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-0.2	-1.0	-4.2	-3.3	-3.2	-2.8	-2.4	-1.9	-1.5	-1.1	-0.6	-0.7	-0.8	-0.9

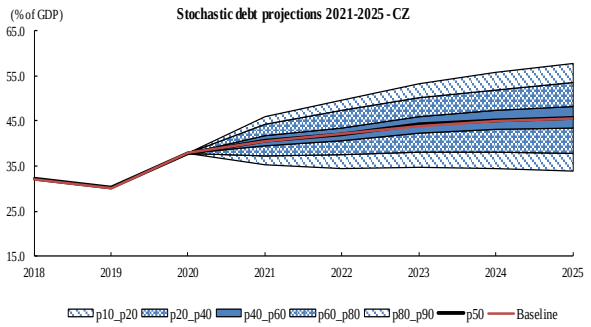












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
LOW (S0 = 0.4)	LOW	LOW (S1 = -0.9)	Risk category	LOW	LOW	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM (S2 = 4.8)	MEDIUM
			Debt level (2031)	43.1	46.7	45.2	46.1	43.5				
			Debt peak year	2026	2031	2027	2027	2026				
			Percentile rank	66.0%	73.0%							
			Probability debt higher						79.9%			
			Dif. between percentiles						23.7			

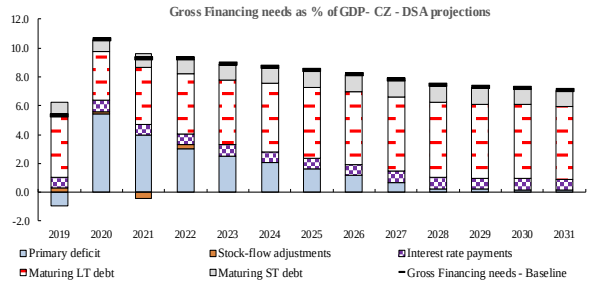
2.2. Sustainability indicators

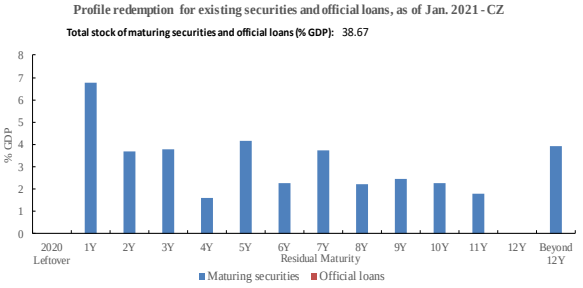
S0 indicator	2009	2020	Critical threshold
Overall index	**0.34**	**0.37**	**0.46**
Fiscal sub-index	0.42	0.37	0.36
Financial competitiveness sub-index	0.31	0.37	0.49

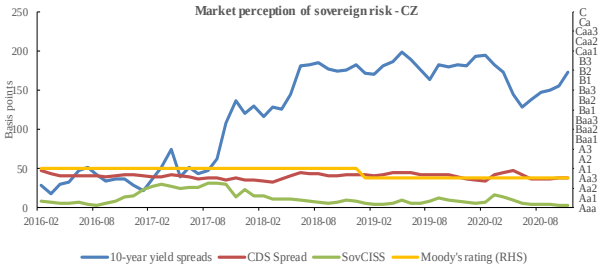
S1 indicator	2019 DSM	2020 DSM
Overall index	**-2.9**	**-0.9**
of which *Initial budgetary position*	*-1.3*	*-0.8*
Debt requirement	*-2.5*	*-1.2*
Ageing costs	*0.9*	*1.1*
Required structural primary balance related to S1	**-2.6**	**-0.7**

S2 indicator	2019 DSM	2020 DSM
Overall index	**4.8**	**4.8**
of which Initial Budgetary position	0.0	0.2
Ageing costs	4.8	4.6
of which Pensions	*2.3*	*2.6*
Health care	*0.8*	*0.6*
Long-term care	*1.1*	*1.1*
Others	*0.6*	*0.3*
Required structural primary balance related to S2	**5.1**	**4.9**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, CZ	Local currency long term	Local currency short term	Foreign currency long term	Foreign currency short term
Moody's	Aa3		Aa3	P-1
S&P	AA	A-1+	AA-	A-1+
Fitch	AA-		AA-	F1+

Sovereign yield spreads (bp)* - as of November 2020	10-year	173.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - CZ (2019)	Share of short-term government debt (p.p.): 1.4	Share of government debt in foreign currency (%): 11.4	Share of government debt by non-residents (%): 40.5

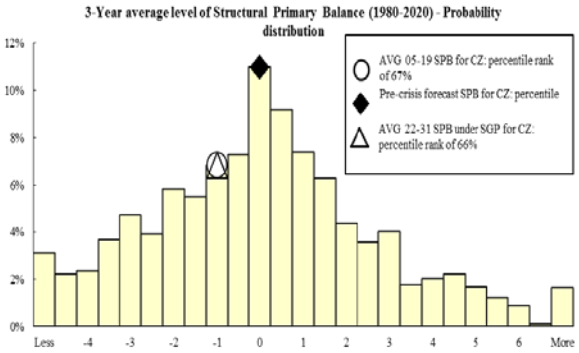
Net International Investment Position (IIP) - CZ (2019)	Net IIP (% GDP): -20.3

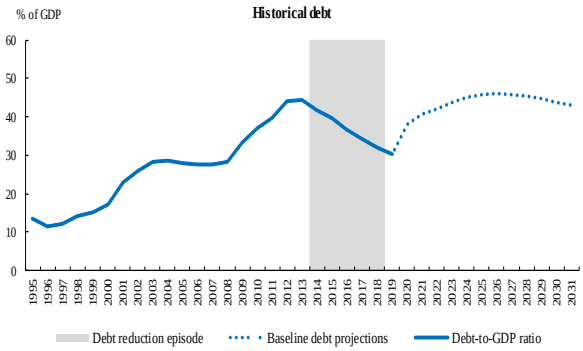
5. Risks related to government's contingent liabilities

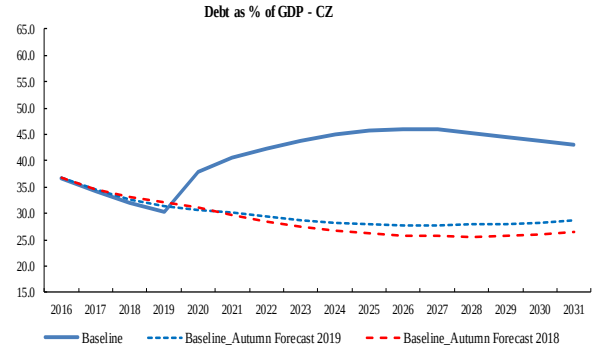
General government contingent liabilities		CZ					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		0.6	0.3	0.3	0.2	0.2	6.7
of which One-off guarantees		*0.6*	*0.3*	*0.3*	*0.2*	*0.2*	*6.2*
Standardised guarantees		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.3*
		2013	2015	2016	2018	2019	2019
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	1.1
	Securities issued under liquidity schemes	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	0.1
	Total	0.0	0.0	0.0	0.0	0.0	1.2

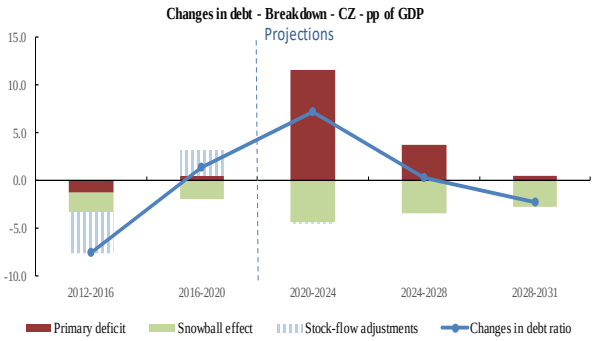
Government's contingent liability risks from banking sector - CZ (2019)	Private sector credit flow (% GDP): 3.1	Change in nominal house price index: 9.2	Bank loans-to-deposits ratio (p.p.): 81.3	Share of non-performing loans (%): 1.2	Change in share of non-performing loans (p.p): 0.0	NPL coverage ratio 56.0

6. Realism of baseline assumptions









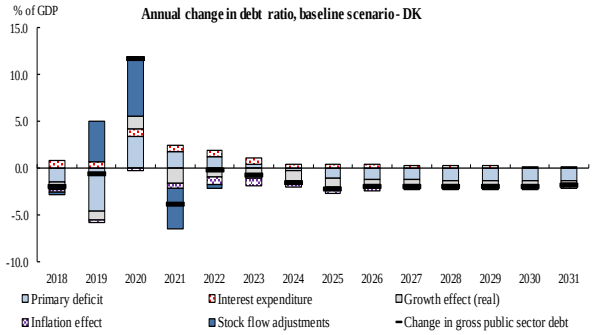
7. Underlying macro-fiscal assumptions

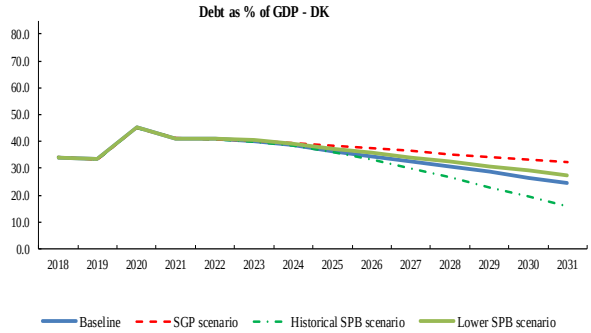
Macro-fiscal assumptions, Czechia	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	37.9	40.6	42.2	45.9	44.6	43.1	40.2	44.8	43.7
Primary balance	-5.4	-4.0	-3.0	-0.7	-0.2	-0.1	-4.1	-1.0	-1.8
Structural primary balance (before CoA)	-3.4	-2.5	-2.5	-0.3	0.1	0.1	-2.8	-0.6	-1.1
Real GDP growth	-6.9	3.1	4.5	1.5	1.9	1.9	0.2	1.8	1.4
Potential GDP growth	1.2	1.6	1.9	1.5	1.5	1.6	1.6	1.6	1.6
Inflation rate	3.4	1.4	1.9	2.0	2.0	2.0	2.3	2.0	2.0
Implicit interest rate (nominal)	2.4	2.1	1.9	1.7	1.7	1.8	2.1	1.7	1.8
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	37.9	40.6	42.2	45.2	43.9	42.5	40.2	44.4	43.3
Primary balance	-5.4	-4.0	-3.0	-0.4	-0.2	-0.1	-4.1	-0.9	-1.7
Structural primary balance	-3.4	-2.5	-2.5	0.0	0.0	0.0	-2.8	-0.6	-1.1
Real GDP growth	-6.9	3.1	4.5	1.5	1.8	1.7	0.2	1.8	1.4
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	37.9	40.6	42.2	46.2	46.1	46.7	40.2	45.8	44.4
Primary balance	-5.4	-4.0	-3.0	-1.1	-0.9	-1.1	-4.1	-1.4	-2.1
Structural primary balance (before CoA)	-3.4	-2.5	-2.5	-0.8	-0.8	-0.8	-2.8	-1.1	-1.5
Real GDP growth	-6.9	3.1	4.5	1.9	1.9	1.7	0.2	1.8	1.4
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	37.9	40.7	42.5	47.6	47.0	46.1	40.4	46.5	45.0
Implicit interest rate (nominal)	2.4	2.4	2.3	2.5	2.6	2.7	2.4	2.5	2.5
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	37.9	40.5	41.9	44.3	42.3	40.2	40.1	43.2	42.4
Implicit interest rate (nominal)	2.4	1.8	1.5	0.9	0.9	0.9	1.9	1.0	1.2
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	37.9	40.5	41.9	44.6	42.9	41.0	40.1	43.5	42.7
Real GDP growth	-6.9	3.6	5.0	2.0	2.4	2.4	0.6	2.3	1.9
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	37.9	40.8	42.5	47.3	46.4	45.2	40.4	46.2	44.7
Real GDP growth	-6.9	2.6	4.0	1.0	1.4	1.4	-0.1	1.3	0.9
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	37.9	40.6	42.2	46.0	44.8	43.5	40.2	45.0	43.8
Primary balance	-5.4	-4.0	-3.0	-0.7	-0.3	-0.2	-4.1	-1.0	-1.8
Structural primary balance (before CoA)	-3.4	-2.5	-2.5	-0.4	0.1	0.1	-2.8	-0.6	-1.2
Real GDP growth	-6.9	3.1	4.5	1.5	1.9	1.9	0.2	1.8	1.4
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	37.9	40.9	42.7	46.4	45.0	43.5	40.5	45.3	44.1
Exchange rate depreciation	0.0%	6.0%	6.0%	0.0%	0.0%	0.0%	4.0%	0.0%	1.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	37.9	40.4	41.6	43.0	40.7	38.3	39.9	41.9	41.4
Implicit interest rate (nominal)	2.4	1.8	1.5	0.9	0.9	0.9	1.9	1.0	1.2
Real GDP growth	-6.9	3.6	5.0	2.0	2.4	2.4	0.6	2.3	1.9
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	37.9	40.7	42.3	47.5	46.9	46.1	40.3	46.4	44.9
Implicit interest rate (nominal)	2.4	2.2	2.1	2.1	2.2	2.2	2.3	2.1	2.2
Real GDP growth	-7.4	2.6	4.0	1.0	1.3	1.4	-0.3	1.2	0.9

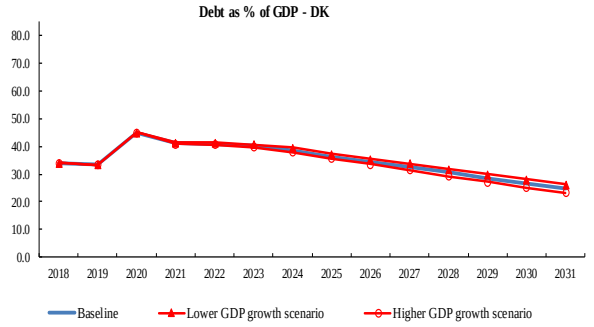
Denmark

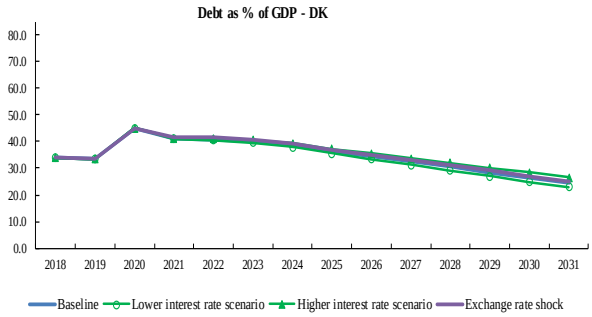
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

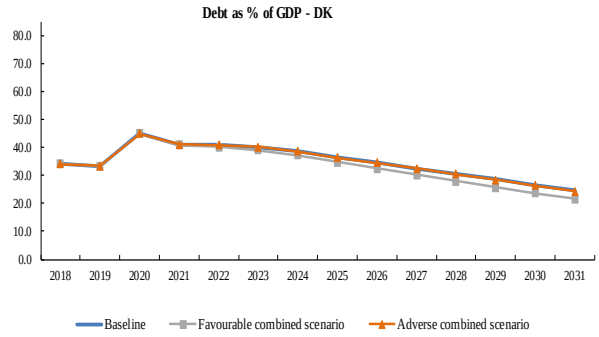
DK - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**34.0**	**33.3**	**45.0**	**41.1**	**40.9**	**40.2**	**38.7**	**36.4**	**34.5**	**32.5**	**30.6**	**28.6**	**26.6**	**24.7**
Changes in the ratio (-1+2+3)	*-1.9*	*-0.7*	*11.7*	*-3.9*	*-0.2*	*-0.7*	*-1.5*	*-2.3*	*-1.9*	*-1.9*	*-2.0*	*-2.0*	*-2.0*	*-1.9*
of which														
(1) Primary balance (1.1+1.2+1.3)	**1.5**	**4.5**	**-3.5**	**-1.8**	**-1.2**	**-0.5**	**0.2**	**1.0**	**1.2**	**1.2**	**1.3**	**1.3**	**1.3**	**1.2**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***1.6***	***4.2***	***0.3***	***0.3***	***0.7***	***0.8***	***0.9***	***1.0***	***1.2***	***1.2***	***1.3***	***1.3***	***1.3***	***1.2***
(1.1.1) Structural primary balance (bef. CoA)	*1.6*	*4.2*	*0.3*	*0.3*	*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						*-0.1*	*-0.1*	*-0.1*	*-0.2*	*-0.2*	*-0.1*	*0.0*	*-0.1*	*0.0*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.1*	*0.2*	*0.3*	*0.4*	*0.5*	*0.6*	*0.6*	*0.6*
(1.2) Cyclical component	***-0.1***	***0.3***	***-3.0***	***-2.1***	***-1.9***	***-1.3***	***-0.6***	***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***	***-0.8***	***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)	**-0.2**	**-0.4**	**1.9**	**-1.5**	**-1.0**	**-1.2**	**-1.3**	**-1.2**	**-0.8**	**-0.7**	**-0.7**	**-0.7**	**-0.6**	**-0.6**
(2.1) Interest expenditure	*0.8*	*0.7*	*0.7*	*0.7*	*0.7*	*0.6*	*0.5*	*0.4*	*0.4*	*0.4*	*0.3*	*0.3*	*0.2*	*0.2*
(2.2) Growth effect	*-0.8*	*-0.9*	*1.4*	*-1.5*	*-1.0*	*-1.1*	*-1.0*	*-1.0*	*-0.5*	*-0.4*	*-0.4*	*-0.3*	*-0.3*	*-0.3*
(2.3) Inflation effect	*-0.2*	*-0.3*	*-0.2*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.6*	*-0.6*	*-0.6*	*-0.5*
(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	**-0.3**	**4.3**	**6.3**	**-4.2**	**-0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-0.3*	*4.3*	*6.3*	*-4.2*	*-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*	*0.0*	*0.0*	*-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	0.8	3.5	-0.4	-0.4	0.0	0.2	0.4	0.6	0.8	0.9	1.0	1.1	1.1	1.0

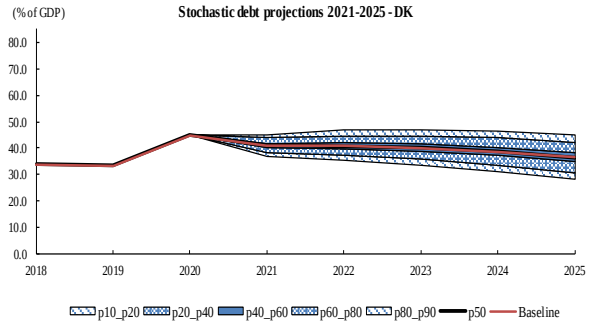












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
LOW (S0 = 0.4)	LOW	LOW (S1 = -4.2)	Risk category	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW (S2 = 1)	LOW
			Debt level (2031)	24.7	16.0	26.3	26.6	27.4				
			Debt peak year	2020	2020	2020	2020	2020				
			Percentile rank	42.0%	26.0%							
			Probability debt higher						10.8%			
			Dif. between percentiles						17.1			

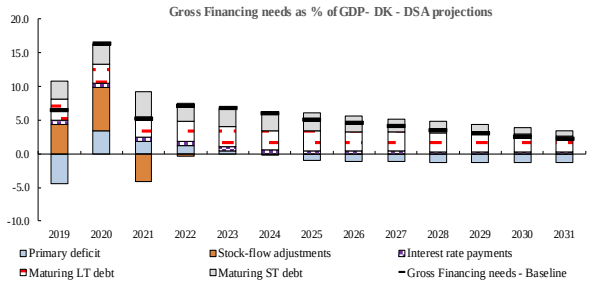
2.2. Sustainability indicators

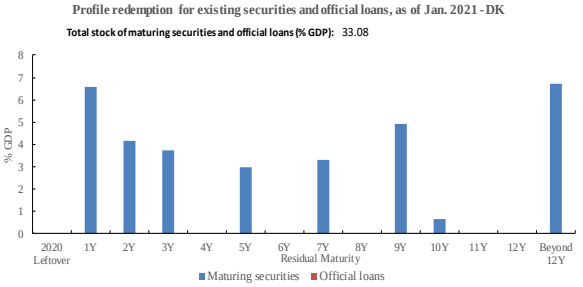
S0 indicator	2009	2020	Critical threshold
Overall index	**0.42**	**0.41**	**0.46**
Fiscal sub-index	0.28	0.46	0.36
Financial competitiveness sub-index	0.50	0.38	0.49

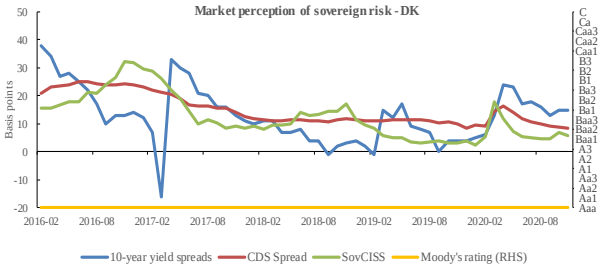
S1 indicator	2019 DSM	2020 DSM
Overall index	**-5.6**	**-4.2**
of which *Initial budgetary position*	*-3.0*	*-2.8*
Debt requirement	*-2.6*	*-1.5*
Ageing costs	*0.0*	*0.1*
Required structural primary balance related to S1	**-4.7**	**-3.5**

S2 indicator	2019 DSM	2020 DSM
Overall index	**0.4**	**1.0**
of which Initial Budgetary position	-0.2	0.1
Ageing costs	0.6	0.9
of which Pensions	*-1.2*	*-1.3*
Health care	*0.7*	*0.7*
Long-term care	*1.5*	*1.7*
Others	*-0.4*	*-0.3*
Required structural primary balance related to S2	**1.2**	**1.6**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, DK	Local currency long term	Local currency short term	Foreign currency long term	Foreign currency short term
Moody's	Aaau		Aaau	
S&P	AAAu	A-1+u	AAAu	A-1+u
Fitch	AAA		AAA	F1+

Sovereign yield spreads (bp)* - as of November 2020	10-year	15.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - DK (2019)	Share of short-term government debt (p.p.): 10.9	Share of government debt in foreign currency (%): 0.1	Share of government debt by non-residents (%): 25.8

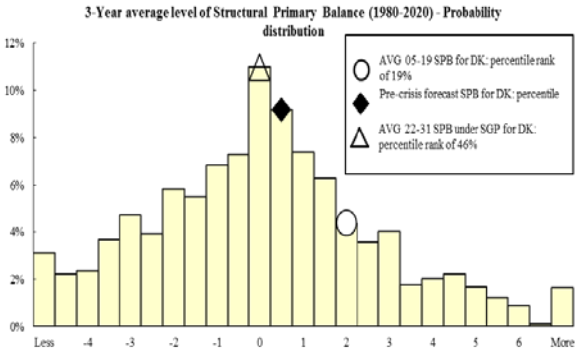
Net International Investment Position (IIP) - DK (2019)	Net IIP (% GDP): 76.9

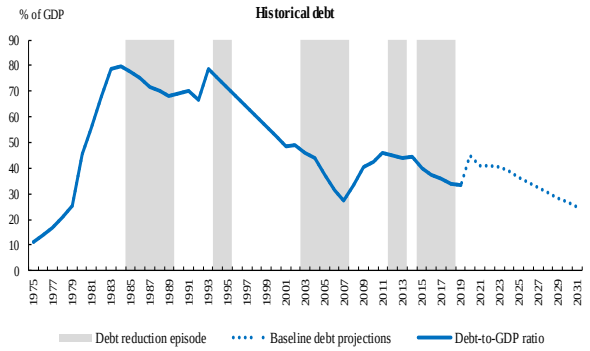
5. Risks related to government's contingent liabilities

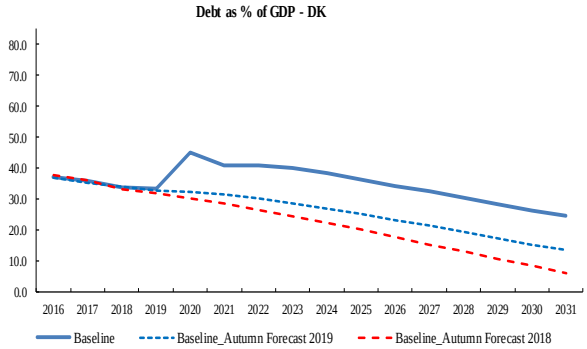
General government contingent liabilities		DK					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		9.9	12.5	12.3	11.7	14.8	6.7
of which One-off guarantees		*9.8*	*12.4*	*12.3*	*11.7*	*14.7*	*6.2*
Standardised guarantees		*0.1*	*0.1*	*0.0*	*0.0*	*0.0*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.1*	*0.2*	*0.2*	*0.2*	*0.2*	*0.3*
		2013	2015	2016	2018	2019	2019
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	0.3	0.0	0.0	0.0	0.0	1.1
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	0.2	0.0	0.0	0.0	0.0	0.1
	Total	0.5	0.0	0.0	0.0	0.0	1.2

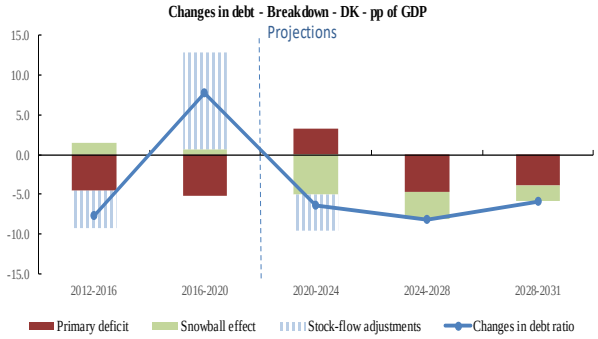
Government's contingent liability risks from banking sector - DK (2019)	Private sector credit flow (% GDP): 12.4	Change in nominal house price index: 2.4	Bank loans-to-deposits ratio (p.p.): 311.2	Share of non-performing loans (%): 1.9	Change in share of non-performing loans (p.p): 0.2	NPL coverage ratio 34.5

6. Realism of baseline assumptions









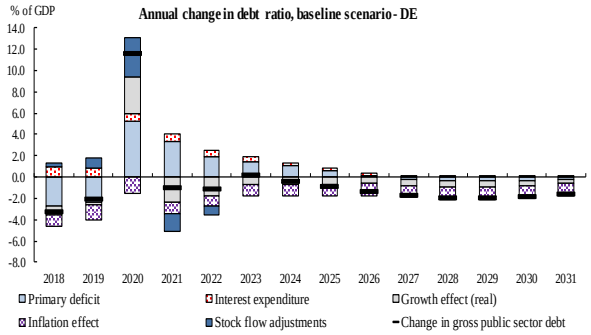
7. Underlying macro-fiscal assumptions

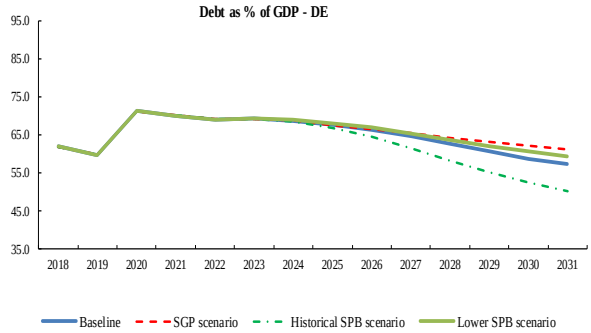
Macro-fiscal assumptions, Denmark	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	45.0	41.1	40.9	32.5	28.6	24.7	42.4	32.5	35.0
Primary balance	-3.5	-1.8	-1.2	1.2	1.3	1.2	-2.2	0.9	0.2
Structural primary balance (before CoA)	0.3	0.3	0.7	0.7	0.7	0.7	0.4	0.7	0.6
Real GDP growth	-3.9	3.5	2.4	1.3	1.2	1.3	0.7	1.7	1.5
Potential GDP growth	1.8	1.9	2.0	1.3	1.2	1.3	1.9	1.4	1.5
Inflation rate	0.5	1.5	1.8	1.9	2.0	2.0	1.3	1.9	1.8
Implicit interest rate (nominal)	2.1	1.6	1.7	1.1	0.9	0.9	1.8	1.1	1.3
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	45.0	41.1	40.9	36.3	34.2	32.0	42.4	36.3	37.8
Primary balance	-3.5	-1.8	-1.2	0.2	0.2	0.2	-2.2	0.0	-0.5
Structural primary balance	0.3	0.3	0.7	0.4	0.3	0.2	0.4	0.4	0.4
Real GDP growth	-3.9	3.5	2.4	1.5	1.3	1.4	0.7	1.7	1.5
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	45.0	41.1	40.9	30.0	22.8	16.0	42.4	29.2	32.5
Primary balance	-3.5	-1.8	-1.2	2.4	3.0	2.9	-2.2	2.0	0.9
Structural primary balance (before CoA)	0.3	0.3	0.7	2.4	2.4	2.4	0.4	2.1	1.7
Real GDP growth	-3.9	3.5	2.4	1.8	1.6	1.3	0.7	1.7	1.5
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	45.0	41.3	41.2	33.8	30.2	26.6	42.5	33.8	35.9
Implicit interest rate (nominal)	2.1	2.0	2.1	1.7	1.6	1.6	2.1	1.7	1.8
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	45.0	41.0	40.6	31.3	27.1	23.0	42.2	31.4	34.1
Implicit interest rate (nominal)	2.1	1.2	1.3	0.5	0.3	0.2	1.6	0.5	0.8
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	45.0	40.9	40.5	31.4	27.2	23.2	42.2	31.4	34.1
Real GDP growth	-3.9	4.0	2.9	1.8	1.7	1.8	1.0	2.2	1.9
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	45.0	41.3	41.3	33.7	30.0	26.3	42.6	33.6	35.9
Real GDP growth	-3.9	3.0	1.9	0.8	0.7	0.8	0.3	1.2	1.0
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	45.0	41.1	41.0	34.1	30.7	27.4	42.4	34.1	36.2
Primary balance	-3.5	-1.8	-1.4	0.9	1.0	0.9	-2.2	0.6	-0.1
Structural primary balance (before CoA)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Real GDP growth	-3.9	3.5	2.7	1.3	1.2	1.3	0.8	1.7	1.5
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	45.0	41.5	41.5	33.0	29.1	25.2	42.7	33.0	35.4
Exchange rate depreciation	0.0%	0.2%	0.2%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	45.0	40.8	40.2	30.2	25.8	21.6	42.0	30.3	33.2
Implicit interest rate (nominal)	2.1	1.2	1.3	0.5	0.3	0.2	1.6	0.5	0.8
Real GDP growth	-3.9	4.0	2.9	1.8	1.7	1.8	1.0	2.2	1.9
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	45.0	41.1	40.9	32.5	28.4	24.4	42.4	32.4	34.9
Implicit interest rate (nominal)	2.1	1.8	1.9	1.4	1.3	1.3	2.0	1.4	1.6
Real GDP growth	-4.4	3.0	1.9	0.8	0.7	0.8	0.2	1.2	1.0

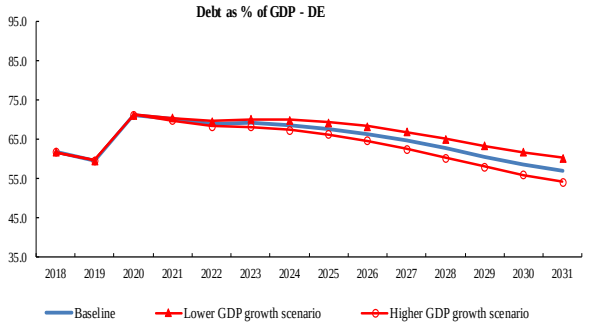
Germany

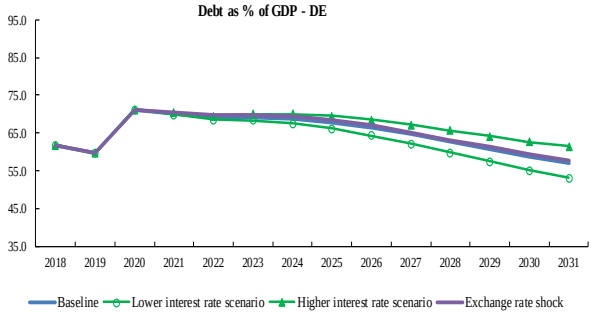
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

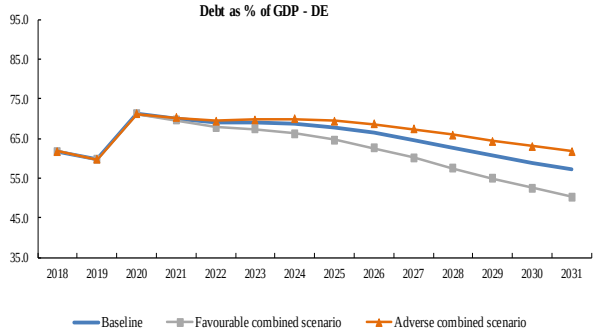
DE - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**61.8**	**59.6**	**71.2**	**70.1**	**69.0**	**69.1**	**68.7**	**67.8**	**66.4**	**64.6**	**62.6**	**60.7**	**58.7**	**57.1**
Changes in the ratio (-1+2+3)	*-3.3*	*-2.1*	*11.5*	*-1.1*	*-1.1*	*0.1*	*-0.4*	*-0.9*	*-1.4*	*-1.8*	*-2.0*	*-2.0*	*-1.9*	*-1.6*
of which														
(1) Primary balance (1.1+1.2+1.3)	**2.8**	**2.3**	**-5.3**	**-3.4**	**-1.9**	**-1.5**	**-1.0**	**-0.6**	**-0.2**	**0.3**	**0.3**	**0.4**	**0.3**	**0.2**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***2.1***	***1.7***	***-2.7***	***-2.1***	***-1.3***	***-0.9***	***-0.5***	***-0.1***	***0.3***	***0.7***	***0.6***	***0.5***	***0.3***	***0.2***
(1.1.1) Structural primary balance (bef. CoA)	*2.1*	*1.7*	*-2.7*	*-2.1*	*-1.3*	*-0.9*	*-0.5*	*-0.1*	*0.3*	*0.7*	*0.7*	*0.7*	*0.7*	*0.7*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.2*	*0.3*	*0.5*	*0.7*
(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*
(1.2) Cyclical component	***0.9***	***0.6***	***-2.6***	***-1.3***	***-0.6***	***-0.5***	***-0.5***	***-0.5***	***-0.5***	***-0.5***	***-0.3***	***-0.2***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-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***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-0.9**	**-0.9**	**2.6**	**-2.8**	**-2.2**	**-1.3**	**-1.4**	**-1.5**	**-1.5**	**-1.5**	**-1.7**	**-1.6**	**-1.6**	**-1.5**
(2.1) Interest expenditure	*0.9*	*0.8*	*0.7*	*0.6*	*0.6*	*0.4*	*0.3*	*0.3*	*0.2*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*
(2.2) Growth effect	*-0.8*	*-0.3*	*3.4*	*-2.4*	*-1.7*	*-0.7*	*-0.7*	*-0.7*	*-0.6*	*-0.5*	*-0.6*	*-0.6*	*-0.5*	*-0.4*
(2.3) Inflation effect	*-1.1*	*-1.3*	*-1.5*	*-1.0*	*-1.0*	*-1.1*	*-1.1*	*-1.1*	*-1.1*	*-1.2*	*-1.2*	*-1.2*	*-1.2*	*-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	**0.4**	**1.0**	**3.6**	**-1.7**	**-0.8**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*0.5*	*0.9*	*3.7*	*-1.7*	*-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	*-0.1*	*0.1*	*0.0*	*-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	1.1	0.9	-3.4	-2.7	-1.9	-1.4	-0.8	-0.4	0.1	0.6	0.5	0.4	0.2	0.1

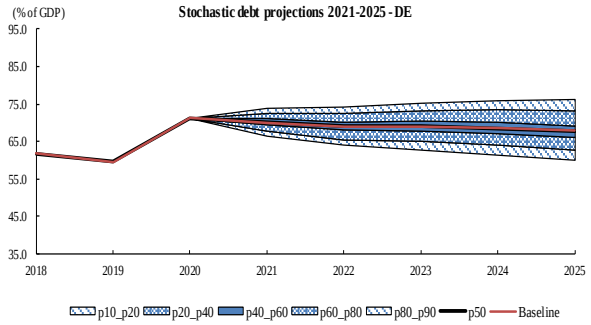












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
LOW (S0 = 0.4)	LOW	LOW (S1 = -1.1)	Risk category	LOW	LOW	LOW	MEDIUM	LOW	LOW	LOW	MEDIUM (S2 = 2.1)	MEDIUM
			Debt level (2031)	57.1	50.1	60.0	61.5	59.2				
			Debt peak year	2020	2020	2020	2020	2020				
			Percentile rank	52.0%	44.0%							
			Probability debt higher						29.8%			
			Dif. between percentiles						16.4			

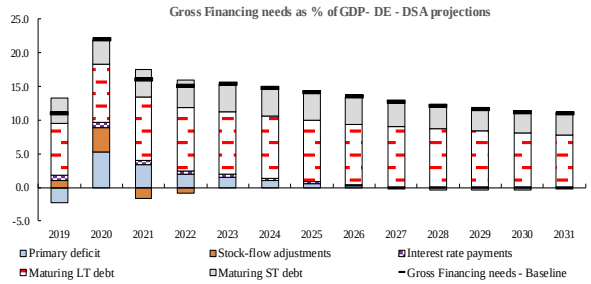
2.2. Sustainability indicators

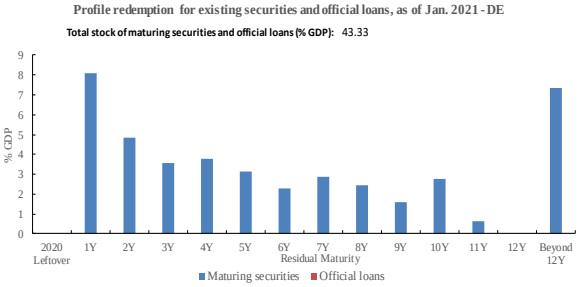
S0 indicator	2009	2020	Critical threshold
Overall index	**0.19**	**0.37**	**0.46**
Fiscal sub-index	0.35	0.67	0.36
Financial competitiveness sub-index	0.10	0.21	0.49

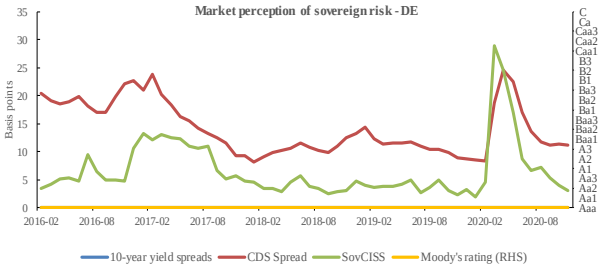
S1 indicator	2019 DSM	2020 DSM
Overall index	**-2.4**	**-1.1**
of which *Initial budgetary position*	*-3.2*	*-2.3*
Debt requirement	*-0.4*	*0.2*
Ageing costs	*1.2*	*1.0*
Required structural primary balance related to S1	**-1.2**	**-0.4**

S2 indicator	2019 DSM	2020 DSM
Overall index	**2.2**	**2.1**
of which Initial Budgetary position	-0.8	-0.1
Ageing costs	3.0	2.2
of which Pensions	*1.5*	*1.0*
Health care	*0.5*	*0.5*
Long-term care	*0.4*	*0.3*
Others	*0.6*	*0.5*
Required structural primary balance related to S2	**3.5**	**2.9**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, DE	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aaau		Aaau	
S&P	AAAu	A-1+u	AAAu	A-1+u
Fitch	AAA		AAA	F1+

Sovereign yield spreads (bp)* - as of November 2020	10-year	0.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - DE (2019)	Share of short-term government debt (p.p.): 6.3	Share of government debt in foreign currency (%): 3.5	Share of government debt by non-residents (%): 48.3

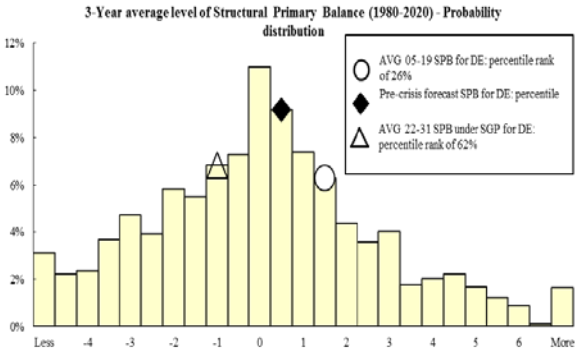
Net International Investment Position (IIP) - DE (2019)	Net IIP (% GDP): 71.7

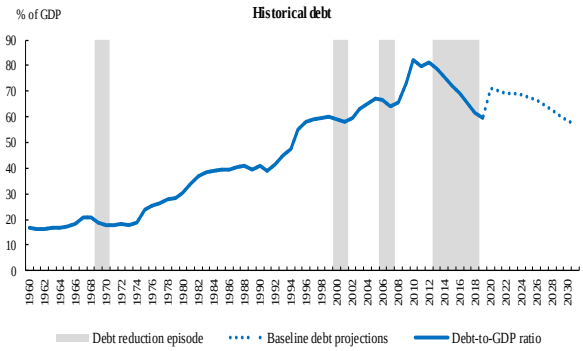
5. Risks related to government's contingent liabilities

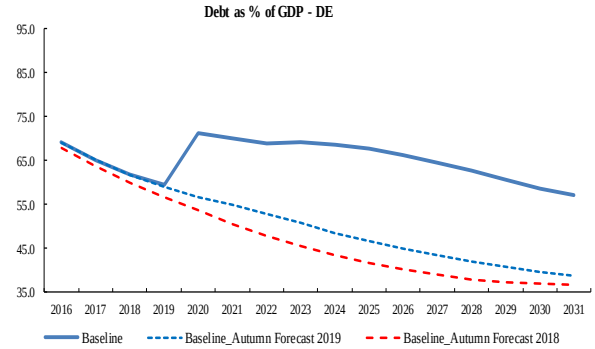
General government contingent liabilities		DE					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		16.7	15.3	14.3	13.4	12.8	6.7
of which One-off guarantees		*16.7*	*15.3*	*14.3*	*13.4*	*12.8*	*6.2*
Standardised guarantees		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.3*
		2013	2015	2016	2018	2019	2019
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	0.6	0.3	0.2	0.0	0.0	1.1
	Securities issued under liquidity schemes	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	0.1
	Total	1.3	0.7	0.5	0.1	0.1	1.2

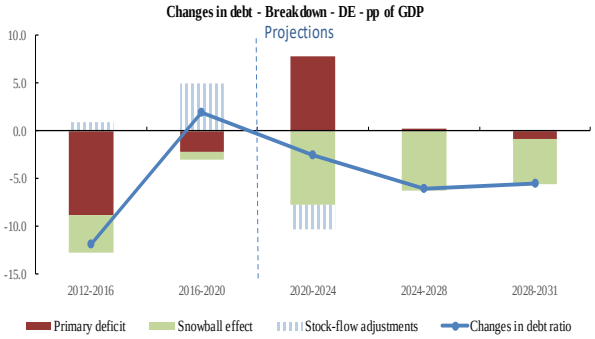
Government's contingent liability risks from banking sector - DE (2019)	Private sector credit flow (% GDP): 5.4	Change in nominal house price index: 5.8	Bank loans-to-deposits ratio (p.p.): 128.5	Share of non-performing loans (%): 1.3	Change in share of non-performing loans (p.p): 0.0	NPL coverage ratio 37.9

6. Realism of baseline assumptions









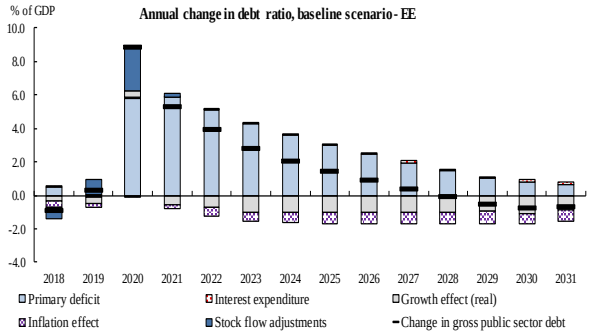
7. Underlying macro-fiscal assumptions

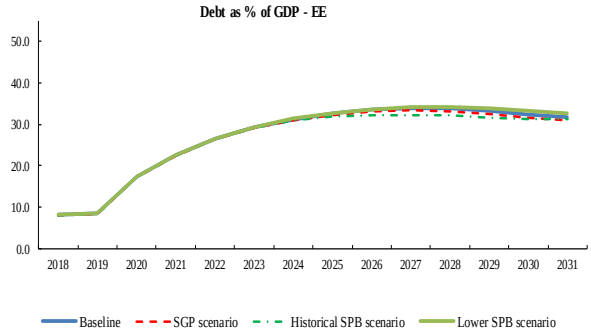
Macro-fiscal assumptions, Germany	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	71.2	70.1	69.0	64.6	60.7	57.1	70.1	64.0	65.5
Primary balance	-5.3	-3.4	-1.9	0.3	0.4	0.2	-3.5	-0.2	-1.0
Structural primary balance (before CoA)	-2.7	-2.1	-1.3	0.7	0.7	0.7	-2.0	0.3	-0.3
Real GDP growth	-5.6	3.5	2.6	0.8	0.9	0.7	0.2	0.9	0.7
Potential GDP growth	0.8	0.9	1.0	0.8	0.6	0.7	0.9	0.8	0.8
Inflation rate	2.6	1.4	1.5	1.8	1.9	2.0	1.8	1.8	1.8
Implicit interest rate (nominal)	1.1	0.9	0.8	0.2	0.2	0.2	1.0	0.3	0.5
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	71.2	70.1	69.0	65.3	63.1	61.0	70.1	65.3	66.5
Primary balance	-5.3	-3.4	-1.9	-0.5	-0.4	-0.4	-3.5	-0.7	-1.4
Structural primary balance	-2.7	-2.1	-1.3	-0.3	-0.4	-0.4	-2.0	-0.4	-0.8
Real GDP growth	-5.6	3.5	2.6	1.0	0.7	0.7	0.2	0.9	0.7
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	71.2	70.1	69.0	61.3	55.1	50.1	70.1	60.6	63.0
Primary balance	-5.3	-3.4	-1.9	1.2	1.5	1.1	-3.5	0.6	-0.4
Structural primary balance (before CoA)	-2.7	-2.1	-1.3	1.7	1.7	1.7	-2.0	1.2	0.4
Real GDP growth	-5.6	3.5	2.6	1.3	1.1	0.7	0.2	0.9	0.7
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	71.2	70.3	69.5	67.2	64.2	61.5	70.3	66.6	67.5
Implicit interest rate (nominal)	1.1	1.2	1.3	1.0	1.0	1.0	1.2	1.0	1.1
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	71.2	69.9	68.5	62.2	57.4	53.1	69.8	61.5	63.6
Implicit interest rate (nominal)	1.1	0.6	0.4	-0.5	-0.6	-0.7	0.7	-0.4	-0.1
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	71.2	69.8	68.3	62.5	58.1	54.1	69.8	61.9	63.9
Real GDP growth	-5.6	4.0	3.1	1.3	1.4	1.2	0.5	1.4	1.2
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	71.2	70.4	69.6	66.8	63.4	60.0	70.4	66.1	67.2
Real GDP growth	-5.6	3.0	2.1	0.3	0.4	0.2	-0.2	0.4	0.3
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	71.2	70.1	69.0	65.4	62.0	59.2	70.1	64.8	66.1
Primary balance	-5.3	-3.4	-1.9	0.0	0.0	-0.2	-3.5	-0.4	-1.2
Structural primary balance (before CoA)	-2.7	-2.1	-1.3	0.4	0.4	0.4	-2.0	0.0	-0.5
Real GDP growth	-5.6	3.5	2.6	0.8	0.9	0.7	0.2	0.9	0.7
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	71.2	70.4	69.6	65.2	61.2	57.6	70.4	64.6	66.0
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	71.2	69.6	67.9	60.1	54.9	50.3	69.5	59.6	62.1
Implicit interest rate (nominal)	1.1	0.6	0.4	-0.5	-0.6	-0.7	0.7	-0.4	-0.1
Real GDP growth	-5.6	4.0	3.1	1.3	1.4	1.2	0.5	1.4	1.2
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	71.2	70.3	69.4	67.4	64.4	61.8	70.3	66.7	67.6
Implicit interest rate (nominal)	1.1	1.1	1.0	0.6	0.6	0.6	1.1	0.7	0.8
Real GDP growth	-6.1	3.0	2.1	0.2	0.4	0.2	-0.3	0.4	0.2

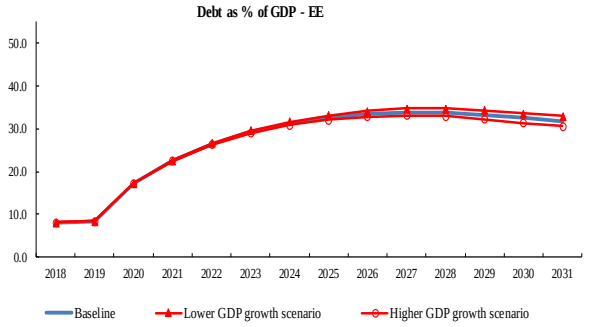
Estonia

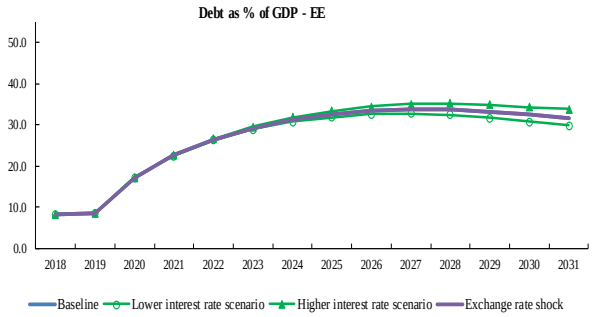
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

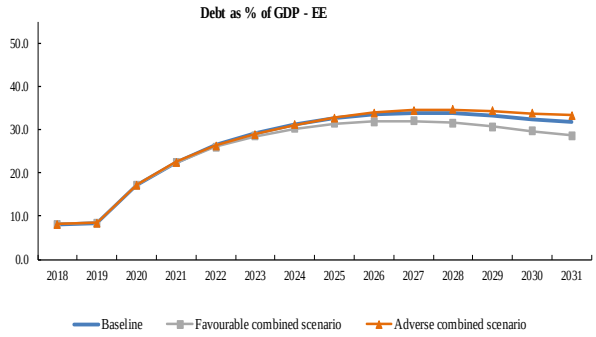
EE - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**8.2**	**8.4**	**17.2**	**22.5**	**26.4**	**29.2**	**31.2**	**32.6**	**33.5**	**33.8**	**33.7**	**33.2**	**32.4**	**31.7**
Changes in the ratio (-1+2+3)	*-0.9*	*0.2*	*8.8*	*5.3*	*3.9*	*2.8*	*2.0*	*1.4*	*0.9*	*0.4*	*-0.1*	*-0.5*	*-0.8*	*-0.7*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-0.5**	**0.1**	**-5.8**	**-5.8**	**-5.1**	**-4.3**	**-3.6**	**-3.0**	**-2.4**	**-1.9**	**-1.5**	**-1.0**	**-0.8**	**-0.6**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-2.3***	***-2.0***	***-4.0***	***-4.1***	***-3.5***	***-3.1***	***-2.6***	***-2.2***	***-1.8***	***-1.3***	***-0.9***	***-0.5***	***-0.5***	***-0.5***
(1.1.1) Structural primary balance (bef. CoA)	*-2.3*	*-2.0*	*-4.0*	*-4.1*	*-3.5*	*-3.1*	*-2.6*	*-2.2*	*-1.8*	*-1.3*	*-0.9*	*-0.5*	*-0.5*	*-0.5*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(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*
(1.2) Cyclical component	***1.8***	***2.1***	***-1.8***	***-1.7***	***-1.6***	***-1.2***	***-1.0***	***-0.8***	***-0.7***	***-0.6***	***-0.6***	***-0.5***	***-0.3***	***-0.2***
(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)	**-0.7**	**-0.6**	**0.4**	**-0.7**	**-1.2**	**-1.5**	**-1.6**	**-1.6**	**-1.6**	**-1.6**	**-1.6**	**-1.5**	**-1.6**	**-1.4**
(2.1) Interest expenditure	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
(2.2) Growth effect	*-0.4*	*-0.4*	*0.4*	*-0.6*	*-0.7*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-1.1*	*-0.9*
(2.3) Inflation effect	*-0.4*	*-0.3*	*-0.1*	*-0.2*	*-0.5*	*-0.6*	*-0.6*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-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	**-0.7**	**0.9**	**2.6**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-0.7*	*0.9*	*2.6*	*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	*0.0*	*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	-2.3	-2.0	-4.1	-4.1	-3.6	-3.1	-2.7	-2.3	-1.9	-1.4	-1.0	-0.6	-0.6	-0.6

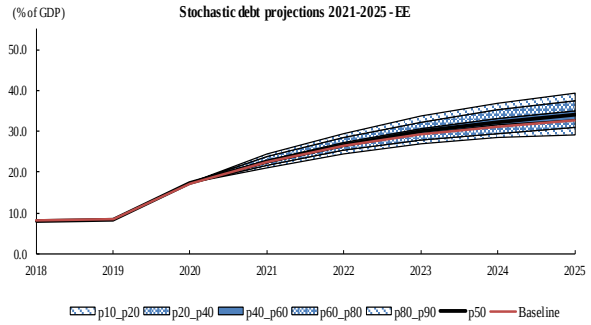












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
LOW (S0 = 0.3)	LOW	LOW (S1 = -2.9)	Risk category	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW (S2 = 0.7)	LOW
			Debt level (2031)	31.7	31.1	32.9	33.8	32.8				
			Debt peak year	2027	2026	2028	2028	2028				
			Percentile rank	77.0%	80.0%							
			Probability debt higher						100.0%			
			Dif. between percentiles						10.1			

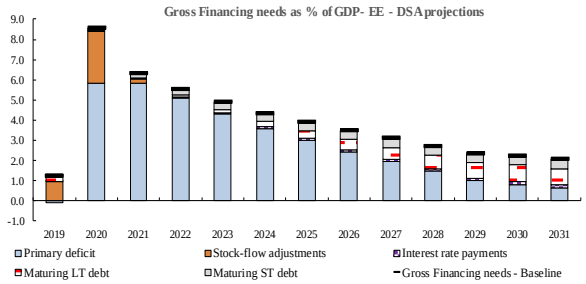
2.2. Sustainability indicators

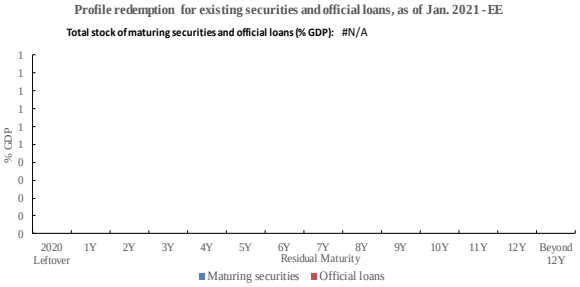
S0 indicator	2009	2020	Critical threshold
Overall index	**0.48**	**0.33**	**0.46**
Fiscal sub-index	0.27	0.40	0.36
Financial competitiveness sub-index	0.57	0.29	0.49

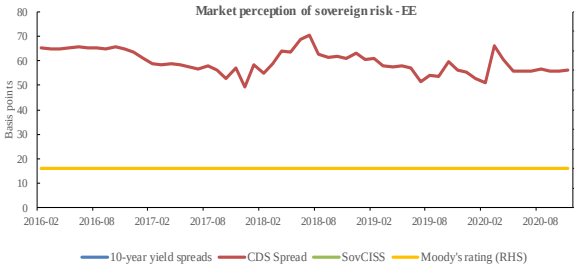
S1 indicator	2019 DSM	2020 DSM
Overall index	**-5.3**	**-2.9**
of which *Initial budgetary position*	*-0.5*	*-0.7*
Debt requirement	*-4.8*	*-2.3*
Ageing costs	*0.0*	*0.1*
Required structural primary balance related to S1	**-5.8**	**-3.4**

S2 indicator	2019 DSM	2020 DSM
Overall index	**0.8**	**0.7**
of which Initial Budgetary position	0.5	0.6
Ageing costs	0.2	0.2
of which Pensions	*-0.8*	*-0.8*
Health care	*0.3*	*0.4*
Long-term care	*0.3*	*0.4*
Others	*0.4*	*0.3*
Required structural primary balance related to S2	**0.3**	**0.3**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, EE	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	A1		WR	
S&P	AA-	A-1+	AA-	A-1+
Fitch	AA-		AA-	F1+

Sovereign yield spreads (bp)* - as of November 2020	10-year	n.a.

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - EE (2019)	Share of short-term government debt (p.p.): 6.1	Share of government debt in foreign currency (%): 0.0	Share of government debt by non-residents 69.8

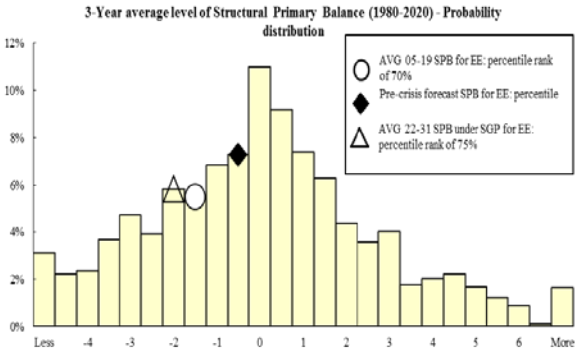
Net International Investment Position (IIP) - EE (2019)	Net IIP (% GDP): -21.4

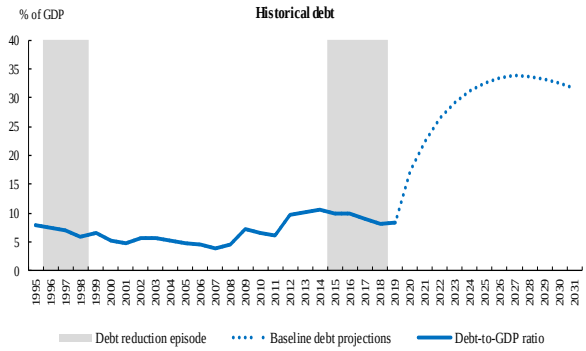
5. Risks related to government's contingent liabilities

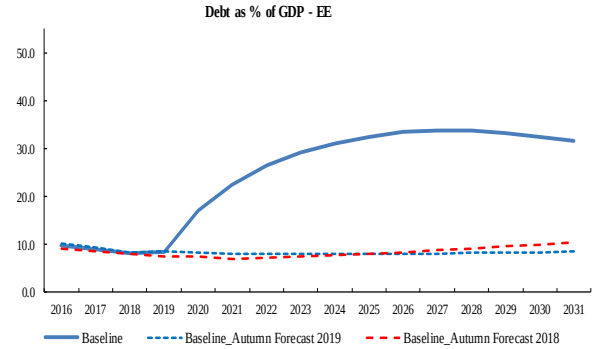
General government contingent liabilities		EE					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		1.7	1.5	1.5	1.7	1.6	6.7
of which One-off guarantees		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*6.2*
Standardised guarantees		*1.7*	*1.5*	*1.5*	*1.7*	*1.5*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.2*	*0.2*	*0.2*	*0.1*	*0.1*	*0.3*
		2013	2015	2016	2018	2019	2019
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.	1.1
	Securities issued under liquidity schemes	n.a.	n.a.	n.a.	n.a.	n.a.	0.0
	Special purpose entity	n.a.	n.a.	n.a.	n.a.	n.a.	0.1
	Total	n.a.	n.a.	n.a.	n.a.	n.a.	1.2

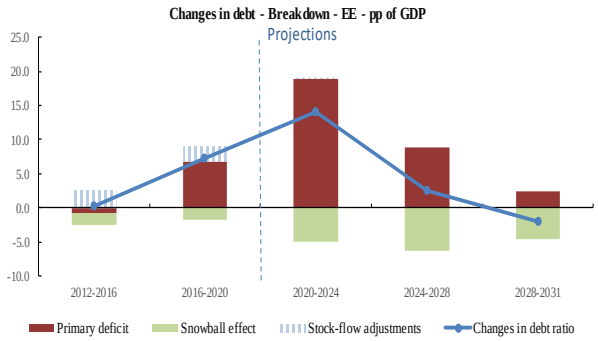
Government's contingent liability risks from banking sector - EE (2019)	Private sector credit flow (% GDP): 3.8	Change in nominal house price index: 7.0	Bank loans-to-deposits ratio (p.p.): 109.2	Share of non-performing loans (%): 1.5	Change in share of non-performing loans (p.p): -0.3	NPL coverage ratio 32.9

6. Realism of baseline assumptions









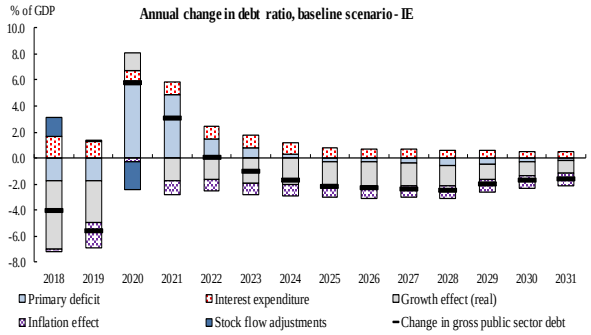
7. Underlying macro-fiscal assumptions

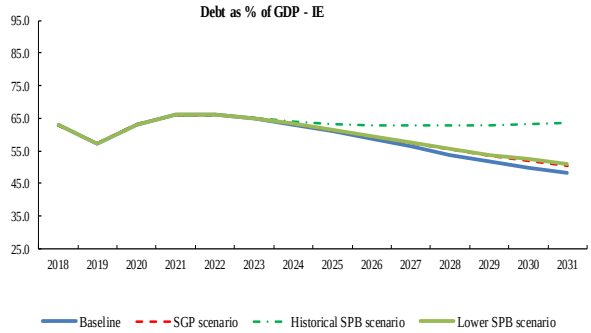
Macro-fiscal assumptions, Estonia	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	17.2	22.5	26.4	33.8	33.2	31.7	22.1	32.4	29.8
Primary balance	-5.8	-5.8	-5.1	-1.9	-1.0	-0.6	-5.6	-2.1	-3.0
Structural primary balance (before CoA)	-4.0	-4.1	-3.5	-1.3	-0.5	-0.5	-3.9	-1.5	-2.1
Real GDP growth	-4.6	3.4	3.5	3.1	3.0	2.9	0.8	3.3	2.7
Potential GDP growth	3.3	3.3	3.1	2.9	3.0	2.5	3.2	3.0	3.0
Inflation rate	0.8	1.3	2.3	2.1	2.1	2.0	1.5	2.1	2.0
Implicit interest rate (nominal)	0.4	0.2	0.2	0.4	0.4	0.5	0.3	0.3	0.3
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	17.2	22.5	26.4	33.3	32.4	30.9	22.1	31.9	29.4
Primary balance	-5.8	-5.8	-5.1	-1.8	-0.9	-0.6	-5.6	-2.0	-2.9
Structural primary balance	-4.0	-4.1	-3.5	-1.2	-0.4	-0.4	-3.9	-1.3	-2.0
Real GDP growth	-4.6	3.4	3.5	3.0	3.2	2.7	0.8	3.3	2.7
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	17.2	22.5	26.4	32.3	31.5	31.1	22.1	31.4	29.1
Primary balance	-5.8	-5.8	-5.1	-1.6	-1.1	-1.1	-5.6	-2.0	-2.9
Structural primary balance (before CoA)	-4.0	-4.1	-3.5	-1.1	-1.1	-1.1	-3.9	-1.5	-2.1
Real GDP growth	-4.6	3.4	3.5	3.5	3.6	2.5	0.8	3.3	2.7
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	17.2	22.6	26.6	35.1	34.9	33.8	22.2	33.6	30.7
Implicit interest rate (nominal)	0.4	0.7	0.8	1.2	1.3	1.4	0.7	1.2	1.0
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	17.2	22.4	26.2	32.7	31.6	29.8	22.0	31.2	28.9
Implicit interest rate (nominal)	0.4	-0.3	-0.4	-0.5	-0.4	-0.4	-0.1	-0.5	-0.4
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	17.2	22.4	26.2	33.1	32.2	30.5	22.0	31.6	29.2
Real GDP growth	-4.6	3.9	4.0	3.6	3.5	3.4	1.1	3.8	3.1
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	17.2	22.6	26.6	34.6	34.2	32.9	22.1	33.2	30.4
Real GDP growth	-4.6	2.9	3.0	2.6	2.5	2.4	0.4	2.8	2.2
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	17.2	22.5	26.4	34.2	33.9	32.8	22.1	32.8	30.1
Primary balance	-5.8	-5.8	-5.1	-2.1	-1.2	-0.9	-5.6	-2.3	-3.1
Structural primary balance (before CoA)	-4.0	-4.1	-3.5	-1.5	-0.7	-0.7	-3.9	-1.6	-2.2
Real GDP growth	-4.6	3.4	3.5	3.1	3.1	2.9	0.8	3.3	2.7
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	17.2	22.5	26.4	33.8	33.2	31.7	22.1	32.4	29.8
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	17.2	22.4	26.0	31.9	30.7	28.6	21.9	30.5	28.3
Implicit interest rate (nominal)	0.4	-0.3	-0.4	-0.5	-0.4	-0.4	-0.1	-0.5	-0.4
Real GDP growth	-4.6	3.9	4.0	3.6	3.5	3.4	1.1	3.8	3.1
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	17.2	22.4	26.3	34.5	34.3	33.3	22.0	33.0	30.3
Implicit interest rate (nominal)	0.4	0.5	0.5	0.8	0.8	0.9	0.5	0.8	0.7
Real GDP growth	-5.1	2.9	3.0	2.5	2.5	2.4	0.3	2.7	2.1

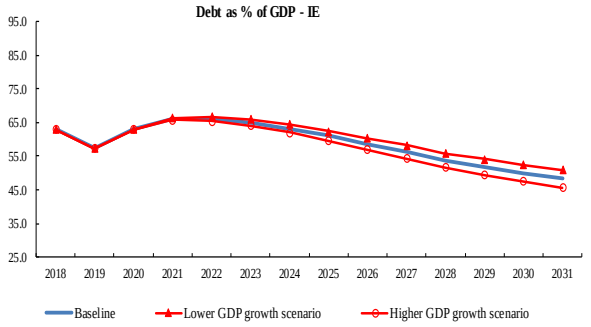
Ireland

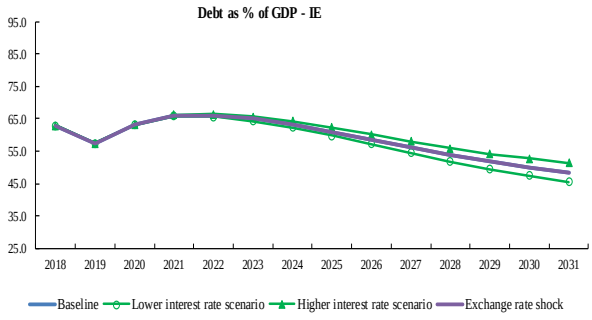
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

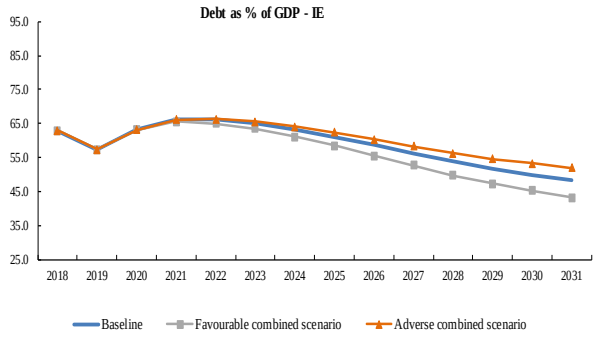
IE - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**63.0**	**57.4**	**63.1**	**66.0**	**66.0**	**65.0**	**63.2**	**61.0**	**58.6**	**56.2**	**53.8**	**51.7**	**49.9**	**48.3**
Changes in the ratio (-1+2+3)	*-4.0*	*-5.6*	*5.7*	*3.0*	*0.0*	*-1.1*	*-1.8*	*-2.2*	*-2.4*	*-2.4*	*-2.5*	*-2.0*	*-1.8*	*-1.6*
of which														
(1) Primary balance (1.1+1.2+1.3)	**1.7**	**1.8**	**-5.7**	**-4.9**	**-1.4**	**-0.8**	**-0.3**	**0.2**	**0.3**	**0.4**	**0.6**	**0.4**	**0.3**	**0.2**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***0.8***	***0.8***	***-4.3***	***-3.9***	***-0.5***	***0.0***	***0.4***	***0.9***	***0.7***	***0.6***	***0.6***	***0.4***	***0.3***	***0.2***
(1.1.1) Structural primary balance (bef. CoA)	*0.8*	*0.8*	*-4.3*	*-3.9*	*-0.5*	*0.0*	*0.4*	*0.9*	*0.9*	*0.9*	*0.9*	*0.9*	*0.9*	*0.9*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.2*	*0.3*	*0.3*	*0.5*	*0.6*	*0.7*
(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*
(1.2) Cyclical component	***1.0***	***1.0***	***-1.3***	***-1.0***	***-1.0***	***-0.8***	***-0.7***	***-0.6***	***-0.4***	***-0.2***	***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)	**-3.8**	**-3.9**	**2.2**	**-1.9**	**-1.5**	**-1.9**	**-2.0**	**-2.0**	**-2.1**	**-2.0**	**-1.9**	**-1.6**	**-1.5**	**-1.5**
(2.1) Interest expenditure	*1.6*	*1.3*	*1.1*	*1.0*	*1.0*	*0.9*	*0.9*	*0.8*	*0.7*	*0.7*	*0.6*	*0.6*	*0.5*	*0.5*
(2.2) Growth effect	*-5.2*	*-3.2*	*1.4*	*-1.8*	*-1.6*	*-2.0*	*-2.0*	*-1.8*	*-1.9*	*-1.7*	*-1.6*	*-1.2*	*-1.0*	*-1.0*
(2.3) Inflation effect	*-0.2*	*-1.9*	*-0.3*	*-1.0*	*-0.8*	*-0.9*	*-0.9*	*-0.9*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-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	**1.5**	**0.0**	**-2.1**	**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	*1.5*	*0.0*	*-2.1*	*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	-0.8	-0.5	-5.4	-4.8	-1.5	-1.0	-0.4	0.1	0.0	-0.1	-0.1	-0.1	-0.2	-0.3

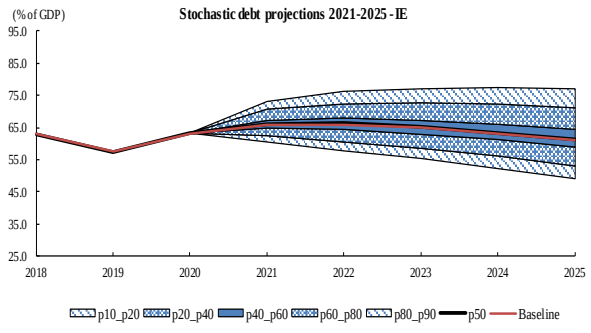












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
LOW (S0 = 0.4)	LOW	LOW (S1 = -1.8)	Risk category	LOW	MEDIUM	LOW	LOW	LOW	LOW	LOW	MEDIUM (S2 = 2.4)	MEDIUM
			Debt level (2031)	48.3	63.7	51.0	51.3	51.1				
			Debt peak year	2021	2021	2022	2022	2021				
			Percentile rank	43.0%	75.0%							
			Probability debt higher						44.3%			
			Dif. between percentiles						27.9			

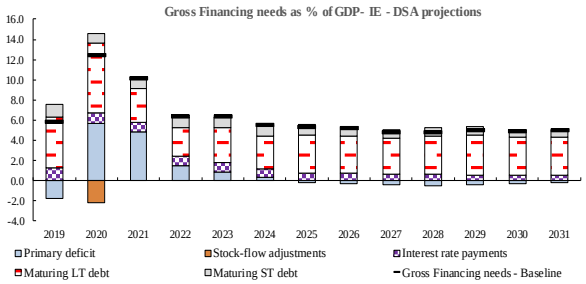
2.2. Sustainability indicators

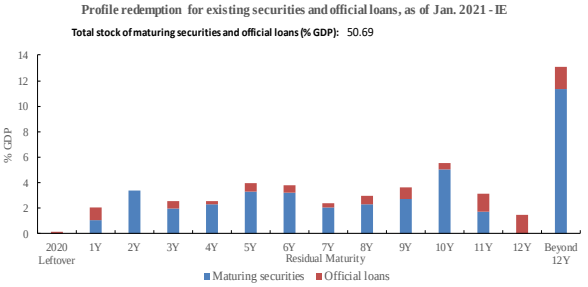
S0 indicator	2009	2020	Critical threshold
Overall index	**0.74**	**0.42**	**0.46**
Fiscal sub-index	0.81	0.32	0.36
Financial competitiveness sub-index	0.70	0.47	0.49

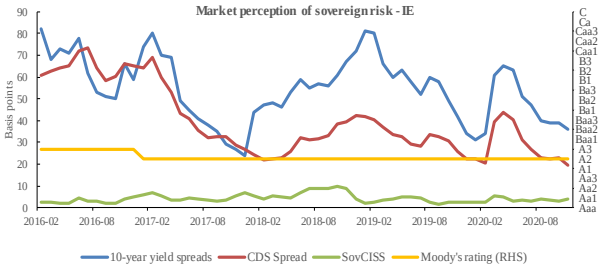
S1 indicator	2019 DSM	2020 DSM
Overall index	**-2.6**	**-1.8**
of which *Initial budgetary position*	*-3.2*	*-2.8*
Debt requirement	*-0.7*	*-0.1*
Ageing costs	*1.3*	*1.0*
Required structural primary balance related to S1	**-1.3**	**-0.9**

S2 indicator	2019 DSM	2020 DSM
Overall index	**2.9**	**2.4**
of which Initial Budgetary position	-1.0	-0.9
Ageing costs	3.9	3.3
of which Pensions	*1.6*	*1.0*
Health care	*0.8*	*0.7*
Long-term care	*1.6*	*1.8*
Others	*-0.1*	*-0.3*
Required structural primary balance related to S2	**4.2**	**3.3**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, IE	Local currency long term	Local currency short term	Foreign currency long term	Foreign currency short term
Moody's	A2		A2	P-1
S&P	AA-	A-1+	AA-	A-1+
Fitch	A+		A+	F1+

Sovereign yield spreads (bp)* - as of November 2020	10-year	36.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - IE (2019)	Share of short-term government debt (p.p.): 7.2	Share of government debt in foreign currency (%): 1.2	Share of government debt by non-residents 60.2

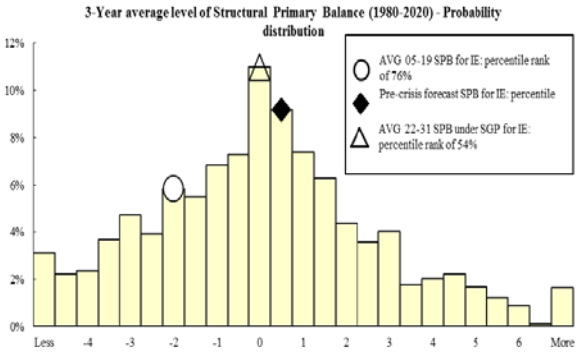
Net International Investment Position (IIP) - IE (2019)	Net IIP (% GDP): -174.0

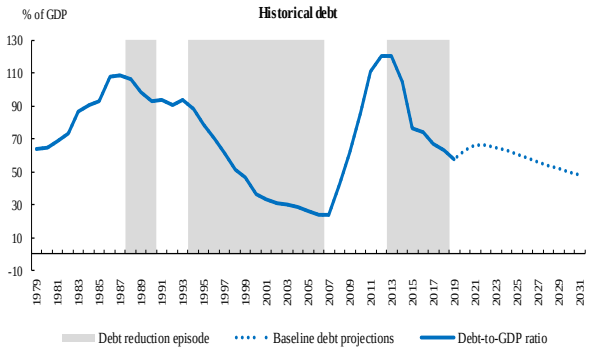
5. Risks related to government's contingent liabilities

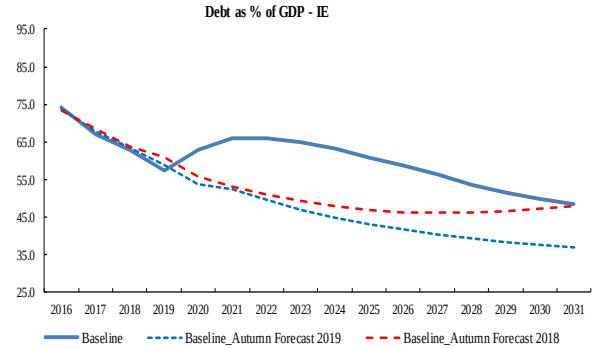
General government contingent liabilities		IE					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		31.1	4.3	1.5	0.1	0.0	6.7
of which One-off guarantees		*31.1*	*4.3*	*1.5*	*0.1*	*0.0*	*6.2*
Standardised guarantees		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.7*	*0.6*	*0.7*	*0.8*	*0.7*	*0.3*
		2013	2015	2016	2018	2019	2019
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	17.7	1.2	0.5	0.0	0.0	1.1
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	12.7	3.1	1.0	0.0	0.0	0.1
	Total	30.5	4.3	1.5	0.0	0.0	1.2

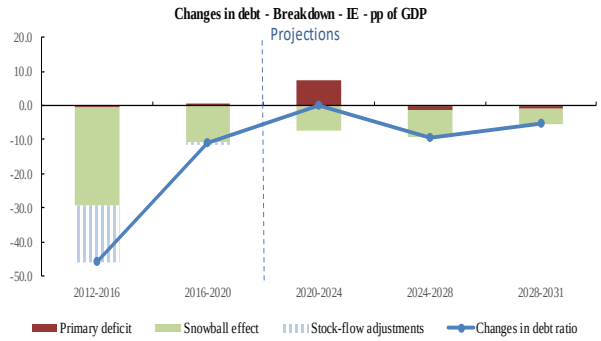
Government's contingent liability risks from banking sector - IE (2019)	Private sector credit flow (% GDP): -9.1	Change in nominal house price index: 2.3	Bank loans-to-deposits ratio (p.p.): 88.7	Share of non-performing loans (%): 4.0	Change in share of non-performing loans (p.p): -0.5	NPL coverage ratio 29.8

6. Realism of baseline assumptions









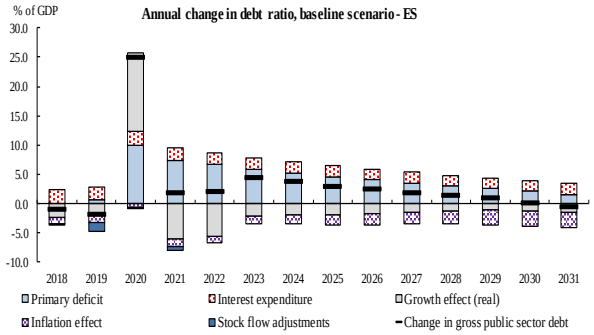
7. Underlying macro-fiscal assumptions

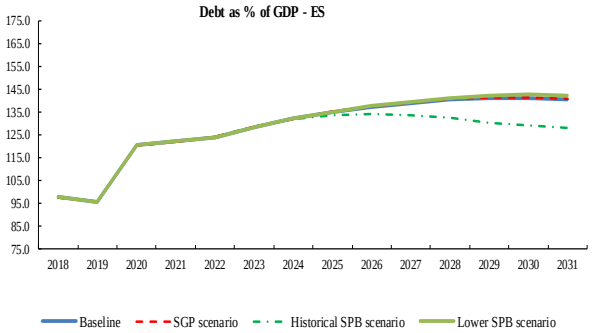
Macro-fiscal assumptions, Ireland	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.1	66.0	66.0	56.2	51.7	48.3	65.0	56.4	58.6
Primary balance	-5.7	-4.9	-1.4	0.4	0.4	0.2	-4.0	0.1	-0.9
Structural primary balance (before CoA)	-4.3	-3.9	-0.5	0.9	0.9	0.9	-2.9	0.7	-0.2
Real GDP growth	-2.3	2.9	2.6	3.1	2.3	2.0	1.1	2.8	2.3
Potential GDP growth	2.1	2.3	2.6	2.6	2.3	2.0	2.3	2.6	2.5
Inflation rate	0.5	1.7	1.3	1.7	1.8	2.0	1.1	1.7	1.5
Implicit interest rate (nominal)	1.9	1.6	1.6	1.2	1.1	1.0	1.7	1.2	1.3
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.1	66.0	66.0	57.3	53.7	50.5	65.0	57.5	59.4
Primary balance	-5.7	-4.9	-1.4	0.0	0.0	0.0	-4.0	-0.1	-1.1
Structural primary balance	-4.3	-3.9	-0.5	0.2	0.1	0.0	-2.9	0.1	-0.6
Real GDP growth	-2.3	2.9	2.6	2.9	2.4	2.0	1.1	2.8	2.3
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.1	66.0	66.0	62.9	63.0	63.7	65.0	63.5	63.9
Primary balance	-5.7	-4.9	-1.4	-1.9	-2.1	-2.3	-4.0	-1.8	-2.3
Structural primary balance (before CoA)	-4.3	-3.9	-0.5	-1.6	-1.6	-1.6	-2.9	-1.4	-1.8
Real GDP growth	-2.3	2.9	2.6	2.6	2.3	2.0	1.1	2.8	2.3
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.1	66.2	66.5	58.1	54.1	51.3	65.2	58.3	60.0
Implicit interest rate (nominal)	1.9	1.9	2.0	1.8	1.7	1.7	1.9	1.8	1.8
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.1	65.9	65.6	54.5	49.5	45.6	64.8	54.7	57.2
Implicit interest rate (nominal)	1.9	1.3	1.2	0.6	0.5	0.3	1.5	0.6	0.8
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.1	65.8	65.4	54.4	49.5	45.8	64.7	54.6	57.2
Real GDP growth	-2.3	3.4	3.1	3.6	2.8	2.5	1.4	3.3	2.8
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.1	66.3	66.6	58.2	54.1	51.0	65.3	58.3	60.1
Real GDP growth	-2.3	2.4	2.1	2.6	1.8	1.5	0.7	2.3	1.9
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.1	66.0	66.0	57.5	53.8	51.1	65.0	57.7	59.6
Primary balance	-5.7	-4.9	-1.4	0.0	0.0	-0.3	-4.0	-0.2	-1.2
Structural primary balance (before CoA)	-4.3	-3.9	-0.5	0.4	0.4	0.4	-2.9	0.3	-0.5
Real GDP growth	-2.3	2.9	2.6	3.0	2.3	2.0	1.1	2.8	2.3
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.1	66.0	66.0	56.2	51.7	48.3	65.0	56.4	58.6
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.1	65.6	65.0	52.7	47.3	43.2	64.6	53.0	55.9
Implicit interest rate (nominal)	1.9	1.3	1.2	0.6	0.5	0.3	1.5	0.6	0.8
Real GDP growth	-2.3	3.4	3.1	3.6	2.8	2.5	1.4	3.3	2.8
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.1	66.2	66.4	58.3	54.6	51.9	65.2	58.5	60.2
Implicit interest rate (nominal)	1.9	1.7	1.8	1.5	1.4	1.4	1.8	1.5	1.6
Real GDP growth	-2.8	2.4	2.1	2.5	1.8	1.5	0.6	2.2	1.8

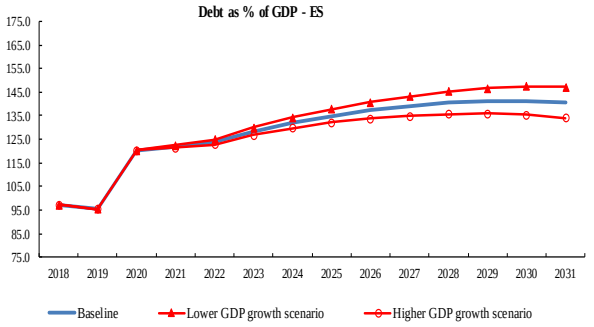
Spain

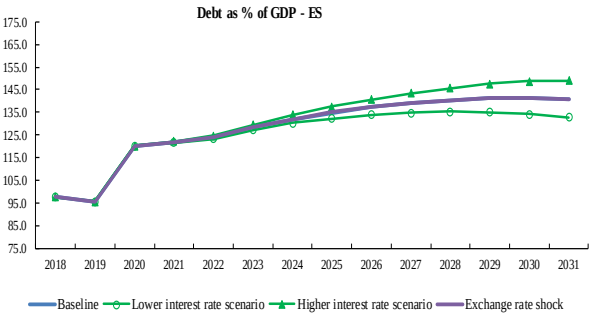
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

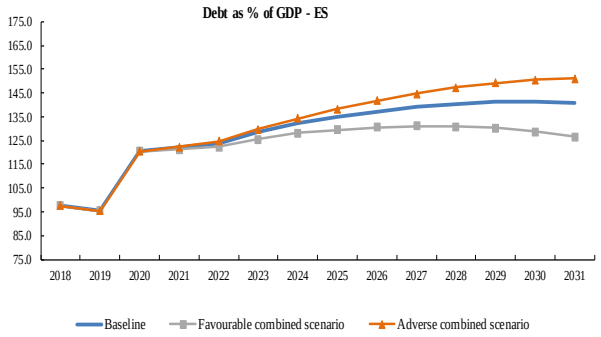
ES - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**97.4**	**95.5**	**120.3**	**122.0**	**123.9**	**128.3**	**132.0**	**134.9**	**137.2**	**139.0**	**140.4**	**141.2**	**141.2**	**140.6**
Changes in the ratio (-1+2+3)	*-1.1*	*-1.9*	*24.8*	*1.7*	*1.9*	*4.4*	*3.7*	*2.9*	*2.3*	*1.8*	*1.3*	*0.8*	*0.0*	*-0.7*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-0.1**	**-0.6**	**-9.9**	**-7.4**	**-6.7**	**-5.9**	**-5.3**	**-4.7**	**-4.1**	**-3.6**	**-3.1**	**-2.6**	**-2.1**	**-1.7**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-0.6***	***-1.8***	***-3.6***	***-3.8***	***-5.2***	***-4.7***	***-4.3***	***-3.8***	***-3.3***	***-2.9***	***-2.4***	***-1.9***	***-1.5***	***-1.0***
(1.1.1) Structural primary balance (bef. CoA)	*-0.6*	*-1.8*	*-3.6*	*-3.8*	*-5.2*	*-4.7*	*-4.3*	*-3.8*	*-3.3*	*-2.9*	*-2.4*	*-1.9*	*-1.5*	*-1.0*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(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*
(1.2) Cyclical component	***0.9***	***1.4***	***-6.1***	***-3.6***	***-1.5***	***-1.2***	***-1.0***	***-0.9***	***-0.8***	***-0.7***	***-0.7***	***-0.7***	***-0.6***	***-0.6***
(1.3) One-off and other temporary measures	***-0.3***	***-0.2***	***-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)	**-1.0**	**-0.9**	**15.2**	**-5.2**	**-4.7**	**-1.5**	**-1.6**	**-1.8**	**-1.8**	**-1.8**	**-1.8**	**-1.8**	**-2.1**	**-2.3**
(2.1) Interest expenditure	*2.4*	*2.3*	*2.4*	*2.2*	*2.0*	*1.9*	*1.8*	*1.8*	*1.7*	*1.7*	*1.8*	*1.8*	*1.8*	*1.8*
(2.2) Growth effect	*-2.3*	*-1.8*	*13.4*	*-6.0*	*-5.5*	*-2.0*	*-1.8*	*-1.8*	*-1.6*	*-1.4*	*-1.2*	*-1.1*	*-1.3*	*-1.4*
(2.3) Inflation effect	*-1.2*	*-1.3*	*-0.6*	*-1.3*	*-1.2*	*-1.4*	*-1.6*	*-1.7*	*-1.9*	*-2.1*	*-2.3*	*-2.5*	*-2.6*	*-2.8*
(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	**-0.1**	**-1.6**	**-0.2**	**-0.5**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-0.1*	*-1.6*	*-0.2*	*-0.5*	*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	-3.0	-4.0	-6.0	-6.0	-7.2	-6.6	-6.1	-5.6	-5.1	-4.6	-4.2	-3.7	-3.3	-2.9

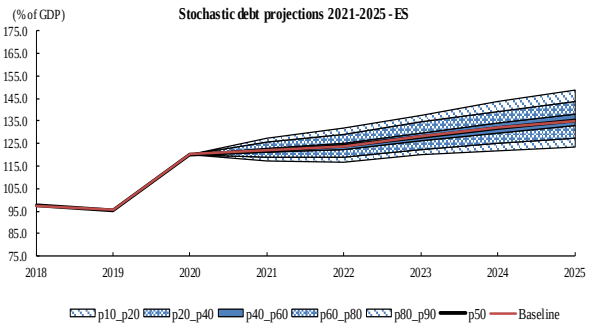












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
HIGH (S0 = 0.5)	HIGH	HIGH (S1 = 7.7)	Risk category	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	LOW (S2 = 0.2)	MEDIUM
			Debt level (2031)	140.6	128.1	147.3	149.1	142.4				
			Debt peak year	2030	2026	2030	2031	2030				
			Percentile rank	90.0%	82.0%							
			Probability debt higher						95.4%			
			Dif. between percentiles						25.5			

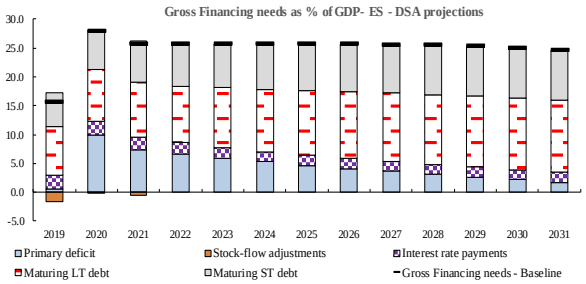
2.2. Sustainability indicators

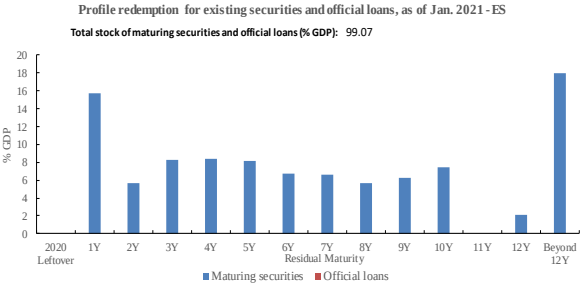
S0 indicator	2009	2020	Critical threshold
Overall index	**0.79**	**0.50**	**0.46**
Fiscal sub-index	0.69	0.88	0.36
Financial competitiveness sub-index	0.85	0.30	0.49

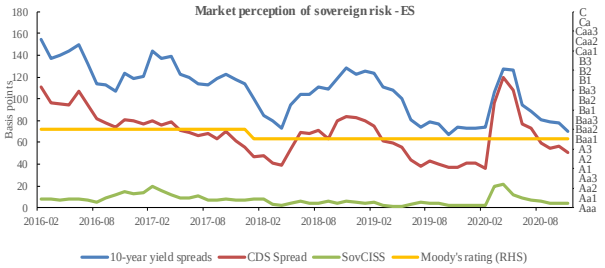
S1 indicator	2019 DSM	2020 DSM
Overall index	**3.8**	**7.7**
of which *Initial budgetary position*	*0.6*	*0.8*
Debt requirement	*3.0*	*5.4*
Ageing costs	*0.3*	*1.5*
Required structural primary balance related to S1	**2.8**	**6.7**

S2 indicator	2019 DSM	2020 DSM
Overall index	**1.8**	**0.2**
of which Initial Budgetary position	1.7	1.1
Ageing costs	0.1	-0.8
of which Pensions	*-1.0*	*-1.9*
Health care	*0.4*	*0.0*
Long-term care	*1.0*	*1.0*
Others	*-0.3*	*0.0*
Required structural primary balance related to S2	**0.8**	**-0.8**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, ES	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Baa1		Baa1	P-2
S&P	Au	A-1u	Au	A-1u
Fitch	A-		A-	F1

Sovereign yield spreads (bp)* - as of November 2020	10-year	70.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - ES (2019)	Share of short-term government debt (p.p.): 6.5	Share of government debt in foreign currency (%): 0.0	Share of government debt by non-residents (%): 49.0

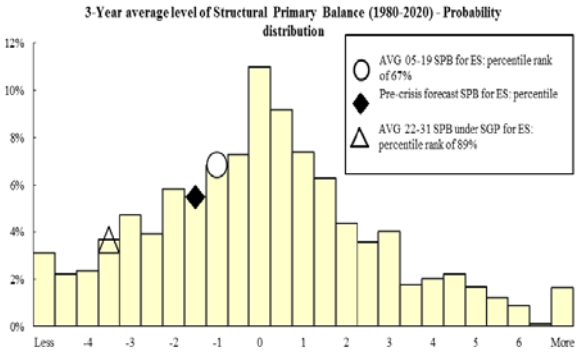
Net International Investment Position (IIP) - ES (2019)	Net IIP (% GDP): -73.9

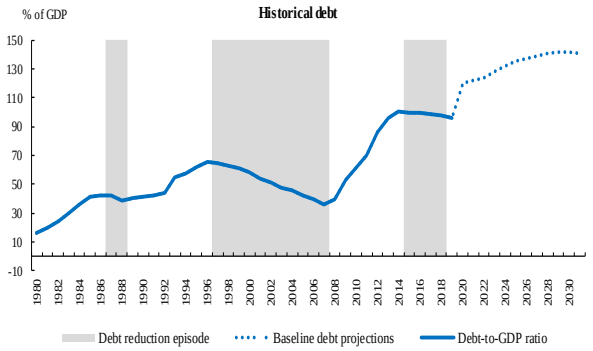
5. Risks related to government's contingent liabilities

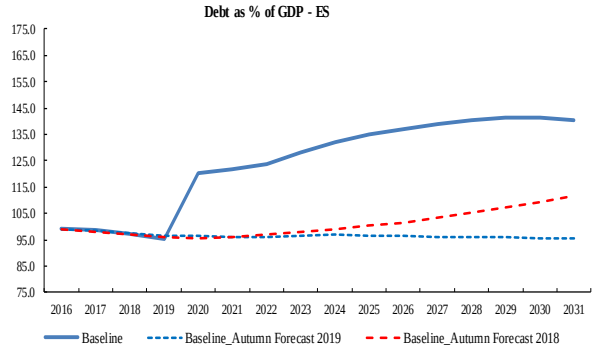
General government contingent liabilities		ES					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		18.8	9.6	7.8	6.7	5.6	6.7
of which One-off guarantees		*18.8*	*9.6*	*7.8*	*6.7*	*5.6*	*6.2*
Standardised guarantees		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.4*	*0.4*	*0.4*	*0.3*	*0.3*	*0.3*
		2013	2015	2016	2018	2019	2019
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	4.6	0.3	0.1	0.0	0.0	1.1
	Securities issued under liquidity schemes	0.0	0.0	0.0	0.0	0.0	0.0
	Special purpose entity	4.8	4.0	3.7	3.0	2.8	0.1
	Total	9.4	4.3	3.8	3.0	2.8	1.2

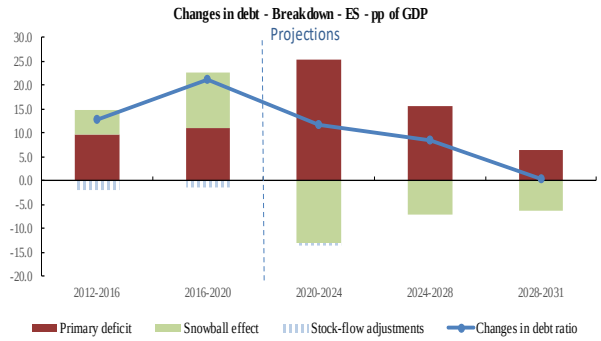
Government's contingent liability risks from banking sector - ES (2019)	Private sector credit flow (% GDP): 1.3	Change in nominal house price index: 5.2	Bank loans-to-deposits ratio (p.p.): 107.2	Share of non-performing loans (%): 3.0	Change in share of non-performing loans (p.p): -0.5	NPL coverage ratio 43.3

6. Realism of baseline assumptions









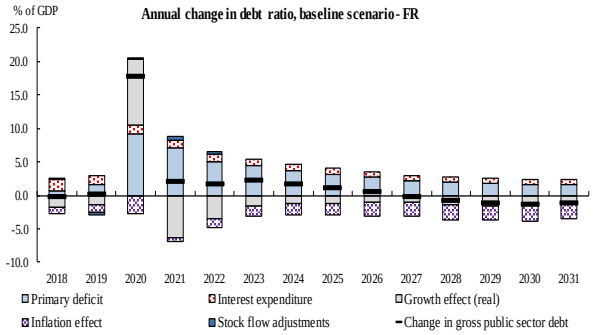
7. Underlying macro-fiscal assumptions

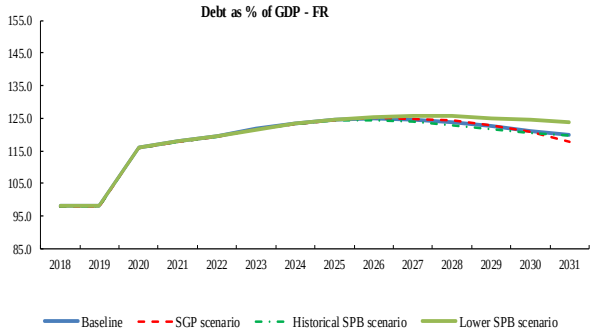
Macro-fiscal assumptions, Spain	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	120.3	122.0	123.9	139.0	141.2	140.6	122.1	137.2	133.4
Primary balance	-9.9	-7.4	-6.7	-3.6	-2.6	-1.7	-8.0	-3.7	-4.7
Structural primary balance (before CoA)	-3.6	-3.8	-5.2	-2.9	-1.9	-1.0	-4.2	-2.9	-3.2
Real GDP growth	-12.4	5.4	4.8	1.1	0.8	1.0	-0.8	1.2	0.7
Potential GDP growth	-0.2	0.6	1.0	1.0	0.8	1.0	0.5	1.0	0.9
Inflation rate	0.7	1.1	1.0	1.6	1.8	2.0	0.9	1.6	1.4
Implicit interest rate (nominal)	2.2	1.9	1.7	1.3	1.3	1.3	1.9	1.4	1.5
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	120.3	122.0	123.9	139.3	141.5	140.7	122.1	137.4	133.6
Primary balance	-9.9	-7.4	-6.7	-3.6	-2.6	-1.5	-8.0	-3.7	-4.8
Structural primary balance	-3.6	-3.8	-5.2	-2.9	-1.9	-0.8	-4.2	-2.9	-3.2
Real GDP growth	-12.4	5.4	4.8	1.0	0.8	1.0	-0.8	1.2	0.7
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	120.3	122.0	123.9	133.5	130.3	128.1	122.1	131.3	129.0
Primary balance	-9.9	-7.4	-6.7	-1.8	-0.9	-0.9	-8.0	-2.4	-3.8
Structural primary balance (before CoA)	-3.6	-3.8	-5.2	-0.9	-0.9	-0.9	-4.2	-1.6	-2.2
Real GDP growth	-12.4	5.4	4.8	1.8	1.6	1.0	-0.8	1.3	0.8
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	120.3	122.3	124.6	143.4	147.6	149.1	122.4	141.8	136.9
Implicit interest rate (nominal)	2.2	2.2	2.1	2.0	2.1	2.2	2.1	2.0	2.1
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	120.3	121.7	123.3	134.8	135.2	132.6	121.8	132.9	130.1
Implicit interest rate (nominal)	2.2	1.7	1.4	0.6	0.5	0.5	1.7	0.7	1.0
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	120.3	121.5	122.9	135.0	135.9	134.2	121.5	133.2	130.3
Real GDP growth	-12.4	5.9	5.3	1.6	1.3	1.5	-0.4	1.7	1.1
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	120.3	122.5	125.0	143.2	146.7	147.3	122.6	141.4	136.7
Real GDP growth	-12.4	4.9	4.3	0.5	0.3	0.5	-1.1	0.7	0.2
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	120.3	122.0	123.9	139.5	142.2	142.4	122.1	137.8	133.9
Primary balance	-9.9	-7.4	-6.7	-3.8	-2.9	-2.1	-8.0	-3.9	-4.9
Structural primary balance (before CoA)	-3.6	-3.8	-5.2	-3.2	-2.3	-1.5	-4.2	-3.2	-3.4
Real GDP growth	-12.4	5.4	4.8	1.1	0.8	1.0	-0.8	1.2	0.7
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	120.3	122.0	123.9	139.0	141.2	140.6	122.1	137.2	133.4
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	120.3	121.2	122.2	130.9	130.1	126.6	121.2	129.0	127.1
Implicit interest rate (nominal)	2.2	1.7	1.4	0.6	0.5	0.5	1.7	0.7	1.0
Real GDP growth	-12.4	5.9	5.3	1.6	1.3	1.5	-0.4	1.7	1.1
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	120.3	122.4	124.7	144.7	149.2	151.0	122.5	143.0	137.8
Implicit interest rate (nominal)	2.2	2.0	1.9	1.7	1.7	1.8	2.0	1.7	1.8
Real GDP growth	-12.9	4.9	4.3	0.5	0.3	0.5	-1.3	0.6	0.1

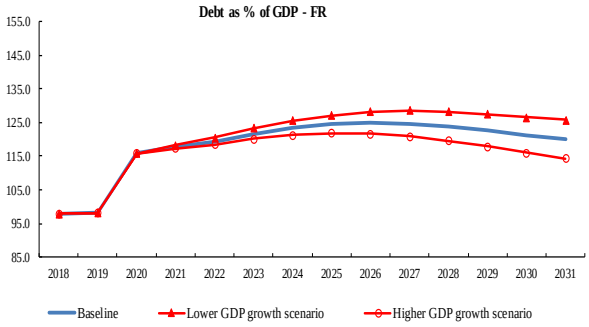
France

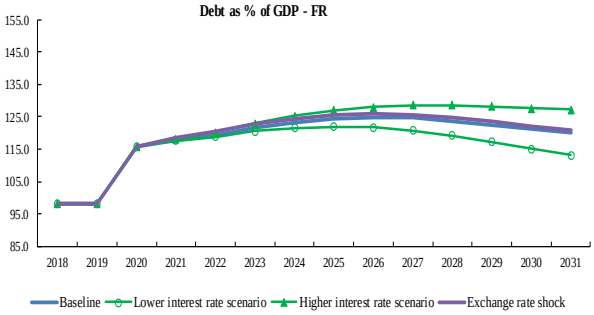
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

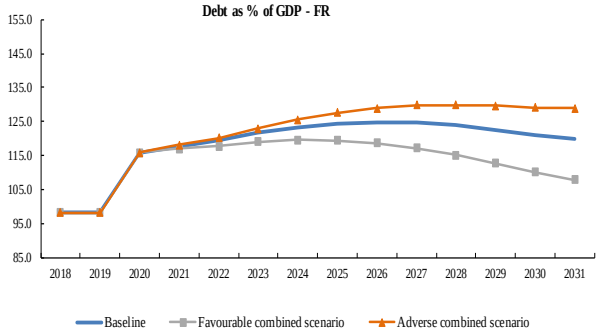
FR - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**98.1**	**98.1**	**115.9**	**117.8**	**119.4**	**121.7**	**123.4**	**124.4**	**124.8**	**124.6**	**123.8**	**122.6**	**121.1**	**119.9**
Changes in the ratio (-1+2+3)	*-0.3*	*0.1*	*17.8*	*1.9*	*1.6*	*2.2*	*1.7*	*1.1*	*0.4*	*-0.2*	*-0.9*	*-1.2*	*-1.5*	*-1.2*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-0.6**	**-1.6**	**-9.1**	**-7.1**	**-5.1**	**-4.4**	**-3.8**	**-3.2**	**-2.7**	**-2.2**	**-2.0**	**-1.8**	**-1.6**	**-1.7**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-1.4***	***-1.9***	***-3.8***	***-4.5***	***-3.7***	***-3.3***	***-2.8***	***-2.4***	***-1.9***	***-1.4***	***-1.5***	***-1.6***	***-1.6***	***-1.7***
(1.1.1) Structural primary balance (bef. CoA)	*-1.4*	*-1.9*	*-3.8*	*-4.5*	*-3.7*	*-3.3*	*-2.8*	*-2.4*	*-1.9*	*-1.4*	*-1.4*	*-1.4*	*-1.4*	*-1.4*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.2*	*0.2*	*0.2*
(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*
(1.2) Cyclical component	***0.9***	***1.2***	***-5.2***	***-2.4***	***-1.3***	***-1.1***	***-0.9***	***-0.8***	***-0.8***	***-0.7***	***-0.5***	***-0.2***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***-0.9***	***-0.1***	***-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)	**-0.9**	**-1.2**	**8.5**	**-5.7**	**-3.9**	**-2.1**	**-2.1**	**-2.1**	**-2.3**	**-2.4**	**-2.9**	**-3.0**	**-3.1**	**-2.8**
(2.1) Interest expenditure	*1.7*	*1.5*	*1.4*	*1.2*	*1.0*	*0.9*	*0.9*	*0.8*	*0.8*	*0.7*	*0.7*	*0.7*	*0.7*	*0.7*
(2.2) Growth effect	*-1.7*	*-1.4*	*9.8*	*-6.3*	*-3.5*	*-1.5*	*-1.3*	*-1.1*	*-1.1*	*-1.1*	*-1.5*	*-1.5*	*-1.5*	*-1.2*
(2.3) Inflation effect	*-0.9*	*-1.2*	*-2.7*	*-0.6*	*-1.4*	*-1.6*	*-1.7*	*-1.8*	*-1.9*	*-2.0*	*-2.1*	*-2.2*	*-2.3*	*-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	**0.1**	**-0.3**	**0.2**	**0.5**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*0.2*	*-0.4*	*0.2*	*0.6*	*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	*-0.1*	*0.1*	*0.0*	*-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	-3.1	-3.3	-5.1	-5.7	-4.8	-4.2	-3.7	-3.2	-2.7	-2.2	-2.3	-2.3	-2.3	-2.4

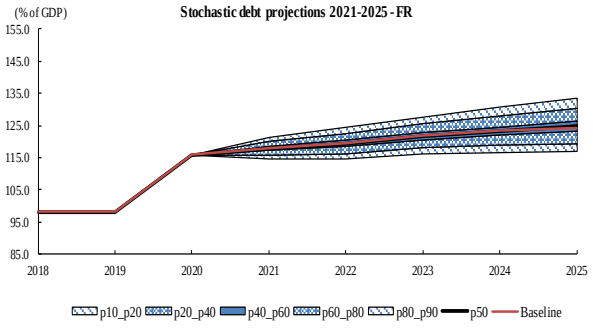












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
HIGH (S0 = 0.6)	HIGH	HIGH (S1 = 4.4)	Risk category	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	LOW (S2 = -1.1)	MEDIUM
			Debt level (2031)	119.9	119.6	125.9	127.3	123.9				
			Debt peak year	2026	2026	2027	2027	2027				
			Percentile rank	82.0%	83.0%							
			Probability debt higher						93.0%			
			Dif. between percentiles						16.3			

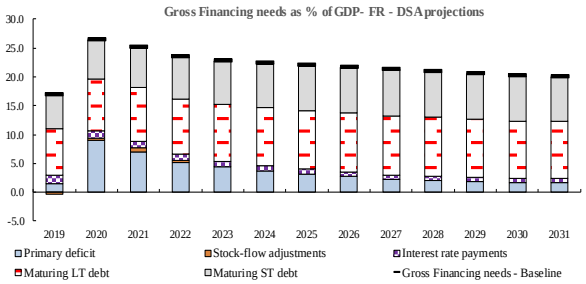
2.2. Sustainability indicators

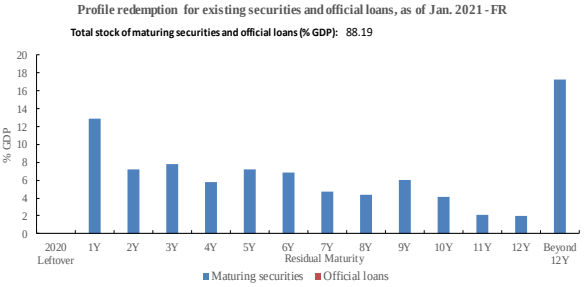
S0 indicator	2009	2020	Critical threshold
Overall index	**0.39**	**0.55**	**0.46**
Fiscal sub-index	0.96	0.88	0.36
Financial competitiveness sub-index	0.09	0.38	0.49

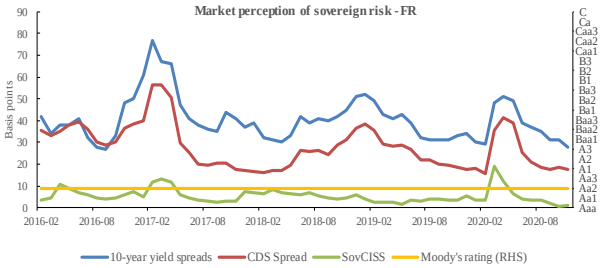
S1 indicator	2019 DSM	2020 DSM
Overall index	**3.9**	**4.4**
of which *Initial budgetary position*	*0.1*	*-0.6*
Debt requirement	*3.4*	*4.8*
Ageing costs	*0.4*	*0.3*
Required structural primary balance related to S1	**2.5**	**3.0**

S2 indicator	2019 DSM	2020 DSM
Overall index	**0.2**	**-1.1**
of which Initial Budgetary position	2.0	1.7
Ageing costs	-1.9	-2.8
of which Pensions	*-2.2*	*-3.2*
Health care	*0.3*	*0.2*
Long-term care	*0.5*	*0.5*
Others	*-0.5*	*-0.3*
Required structural primary balance related to S2	**-1.3**	**-2.6**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, FR	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aa2u		Aa2u	
S&P	AAu	A-1+u	AAu	A-1+u
Fitch	AA		AA	F1+

Sovereign yield spreads (bp)* - as of November 2020	10-year	28.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - FR (2019)	Share of short-term government debt (p.p.): 8.5	Share of government debt in foreign currency (%): 2.2	Share of government debt by non-residents 50.2

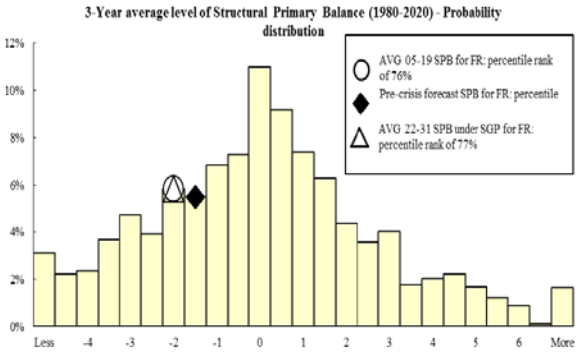
Net International Investment Position (IIP) - FR (2019)	Net IIP (% GDP): -22.9

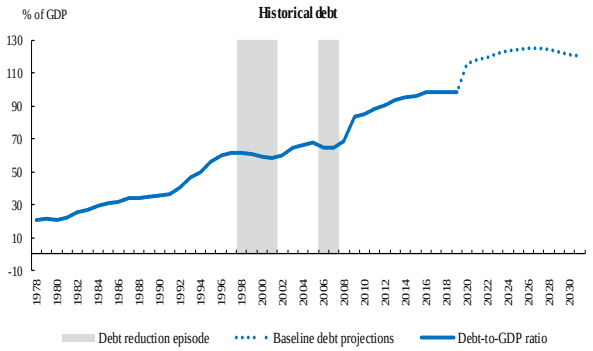
5. Risks related to government's contingent liabilities

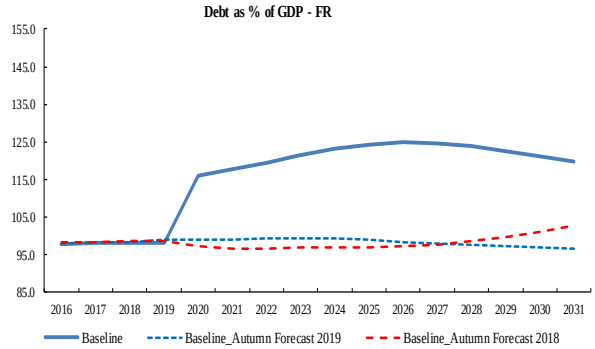
General government contingent liabilities		FR					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		11.8	11.9	12.1	11.6	11.6	6.7
of which One-off guarantees		*9.8*	*9.8*	*9.9*	*9.3*	*9.3*	*6.2*
Standardised guarantees		*2.0*	*2.1*	*2.2*	*2.3*	*2.4*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.3*
		2013	2015	2016	2018	2019	2019
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	2.1	1.8	2.0	1.5	1.4	1.1
	Securities issued under liquidity schemes	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	0.1
	Total	2.1	1.8	2.0	1.5	1.4	1.2

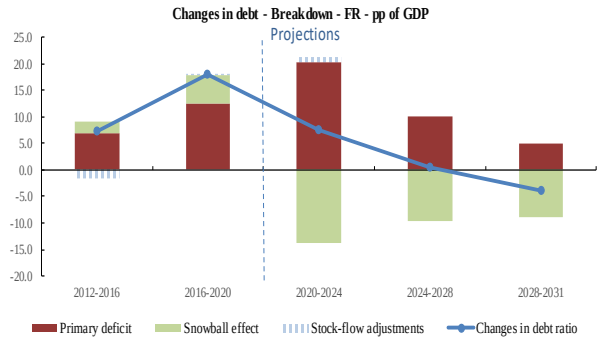
Government's contingent liability risks from banking sector - FR (2019)	Private sector credit flow (% GDP): 8.0	Change in nominal house price index: 3.3	Bank loans-to-deposits ratio (p.p.): 109.3	Share of non-performing loans (%): 2.3	Change in share of non-performing loans (p.p): -0.3	NPL coverage ratio 49.5

6. Realism of baseline assumptions









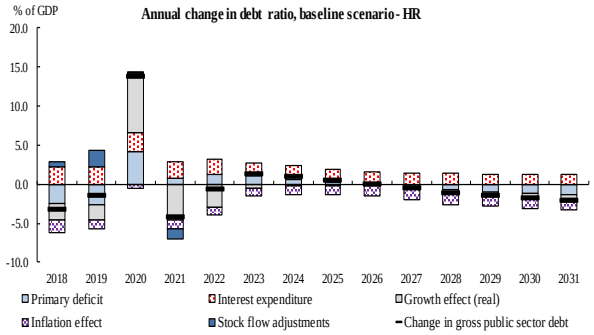
7. Underlying macro-fiscal assumptions

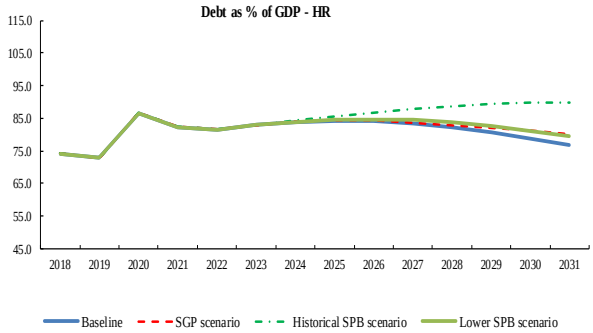
Macro-fiscal assumptions, France	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	115.9	117.8	119.4	124.6	122.6	119.9	117.7	122.9	121.6
Primary balance	-9.1	-7.1	-5.1	-2.2	-1.8	-1.7	-7.1	-2.6	-3.7
Structural primary balance (before CoA)	-3.8	-4.5	-3.7	-1.4	-1.4	-1.4	-4.0	-2.0	-2.5
Real GDP growth	-9.4	5.8	3.1	0.9	1.3	1.0	-0.2	1.1	0.8
Potential GDP growth	0.7	1.0	1.2	0.8	0.9	1.0	1.0	0.9	0.9
Inflation rate	2.8	0.5	1.2	1.7	1.8	2.0	1.5	1.7	1.6
Implicit interest rate (nominal)	1.3	1.1	0.9	0.6	0.6	0.6	1.1	0.6	0.8
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	115.9	117.8	119.4	124.9	122.9	117.8	117.7	122.8	121.5
Primary balance	-9.1	-7.1	-5.1	-2.2	-1.1	-0.2	-7.1	-2.2	-3.4
Structural primary balance	-3.8	-4.5	-3.7	-1.5	-0.3	0.3	-4.0	-1.4	-2.1
Real GDP growth	-9.4	5.8	3.1	0.9	0.8	1.4	-0.2	1.0	0.7
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	115.9	117.8	119.4	123.8	121.5	119.6	117.7	122.5	121.3
Primary balance	-9.1	-7.1	-5.1	-2.2	-1.7	-1.8	-7.1	-2.5	-3.7
Structural primary balance (before CoA)	-3.8	-4.5	-3.7	-1.6	-1.6	-1.6	-4.0	-2.0	-2.5
Real GDP growth	-9.4	5.8	3.1	1.3	1.3	1.0	-0.2	1.1	0.8
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	115.9	118.1	120.1	128.7	128.2	127.3	118.0	127.0	124.8
Implicit interest rate (nominal)	1.3	1.3	1.3	1.3	1.3	1.4	1.3	1.3	1.3
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	115.9	117.5	118.8	120.8	117.3	113.2	117.4	119.0	118.6
Implicit interest rate (nominal)	1.3	0.8	0.5	-0.1	-0.1	-0.2	0.9	0.0	0.2
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	115.9	117.3	118.4	120.9	117.9	114.3	117.2	119.3	118.7
Real GDP growth	-9.4	6.3	3.6	1.4	1.8	1.5	0.2	1.6	1.2
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	115.9	118.3	120.5	128.5	127.5	125.9	118.2	126.8	124.6
Real GDP growth	-9.4	5.3	2.6	0.4	0.7	0.5	-0.5	0.6	0.3
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	115.9	117.8	119.4	125.8	125.2	123.9	117.7	124.5	122.8
Primary balance	-9.1	-7.1	-5.1	-2.7	-2.5	-2.4	-7.1	-3.1	-4.1
Structural primary balance (before CoA)	-3.8	-4.5	-3.7	-2.2	-2.2	-2.2	-4.0	-2.5	-2.9
Real GDP growth	-9.4	5.8	3.1	0.9	1.2	1.0	-0.2	1.1	0.8
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	115.9	118.4	120.5	125.6	123.5	120.8	118.2	123.9	122.5
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	115.9	117.0	117.8	117.2	112.8	107.9	116.9	115.5	115.9
Implicit interest rate (nominal)	1.3	0.8	0.5	-0.1	-0.1	-0.2	0.9	0.0	0.2
Real GDP growth	-9.4	6.3	3.6	1.4	1.8	1.5	0.2	1.6	1.2
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	115.9	118.1	120.2	129.7	129.6	128.9	118.1	128.0	125.5
Implicit interest rate (nominal)	1.3	1.2	1.1	1.0	1.0	1.0	1.2	1.0	1.0
Real GDP growth	-9.9	5.3	2.6	0.3	0.7	0.5	-0.7	0.5	0.2

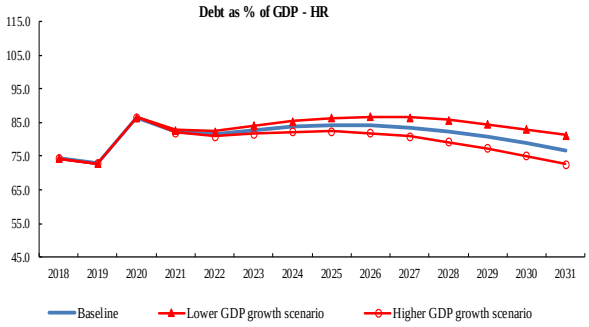
Croatia

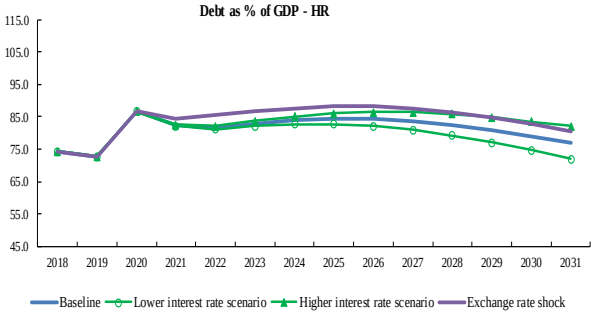
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

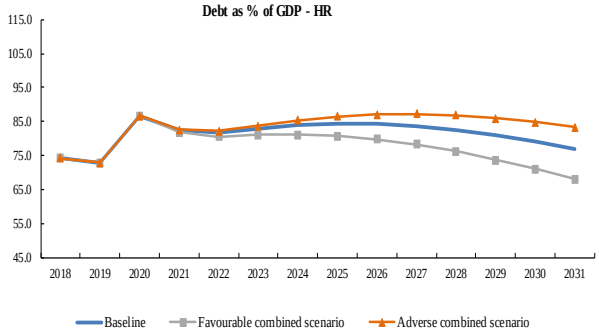
HR - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**74.3**	**72.8**	**86.6**	**82.3**	**81.6**	**82.9**	**83.8**	**84.3**	**84.2**	**83.6**	**82.4**	**80.8**	**78.9**	**76.8**
Changes in the ratio (-1+2+3)	*-3.3*	*-1.5*	*13.8*	*-4.2*	*-0.7*	*1.2*	*0.9*	*0.5*	*-0.1*	*-0.6*	*-1.2*	*-1.6*	*-1.9*	*-2.1*
of which														
(1) Primary balance (1.1+1.2+1.3)	**2.5**	**2.6**	**-4.2**	**-0.7**	**-1.3**	**-1.0**	**-0.7**	**-0.3**	**0.1**	**0.5**	**0.7**	**0.9**	**1.2**	**1.3**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***0.9***	***0.5***	***-1.7***	***0.1***	***-1.3***	***-0.9***	***-0.4***	***0.0***	***0.4***	***0.9***	***1.0***	***1.1***	***1.2***	***1.3***
(1.1.1) Structural primary balance (bef. CoA)	*0.9*	*0.5*	*-1.7*	*0.1*	*-1.3*	*-0.9*	*-0.4*	*0.0*	*0.4*	*0.9*	*0.9*	*0.9*	*0.9*	*0.9*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*-0.1*	*-0.2*	*-0.3*	*-0.5*
(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*
(1.2) Cyclical component	***1.6***	***2.1***	***-2.5***	***-0.9***	***0.0***	***-0.1***	***-0.2***	***-0.3***	***-0.3***	***-0.4***	***-0.2***	***-0.1***	***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)	**-1.3**	**-0.9**	**9.5**	**-3.7**	**-2.0**	**0.2**	**0.3**	**0.2**	**0.0**	**-0.1**	**-0.5**	**-0.6**	**-0.7**	**-0.8**
(2.1) Interest expenditure	*2.3*	*2.2*	*2.3*	*2.1*	*1.9*	*1.8*	*1.7*	*1.6*	*1.5*	*1.4*	*1.4*	*1.3*	*1.3*	*1.2*
(2.2) Growth effect	*-2.1*	*-2.0*	*7.7*	*-4.6*	*-2.9*	*-0.5*	*-0.2*	*-0.2*	*-0.2*	*-0.2*	*-0.4*	*-0.5*	*-0.5*	*-0.5*
(2.3) Inflation effect	*-1.5*	*-1.1*	*-0.5*	*-1.2*	*-1.0*	*-1.1*	*-1.1*	*-1.2*	*-1.3*	*-1.4*	*-1.4*	*-1.5*	*-1.5*	*-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	**0.6**	**2.1**	**0.0**	**-1.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*1.1*	*1.9*	*-0.9*	*-1.4*	*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	*-0.5*	*0.1*	*1.0*	*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	-1.4	-1.7	-4.0	-2.0	-3.2	-2.6	-2.1	-1.6	-1.1	-0.5	-0.4	-0.3	-0.1	0.1

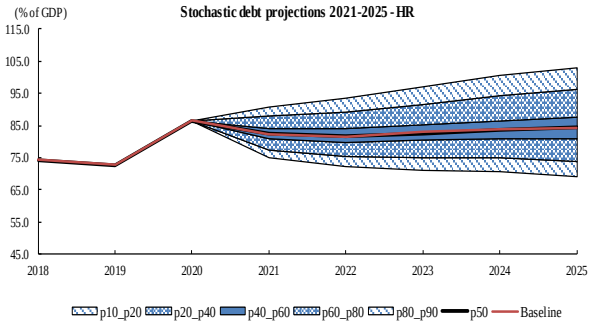












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
HIGH (S0 = 0.6)	MEDIUM	LOW (S1 = -1.5)	Risk category	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW (S2 = -2.1)	MEDIUM
			Debt level (2031)	76.8	89.7	81.3	82.0	79.5				
			Debt peak year	2020	2030	2026	2020	2020				
			Percentile rank	50.0%	71.0%							
			Probability debt higher						42.7%			
			Dif. between percentiles						34.0			

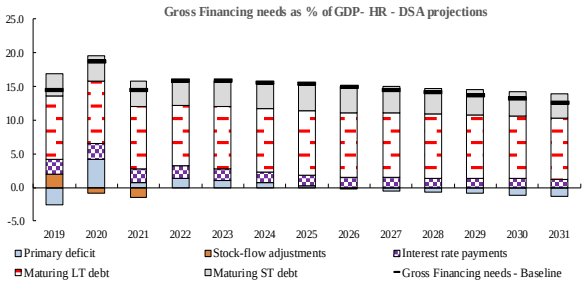
2.2. Sustainability indicators

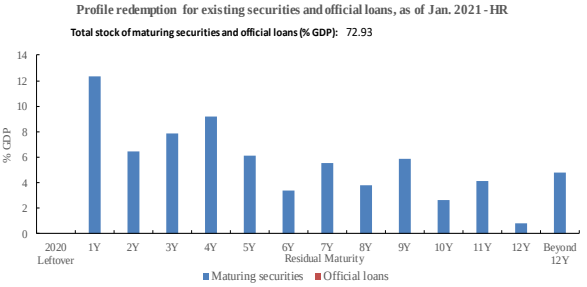
S0 indicator	2009	2020	Critical threshold
Overall index	**0.84**	**0.61**	**0.46**
Fiscal sub-index	0.64	0.84	0.36
Financial competitiveness sub-index	0.93	0.49	0.49

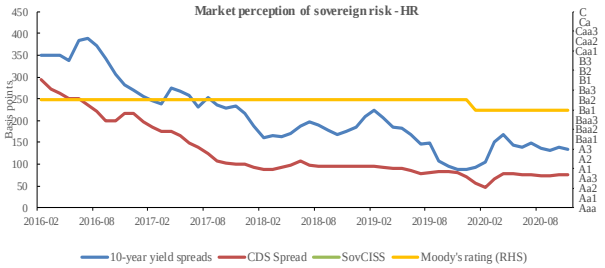
S1 indicator	2019 DSM	2020 DSM
Overall index	**-2.0**	**-1.5**
of which *Initial budgetary position*	*-2.2*	*-2.2*
Debt requirement	*0.4*	*1.6*
Ageing costs	*-0.2*	*-0.9*
Required structural primary balance related to S1	**-1.0**	**-0.6**

S2 indicator	2019 DSM	2020 DSM
Overall index	**-2.1**	**-2.1**
of which Initial Budgetary position	-0.3	-0.3
Ageing costs	-1.9	-1.8
of which Pensions	*-2.2*	*-2.5*
Health care	*0.5*	*0.8*
Long-term care	*0.2*	*0.3*
Others	*-0.3*	*-0.3*
Required structural primary balance related to S2	**-1.1**	**-1.2**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, HR	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Ba1		Ba1	
S&P	BBB-	A-3	BBB-	A-3
Fitch	BBB-		BBB-	F3

Sovereign yield spreads (bp)* - as of November 2020	10-year	134.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - HR (2019)	Share of short-term government debt (p.p.): 4.6	**Share of government debt in foreign currency 71.6**	Share of government debt by non-residents (%): 32.7

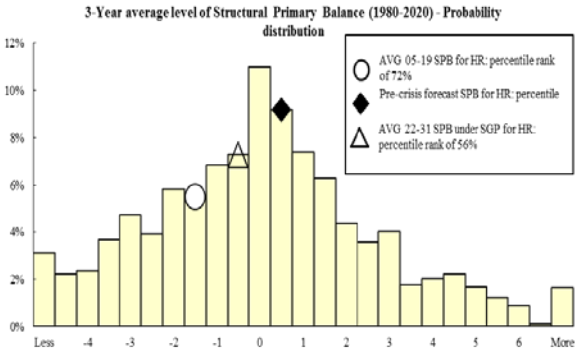
Net International Investment Position (IIP) - HR (2019)	Net IIP (% GDP): -50.3

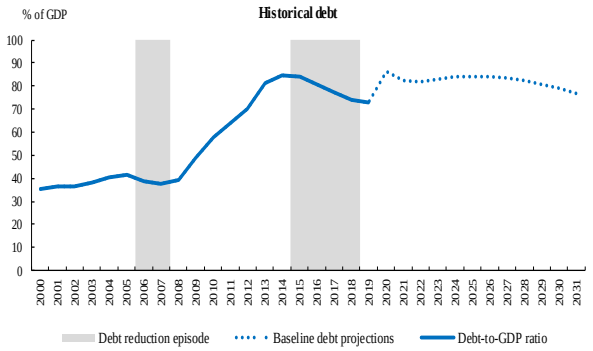
5. Risks related to government's contingent liabilities

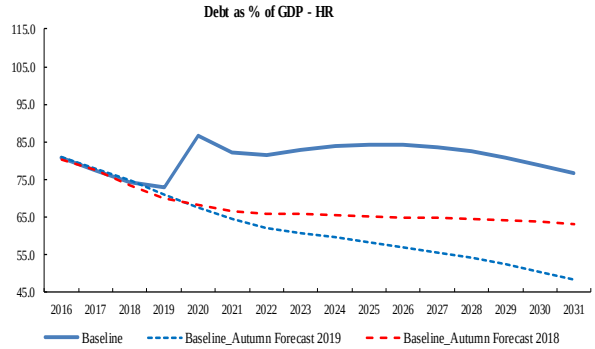
General government contingent liabilities		HR					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		2.0	1.9	2.7	2.7	1.4	6.7
of which One-off guarantees		*2.0*	*1.9*	*2.7*	*2.7*	*1.4*	*6.2*
Standardised guarantees		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.3*
		2013	2015	2016	2018	2019	2019
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	1.1
	Securities issued under liquidity schemes	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	0.1
	Total	0.0	0.0	0.0	0.0	0.0	1.2

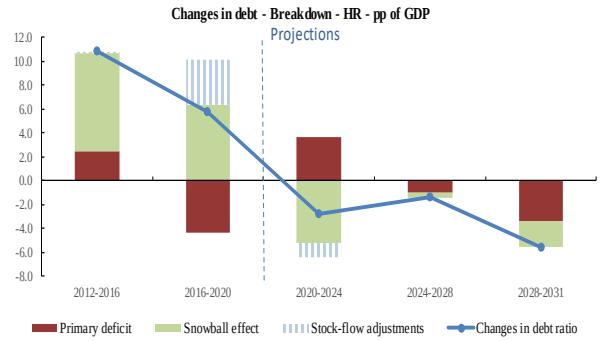
Government's contingent liability risks from banking sector - HR (2019)	Private sector credit flow (% GDP): 1.7	Change in nominal house price index: 9.0	Bank loans-to-deposits ratio (p.p.): 70.2	**Share of non-performing loans (%): 4.3**	Change in share of non-performing loans (p.p): -1.8	NPL coverage ratio 67.5

6. Realism of baseline assumptions









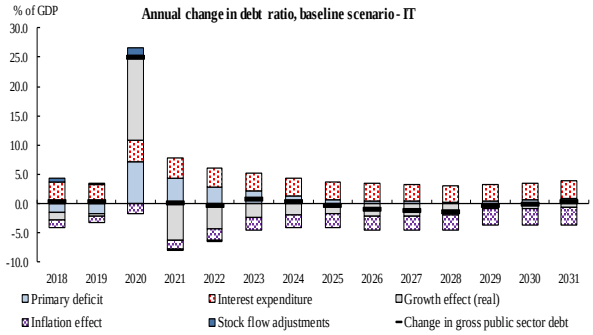
7. Underlying macro-fiscal assumptions

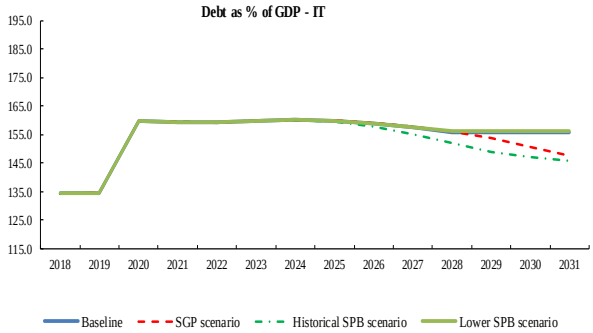
Macro-fiscal assumptions, Croatia	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	86.6	82.3	81.6	83.6	80.8	76.8	83.5	82.0	82.4
Primary balance	-4.2	-0.7	-1.3	0.5	0.9	1.3	-2.1	0.3	-0.3
Structural primary balance (before CoA)	-1.7	0.1	-1.3	0.9	0.9	0.9	-1.0	0.4	0.1
Real GDP growth	-9.6	5.7	3.7	0.2	0.6	0.6	-0.1	0.4	0.3
Potential GDP growth	0.5	1.6	1.6	0.3	0.3	0.6	1.3	0.4	0.6
Inflation rate	0.7	1.4	1.2	1.7	1.8	2.0	1.1	1.7	1.5
Implicit interest rate (nominal)	2.9	2.6	2.4	1.7	1.6	1.6	2.6	1.8	2.0
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	86.6	82.3	81.6	83.6	82.2	80.2	83.5	82.8	83.0
Primary balance	-4.2	-0.7	-1.3	0.2	0.3	0.2	-2.1	-0.1	-0.6
Structural primary balance	-1.7	0.1	-1.3	0.4	0.3	0.2	-1.0	0.1	-0.2
Real GDP growth	-9.6	5.7	3.7	0.6	0.4	0.7	-0.1	0.4	0.3
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	86.6	82.3	81.6	87.9	89.4	89.7	83.5	87.2	86.3
Primary balance	-4.2	-0.7	-1.3	-1.3	-1.1	-0.8	-2.1	-1.2	-1.4
Structural primary balance (before CoA)	-1.7	0.1	-1.3	-1.3	-1.3	-1.3	-1.0	-1.3	-1.2
Real GDP growth	-9.6	5.7	3.7	0.3	0.3	0.6	-0.1	0.4	0.3
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	86.6	82.5	82.1	86.4	84.8	82.0	83.7	84.8	84.6
Implicit interest rate (nominal)	2.9	2.8	2.7	2.4	2.4	2.4	2.8	2.5	2.5
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	86.6	82.2	81.2	80.9	77.1	72.0	83.3	79.3	80.3
Implicit interest rate (nominal)	2.9	2.3	2.1	1.1	0.9	0.8	2.4	1.2	1.5
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	86.6	82.0	80.9	80.8	77.3	72.6	83.1	79.2	80.2
Real GDP growth	-9.6	6.2	4.2	0.7	1.1	1.1	0.3	0.9	0.8
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	86.6	82.7	82.4	86.5	84.5	81.3	83.9	84.8	84.6
Real GDP growth	-9.6	5.2	3.2	-0.3	0.1	0.1	-0.4	-0.1	-0.2
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	86.6	82.3	81.6	84.5	82.6	79.5	83.5	83.1	83.2
Primary balance	-4.2	-0.7	-1.3	0.1	0.5	0.9	-2.1	0.0	-0.5
Structural primary balance (before CoA)	-1.7	0.1	-1.3	0.4	0.4	0.4	-1.0	0.1	-0.2
Real GDP growth	-9.6	5.7	3.7	0.2	0.5	0.6	-0.1	0.4	0.3
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	86.6	84.4	85.5	87.5	84.7	80.6	85.5	85.8	85.7
Exchange rate depreciation	0.0%	2.1%	2.1%	0.0%	0.0%	0.0%	1.4%	0.0%	0.3%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	86.6	81.8	80.5	78.3	73.7	68.0	82.9	76.6	78.2
Implicit interest rate (nominal)	2.9	2.3	2.1	1.1	0.9	0.8	2.4	1.2	1.5
Real GDP growth	-9.6	6.2	4.2	0.7	1.1	1.1	0.3	0.9	0.8
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	86.6	82.6	82.2	87.3	85.9	83.4	83.8	85.6	85.2
Implicit interest rate (nominal)	2.9	2.7	2.6	2.1	2.0	2.0	2.7	2.1	2.3
Real GDP growth	-10.1	5.2	3.2	-0.4	0.0	0.1	-0.6	-0.1	-0.2

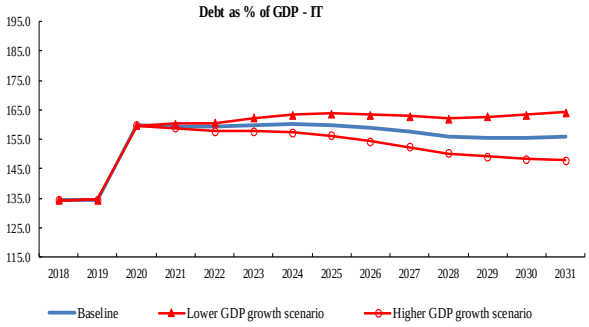
Italy

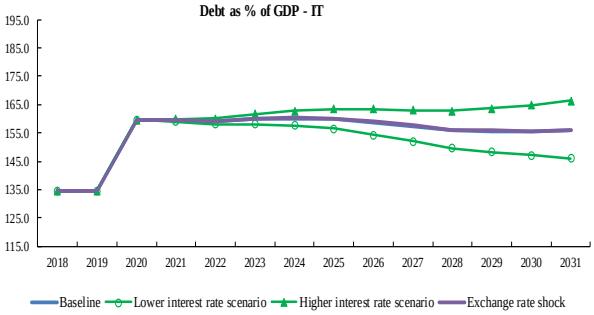
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

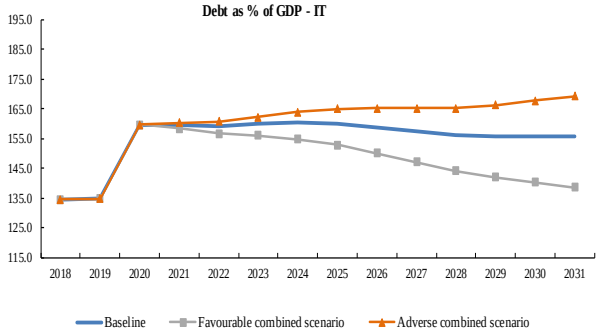
IT - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**134.4**	**134.7**	**159.6**	**159.5**	**159.1**	**159.9**	**160.2**	**159.9**	**158.8**	**157.5**	**156.0**	**155.7**	**155.6**	**155.8**
Changes in the ratio (-1+2+3)	*0.3*	*0.2*	*24.9*	*-0.1*	*-0.4*	*0.8*	*0.3*	*-0.3*	*-1.1*	*-1.3*	*-1.4*	*-0.3*	*-0.1*	*0.2*
of which														
(1) Primary balance (1.1+1.2+1.3)	**1.4**	**1.8**	**-7.2**	**-4.4**	**-2.9**	**-2.2**	**-1.4**	**-0.8**	**-0.6**	**-0.4**	**-0.2**	**-0.4**	**-0.6**	**-0.8**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***1.1***	***1.4***	***-2.2***	***-1.7***	***-1.2***	***-0.8***	***-0.3***	***0.1***	***0.0***	***-0.1***	***-0.2***	***-0.4***	***-0.6***	***-0.8***
(1.1.1) Structural primary balance (bef. CoA)	*1.1*	*1.4*	*-2.2*	*-1.7*	*-1.2*	*-0.8*	*-0.3*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.1*	*0.3*	*0.5*	*0.6*	*0.9*	*1.1*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.2*
(1.2) Cyclical component	***0.2***	***0.3***	***-5.2***	***-3.0***	***-1.9***	***-1.4***	***-1.1***	***-0.9***	***-0.6***	***-0.3***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.1***	***0.1***	***0.2***	***0.2***	***0.2***	***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)	**1.0**	**2.0**	**16.5**	**-4.3**	**-3.1**	**-1.4**	**-1.1**	**-1.1**	**-1.7**	**-1.7**	**-1.7**	**-0.7**	**-0.7**	**-0.6**
(2.1) Interest expenditure	*3.6*	*3.4*	*3.6*	*3.4*	*3.1*	*3.0*	*3.0*	*2.9*	*2.9*	*2.9*	*2.9*	*2.9*	*3.0*	*3.0*
(2.2) Growth effect	*-1.2*	*-0.5*	*14.5*	*-6.2*	*-4.4*	*-2.4*	*-1.9*	*-1.7*	*-2.1*	*-2.0*	*-1.9*	*-0.8*	*-0.7*	*-0.6*
(2.3) Inflation effect	*-1.4*	*-0.9*	*-1.7*	*-1.5*	*-1.9*	*-2.0*	*-2.1*	*-2.3*	*-2.4*	*-2.6*	*-2.7*	*-2.8*	*-2.9*	*-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	**0.7**	**0.0**	**1.3**	**-0.1**	**-0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*0.7*	*0.0*	*1.3*	*-0.1*	*-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	-2.6	-1.9	-5.8	-5.0	-4.3	-3.8	-3.3	-2.8	-2.8	-3.0	-3.1	-3.3	-3.6	-3.8

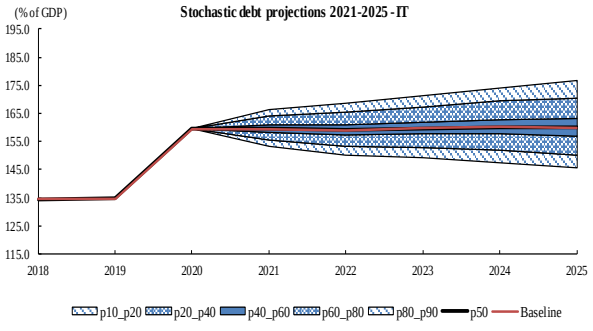












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
HIGH (S0 = 0.5)	HIGH	HIGH (S1 = 9.2)	Risk category	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	LOW (S2 = 1.1)	MEDIUM
			Debt level (2031)	155.8	145.8	164.2	166.3	156.3				
			Debt peak year	2024	2024	2031	2031	2024				
			Percentile rank	57.0%	41.0%							
			Probability debt higher						52.2%			
			Dif. between percentiles						30.9			

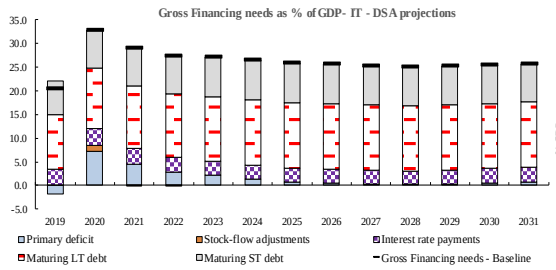
2.2. Sustainability indicators

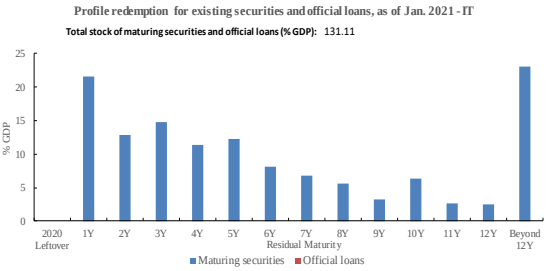
S0 indicator	2009	2020	Critical threshold
Overall index	**0.58**	**0.48**	**0.46**
Fiscal sub-index	0.96	1.00	0.36
Financial competitiveness sub-index	0.38	0.21	0.49

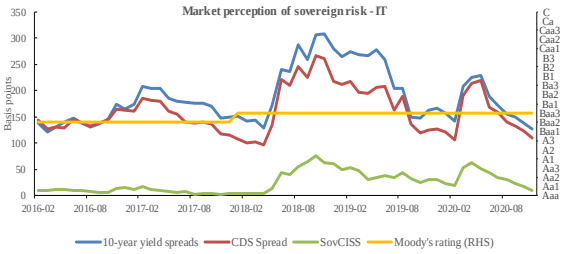
S1 indicator	2019 DSM	2020 DSM
Overall index	**8.8**	**9.2**
of which *Initial budgetary position*	*2.2*	*1.4*
Debt requirement	*5.8*	*6.5*
Ageing costs	*0.8*	*1.4*
Required structural primary balance related to S1	**8.9**	**9.4**

S2 indicator	2019 DSM	2020 DSM
Overall index	**2.1**	**1.1**
of which Initial Budgetary position	1.5	0.5
Ageing costs	0.6	0.6
of which Pensions	*-0.7*	*-1.8*
Health care	*0.7*	*0.6*
Long-term care	*0.9*	*1.8*
Others	*-0.4*	*-0.1*
Required structural primary balance related to S2	**2.2**	**1.2**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, IT	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Baa3u	P-3u	Baa3u	P-3u
S&P	BBBu	A-2u	BBBu	A-2u
Fitch	BBB-		BBB-	F3

Sovereign yield spreads (bp)* - as of November 2020	10-year	127.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - IT (2019)	Share of short-term government debt (p.p.): 14.6	Share of government debt in foreign currency (%): 0.1	Share of government debt by non-residents (%): 31.5

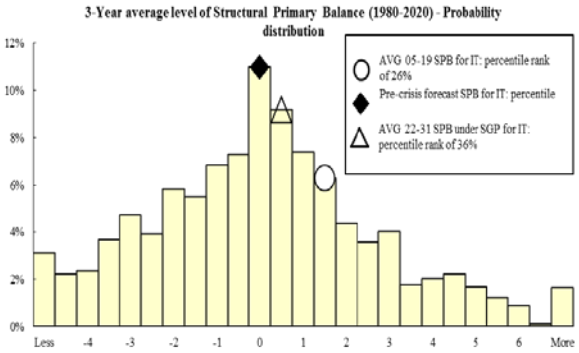
Net International Investment Position (IIP) - IT (2019)	Net IIP (% GDP): -1.5

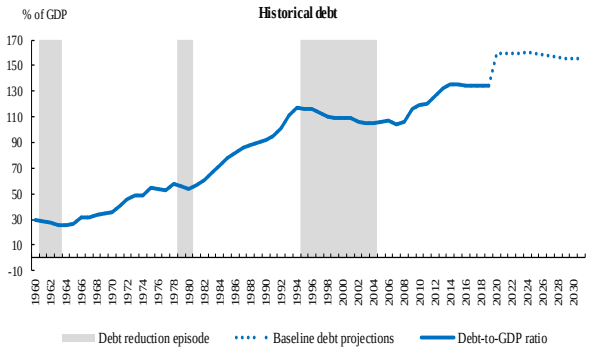
5. Risks related to government's contingent liabilities

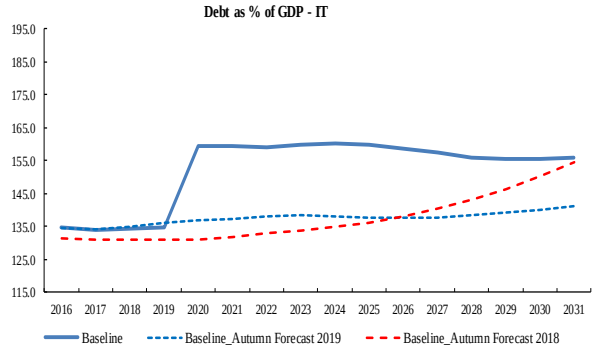
General government contingent liabilities		IT					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		6.1	2.1	2.4	3.9	4.4	6.7
of which One-off guarantees		*5.4*	*1.2*	*1.2*	*2.5*	*2.6*	*6.2*
Standardised guarantees		*0.7*	*1.0*	*1.2*	*1.4*	*1.7*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.3*
		2013	2015	2016	2018	2019	2019
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	5.1	0.4	0.4	0.9	1.2	1.1
	Securities issued under liquidity schemes	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	0.1
	Total	5.1	0.4	0.4	0.9	1.2	1.2

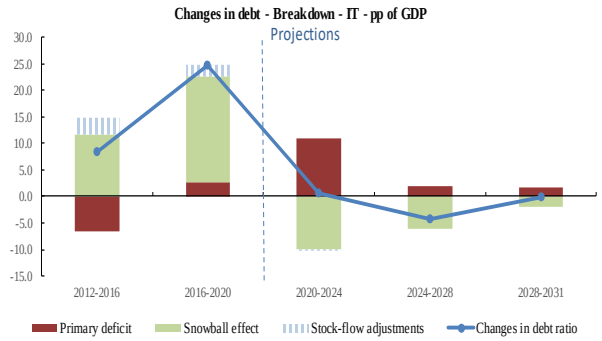
Government's contingent liability risks from banking sector - IT (2019)	Private sector credit flow (% GDP): 0.2	Change in nominal house price index: -0.1	Bank loans-to-deposits ratio (p.p.): 104.8	Share of non-performing loans (%): 6.1	Change in share of non-performing loans (p.p): -1.8	NPL coverage ratio 52.7

6. Realism of baseline assumptions









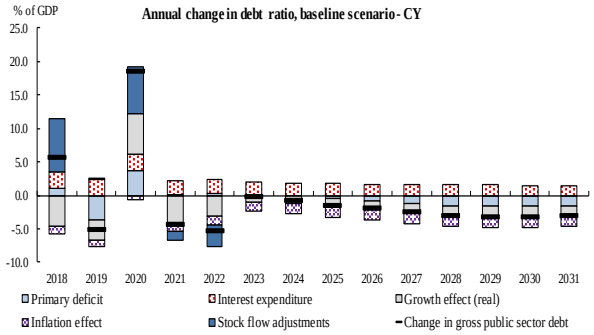
7. Underlying macro-fiscal assumptions

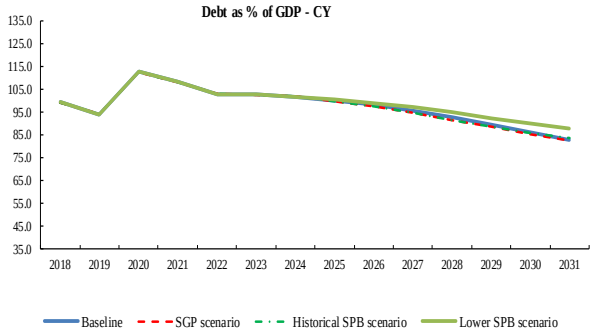
Macro-fiscal assumptions, Italy	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	159.6	159.5	159.1	157.5	155.7	155.8	159.4	157.7	158.1
Primary balance	-7.2	-4.4	-2.9	-0.4	-0.4	-0.8	-4.8	-0.8	-1.8
Structural primary balance (before CoA)	-2.2	-1.7	-1.2	0.1	0.1	0.1	-1.7	0.0	-0.4
Real GDP growth	-9.9	4.1	2.8	1.3	0.5	0.4	-1.0	1.0	0.5
Potential GDP growth	0.1	-0.4	0.7	0.7	0.5	0.4	0.1	0.6	0.5
Inflation rate	1.3	1.0	1.2	1.6	1.8	2.0	1.1	1.6	1.5
Implicit interest rate (nominal)	2.4	2.2	2.0	1.9	1.9	2.0	2.2	1.9	2.0
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	159.6	159.5	159.1	157.7	153.7	147.4	159.4	156.1	156.9
Primary balance	-7.2	-4.4	-2.9	0.3	1.6	2.7	-4.8	0.3	-0.9
Structural primary balance	-2.2	-1.7	-1.2	1.1	2.3	3.4	-1.7	1.2	0.5
Real GDP growth	-9.9	4.1	2.8	0.9	0.5	0.5	-1.0	0.9	0.4
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	159.6	159.5	159.1	154.9	149.0	145.8	159.4	154.0	155.4
Primary balance	-7.2	-4.4	-2.9	0.9	1.3	0.9	-4.8	0.3	-1.0
Structural primary balance (before CoA)	-2.2	-1.7	-1.2	1.8	1.8	1.8	-1.7	1.3	0.6
Real GDP growth	-9.9	4.1	2.8	1.4	1.2	0.4	-1.0	1.0	0.5
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	159.6	160.0	160.2	163.1	163.7	166.3	159.9	163.6	162.6
Implicit interest rate (nominal)	2.4	2.5	2.4	2.6	2.7	2.8	2.5	2.6	2.6
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	159.6	159.1	158.1	152.1	148.2	146.1	158.9	152.2	153.9
Implicit interest rate (nominal)	2.4	1.9	1.6	1.2	1.2	1.2	2.0	1.2	1.4
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	159.6	158.8	157.7	152.3	149.1	147.8	158.7	152.6	154.1
Real GDP growth	-9.9	4.6	3.3	1.8	1.0	0.9	-0.7	1.5	1.0
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	159.6	160.3	160.6	162.8	162.6	164.2	160.1	163.1	162.3
Real GDP growth	-9.9	3.6	2.3	0.8	0.0	-0.1	-1.3	0.5	0.1
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	159.6	159.5	159.1	157.6	156.1	156.3	159.4	157.9	158.3
Primary balance	-7.2	-4.4	-2.9	-0.4	-0.4	-0.9	-4.8	-0.9	-1.9
Structural primary balance (before CoA)	-2.2	-1.7	-1.2	0.1	0.1	0.1	-1.7	-0.1	-0.5
Real GDP growth	-9.9	4.1	2.8	1.3	0.5	0.4	-1.0	1.0	0.5
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	159.6	159.6	159.2	157.5	155.8	155.9	159.5	157.8	158.2
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	159.6	158.3	156.7	147.1	142.0	138.6	158.2	147.3	150.0
Implicit interest rate (nominal)	2.4	1.9	1.6	1.2	1.2	1.2	2.0	1.2	1.4
Real GDP growth	-9.9	4.6	3.3	1.8	1.0	0.9	-0.7	1.5	1.0
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	159.6	160.2	160.6	165.2	166.3	169.3	160.1	165.6	164.2
Implicit interest rate (nominal)	2.4	2.4	2.2	2.2	2.3	2.4	2.3	2.3	2.3
Real GDP growth	-10.4	3.6	2.3	0.7	0.0	-0.1	-1.5	0.5	0.0

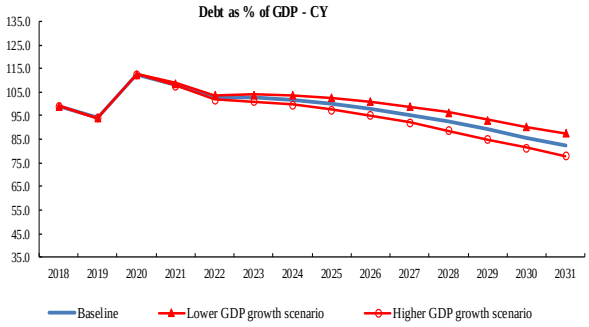
Cyprus

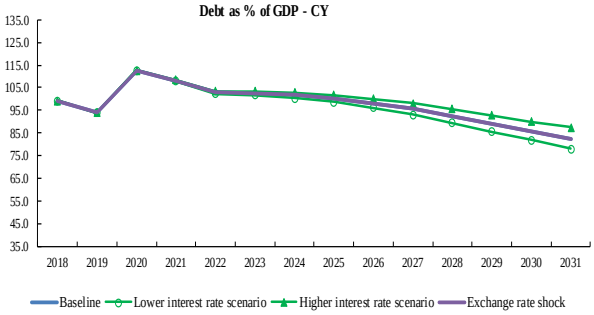
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

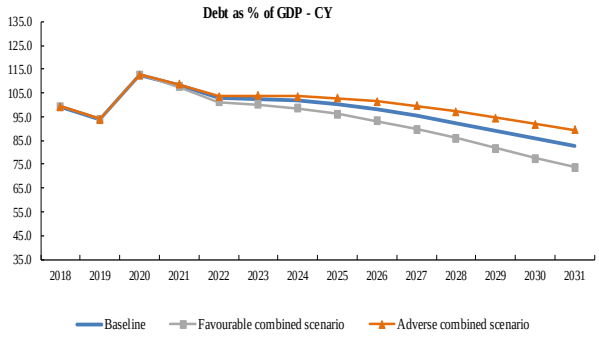
CY - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**99.2**	**94.0**	**112.6**	**108.2**	**102.8**	**102.5**	**101.6**	**100.1**	**98.1**	**95.5**	**92.5**	**89.1**	**85.8**	**82.6**
Changes in the ratio (-1+2+3)	*5.7*	*-5.1*	*18.5*	*-4.4*	*-5.4*	*-0.3*	*-0.9*	*-1.5*	*-2.0*	*-2.6*	*-3.1*	*-3.4*	*-3.3*	*-3.2*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-1.1**	**3.8**	**-3.7**	**-0.2**	**-0.4**	**-0.2**	**0.1**	**0.4**	**0.8**	**1.2**	**1.6**	**1.5**	**1.5**	**1.5**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***4.4***	***2.3***	***-2.4***	***0.2***	***-0.6***	***-0.2***	***0.3***	***0.7***	***1.1***	***1.6***	***2.0***	***1.8***	***1.7***	***1.5***
(1.1.1) Structural primary balance (bef. CoA)	*4.4*	*2.3*	*-2.4*	*0.2*	*-0.6*	*-0.2*	*0.3*	*0.7*	*1.1*	*1.6*	*2.0*	*2.0*	*2.0*	*2.0*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.2*	*0.3*	*0.5*
(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*
(1.2) Cyclical component	***2.4***	***2.7***	***-1.3***	***-0.3***	***0.2***	***0.0***	***-0.2***	***-0.3***	***-0.3***	***-0.4***	***-0.4***	***-0.3***	***-0.1***	***0.0***
(1.3) One-off and other temporary measures	***-7.9***	***-1.3***	***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)	**-3.4**	**-1.5**	**7.8**	**-3.3**	**-2.4**	**-0.5**	**-0.8**	**-1.1**	**-1.2**	**-1.4**	**-1.5**	**-1.8**	**-1.8**	**-1.7**
(2.1) Interest expenditure	*2.4*	*2.3*	*2.4*	*2.1*	*1.9*	*1.8*	*1.8*	*1.7*	*1.7*	*1.6*	*1.6*	*1.5*	*1.5*	*1.4*
(2.2) Growth effect	*-4.6*	*-2.9*	*6.1*	*-4.0*	*-3.1*	*-1.0*	*-1.2*	*-1.4*	*-1.4*	*-1.4*	*-1.4*	*-1.7*	*-1.6*	*-1.4*
(2.3) Inflation effect	*-1.1*	*-0.9*	*-0.7*	*-1.4*	*-1.3*	*-1.3*	*-1.4*	*-1.5*	*-1.5*	*-1.6*	*-1.6*	*-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	**7.9**	**0.1**	**7.0**	**-1.2**	**-3.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*7.9*	*0.1*	*7.0*	*-1.2*	*-3.3*	*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	2.1	0.0	-4.8	-1.9	-2.5	-2.0	-1.5	-1.0	-0.6	-0.1	0.4	0.3	0.2	0.1

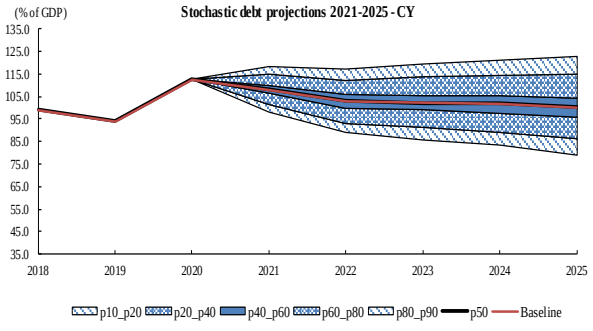












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
HIGH (S0 = 0.6)	MEDIUM	LOW (S1 = -0.6)	Risk category	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW (S2 = 0.2)	MEDIUM
			Debt level (2031)	82.6	83.3	87.5	87.4	87.8				
			Debt peak year	2020	2020	2020	2020	2020				
			Percentile rank	35.0%	39.0%							
			Probability debt higher						23.4%			
			Dif. between percentiles						43.9			

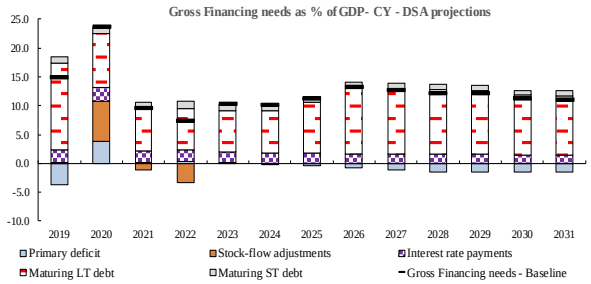
2.2. Sustainability indicators

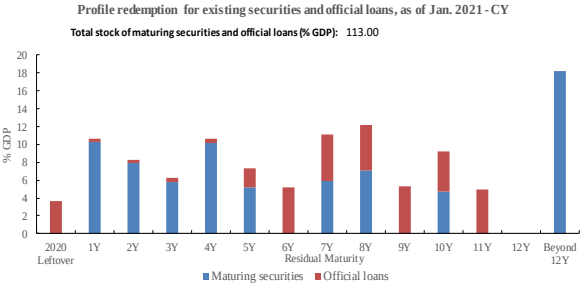
S0 indicator	2009	2020	Critical threshold
Overall index	**0.71**	**0.64**	**0.46**
Fiscal sub-index	0.56	0.72	0.36
Financial competitiveness sub-index	0.77	0.60	0.49

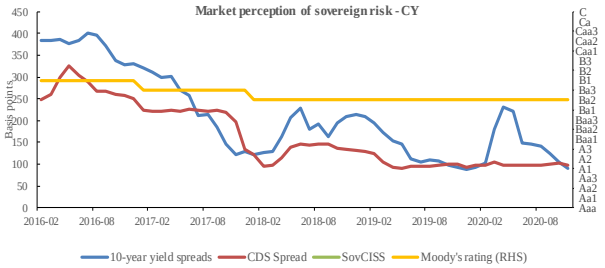
S1 indicator	2019 DSM	2020 DSM
Overall index	**-2.4**	**-0.6**
of which *Initial budgetary position*	*-4.0*	*-3.4*
Debt requirement	*1.8*	*2.2*
Ageing costs	*-0.2*	*0.6*
Required structural primary balance related to S1	**-0.1**	**1.4**

S2 indicator	2019 DSM	2020 DSM
Overall index	**-0.7**	**0.2**
of which Initial Budgetary position	-1.6	-1.7
Ageing costs	0.9	1.9
of which Pensions	*1.7*	*1.8*
Health care	*0.3*	*0.2*
Long-term care	*0.2*	*0.2*
Others	*-1.2*	*-0.4*
Required structural primary balance related to S2	**1.5**	**2.1**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, CY	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Ba2	NP	(P)Ba2	NP
S&P	BBB-	A-3	BBB-	A-3
Fitch	BBB-		BBB-	F3

Sovereign yield spreads (bp)* - as of November 2020	10-year	90.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - CY (2019)	Share of short-term government debt (p.p.): 2.1	Share of government debt in foreign currency (%): 3.4	Share of government debt by non-residents 80.1

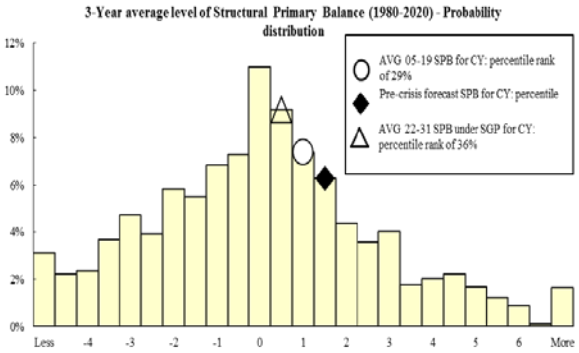
Net International Investment Position (IIP) - CY (2019)	Net IIP (% GDP): -122.3

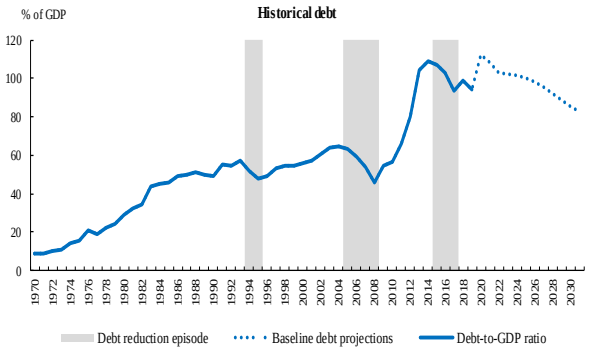
5. Risks related to government's contingent liabilities

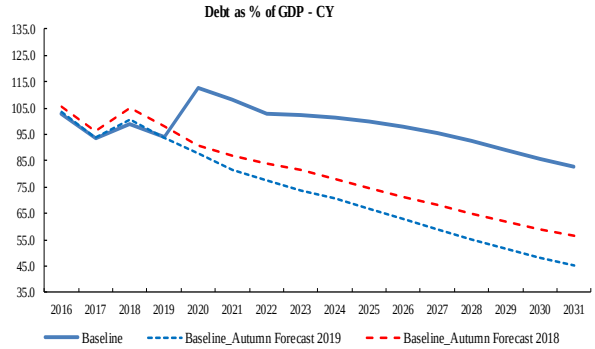
General government contingent liabilities		CY					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		16.0	15.3	9.0	8.5	7.9	6.7
of which One-off guarantees		*16.0*	*15.1*	*8.7*	*8.2*	*7.9*	*6.2*
Standardised guarantees		*0.0*	*0.3*	*0.3*	*0.2*	*0.0*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.9*	*0.8*	*0.8*	*0.7*	*0.7*	*0.3*
		2013	2015	2016	2018	2019	2019
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	5.6	5.6	0.0	10.5	9.4	1.1
	Securities issued under liquidity schemes	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	0.1
	Total	5.6	5.6	0.0	10.5	9.4	1.2

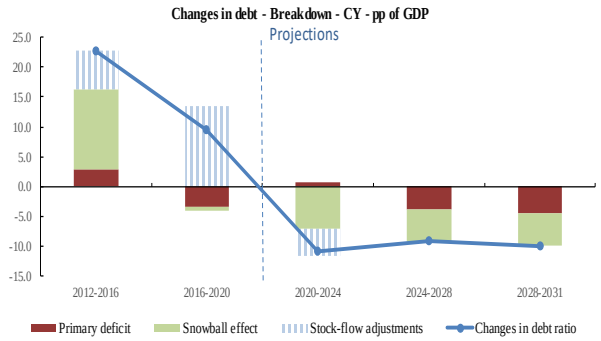
Government's contingent liability risks from banking sector - CY (2019)	Private sector credit flow (% GDP): 2.7	Change in nominal house price index: 3.7	Bank loans-to-deposits ratio (p.p.): 56.8	Share of non-performing loans (%): 15.5	Change in share of non-performing loans (p.p): -6.0	NPL coverage ratio 46.6

6. Realism of baseline assumptions









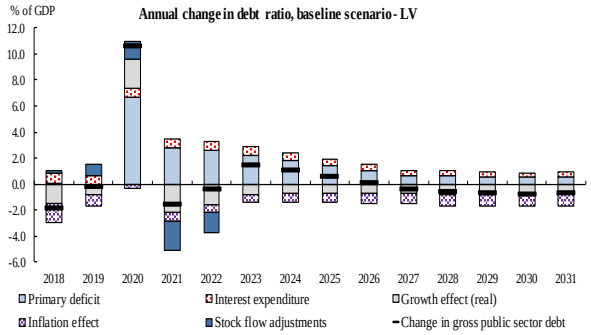
7. Underlying macro-fiscal assumptions

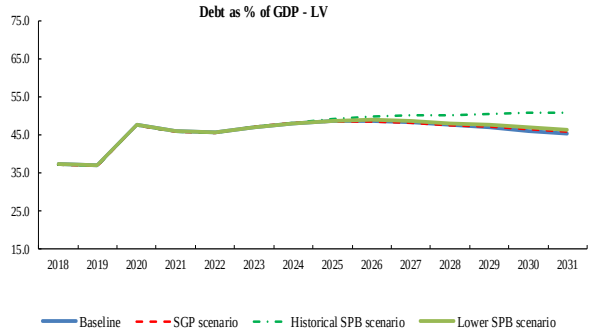
Macro-fiscal assumptions, Cyprus	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	112.6	108.2	102.8	95.5	89.1	82.6	107.9	94.2	97.6
Primary balance	-3.7	-0.2	-0.4	1.2	1.5	1.5	-1.4	0.9	0.3
Structural primary balance (before CoA)	-2.4	0.2	-0.6	1.6	2.0	2.0	-1.0	1.3	0.7
Real GDP growth	-6.2	3.7	3.0	1.5	1.9	1.7	0.2	1.5	1.2
Potential GDP growth	1.6	1.7	1.8	1.6	1.6	1.5	1.7	1.6	1.6
Inflation rate	0.8	1.3	1.2	1.6	1.8	2.0	1.1	1.6	1.5
Implicit interest rate (nominal)	2.4	1.9	1.9	1.7	1.7	1.8	2.1	1.7	1.8
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	112.6	108.2	102.8	94.6	88.3	82.3	107.9	93.7	97.2
Primary balance	-3.7	-0.2	-0.4	1.3	1.4	1.4	-1.4	1.0	0.4
Structural primary balance	-2.4	0.2	-0.6	1.6	1.5	1.4	-1.0	1.2	0.6
Real GDP growth	-6.2	3.7	3.0	1.8	1.8	1.5	0.2	1.5	1.2
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	112.6	108.2	102.8	94.7	88.4	83.3	107.9	93.9	97.4
Primary balance	-3.7	-0.2	-0.4	1.2	1.3	1.0	-1.4	0.9	0.3
Structural primary balance (before CoA)	-2.4	0.2	-0.6	1.5	1.5	1.5	-1.0	1.1	0.6
Real GDP growth	-6.2	3.7	3.0	1.9	1.9	1.6	0.2	1.5	1.2
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	112.6	108.4	103.3	98.1	92.8	87.4	108.1	96.9	99.7
Implicit interest rate (nominal)	2.4	2.2	2.1	2.3	2.4	2.5	2.2	2.3	2.3
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	112.6	108.0	102.3	93.0	85.6	78.1	107.6	91.6	95.6
Implicit interest rate (nominal)	2.4	1.7	1.6	1.2	1.1	1.0	1.9	1.2	1.4
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	112.6	107.7	101.8	92.2	85.0	77.9	107.3	91.0	95.1
Real GDP growth	-6.2	4.2	3.5	2.0	2.4	2.2	0.5	2.0	1.6
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	112.6	108.7	103.8	99.0	93.4	87.5	108.4	97.6	100.3
Real GDP growth	-6.2	3.2	2.5	1.0	1.4	1.2	-0.2	1.0	0.7
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	112.6	108.2	102.8	97.1	92.4	87.8	107.9	96.2	99.1
Primary balance	-3.7	-0.2	-0.4	0.5	0.6	0.5	-1.4	0.3	-0.1
Structural primary balance (before CoA)	-2.4	0.2	-0.6	0.7	1.0	1.0	-1.0	0.5	0.2
Real GDP growth	-6.2	3.7	3.0	1.5	1.8	1.6	0.2	1.5	1.2
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	112.6	108.2	102.8	95.5	89.1	82.6	107.9	94.2	97.6
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	112.6	107.4	101.3	89.8	81.7	73.7	107.1	88.5	93.2
Implicit interest rate (nominal)	2.4	1.7	1.6	1.2	1.1	1.0	1.9	1.2	1.4
Real GDP growth	-6.2	4.2	3.5	2.0	2.4	2.2	0.5	2.0	1.6
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	112.6	108.6	103.6	99.6	94.6	89.4	108.2	98.2	100.7
Implicit interest rate (nominal)	2.4	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1
Real GDP growth	-6.7	3.2	2.5	1.0	1.4	1.2	-0.3	1.0	0.6

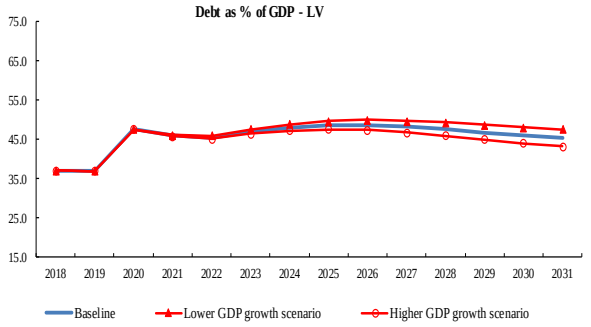
Latvia

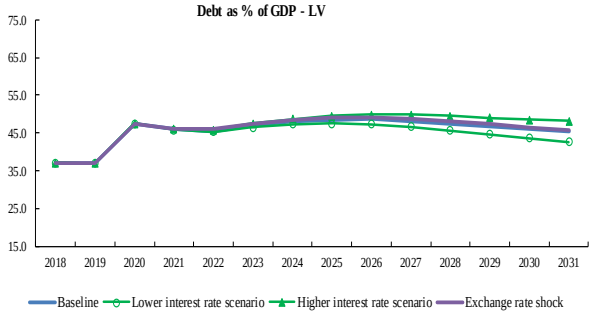
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

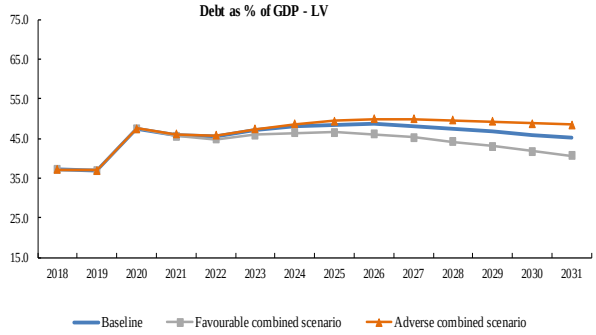
LV - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**37.1**	**36.9**	**47.5**	**45.9**	**45.5**	**47.0**	**48.0**	**48.5**	**48.6**	**48.2**	**47.5**	**46.8**	**46.0**	**45.3**
Changes in the ratio (-1+2+3)	*-1.9*	*-0.2*	*10.6*	*-1.6*	*-0.4*	*1.4*	*1.0*	*0.6*	*0.1*	*-0.4*	*-0.7*	*-0.7*	*-0.8*	*-0.7*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-0.1**	**0.1**	**-6.7**	**-2.8**	**-2.6**	**-2.2**	**-1.9**	**-1.5**	**-1.1**	**-0.6**	**-0.6**	**-0.6**	**-0.5**	**-0.6**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-1.6***	***-1.5***	***-5.0***	***-2.1***	***-2.4***	***-2.0***	***-1.6***	***-1.2***	***-0.7***	***-0.3***	***-0.4***	***-0.4***	***-0.5***	***-0.6***
(1.1.1) Structural primary balance (bef. CoA)	*-1.6*	*-1.5*	*-5.0*	*-2.1*	*-2.4*	*-2.0*	*-1.6*	*-1.2*	*-0.7*	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.3*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*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*
(1.2) Cyclical component	***1.5***	***1.4***	***-1.7***	***-0.7***	***-0.2***	***-0.3***	***-0.3***	***-0.3***	***-0.3***	***-0.3***	***-0.2***	***-0.1***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***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)	**-2.2**	**-0.9**	**2.5**	**-2.1**	**-1.5**	**-0.8**	**-0.8**	**-0.9**	**-1.0**	**-1.1**	**-1.3**	**-1.3**	**-1.3**	**-1.3**
(2.1) Interest expenditure	*0.7*	*0.7*	*0.7*	*0.7*	*0.7*	*0.6*	*0.6*	*0.5*	*0.5*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*
(2.2) Growth effect	*-1.5*	*-0.7*	*2.2*	*-2.2*	*-1.5*	*-0.8*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.8*	*-0.8*	*-0.8*	*-0.7*
(2.3) Inflation effect	*-1.5*	*-0.9*	*-0.4*	*-0.6*	*-0.6*	*-0.6*	*-0.7*	*-0.7*	*-0.8*	*-0.8*	*-0.8*	*-0.9*	*-0.9*	*-0.9*
(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	**0.2**	**0.8**	**1.4**	**-2.3**	**-1.5**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*0.2*	*0.8*	*1.4*	*-2.3*	*-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	*0.0*	*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	-2.3	-2.1	-5.7	-2.8	-3.1	-2.6	-2.1	-1.7	-1.2	-0.8	-0.8	-0.8	-0.9	-1.0

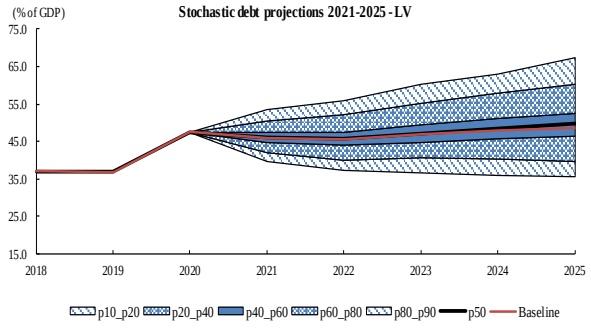












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
HIGH (S0 = 0.5)	LOW	LOW (S1 = -1.8)	Risk category	LOW	LOW	LOW	LOW	LOW	MEDIUM	LOW	LOW (S2 = -0.3)	LOW
			Debt level (2031)	45.3	50.9	47.6	48.2	46.2				
			Debt peak year	2026	2031	2026	2026	2026				
			Percentile rank	68.0%	77.0%							
			Probability debt higher						56.1%			
			Dif. between percentiles						31.7			

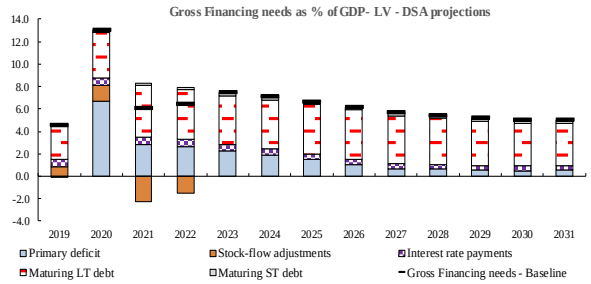
2.2. Sustainability indicators

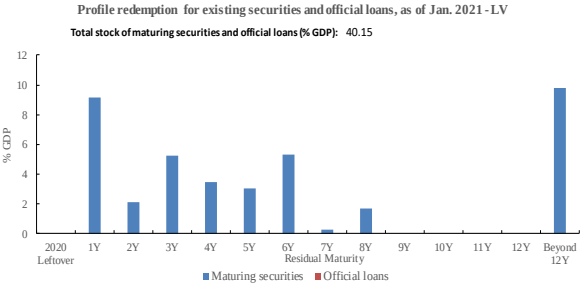
S0 indicator	2009	2020	Critical threshold
Overall index	**0.65**	**0.48**	**0.46**
Fiscal sub-index	0.45	0.49	0.36
Financial competitiveness sub-index	0.76	0.48	0.49

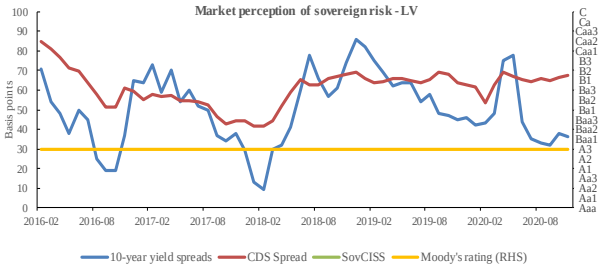
S1 indicator	2019 DSM	2020 DSM
Overall index	**-3.3**	**-1.8**
of which *Initial budgetary position*	*-1.1*	*-1.1*
Debt requirement	*-2.5*	*-1.0*
Ageing costs	*0.3*	*0.3*
Required structural primary balance related to S1	**-3.5**	**-2.1**

S2 indicator	2019 DSM	2020 DSM
Overall index	**0.3**	**-0.3**
of which Initial Budgetary position	0.5	0.5
Ageing costs	-0.3	-0.8
of which Pensions	*-1.4*	*-1.3*
Health care	*0.4*	*0.2*
Long-term care	*0.1*	*0.1*
Others	*0.7*	*0.2*
Required structural primary balance related to S2	**0.0**	**-0.6**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, LV	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	A3		A3	
S&P	A+	A-1	A+	A-1
Fitch	A-		A-	F1

Sovereign yield spreads (bp)* - as of November 2020	10-year	36.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - LV (2019)	Share of short-term government debt (p.p.): 2.3	Share of government debt in foreign currency (%): 0.0	**Share of government debt by non-residents 74.3**

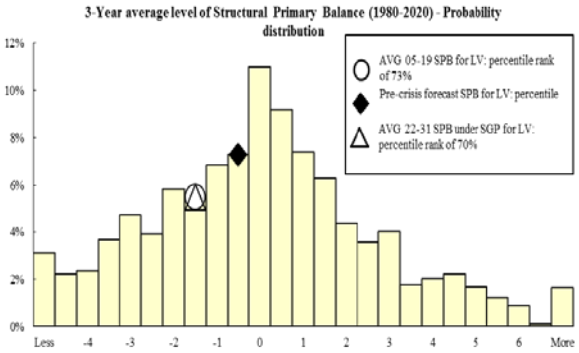
Net International Investment Position (IIP) - LV (2019)	Net IIP (% GDP): -41.7

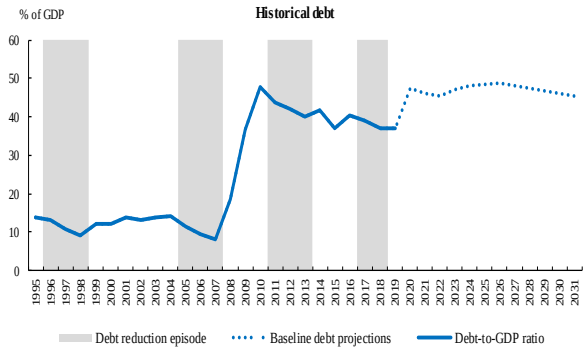
5. Risks related to government's contingent liabilities

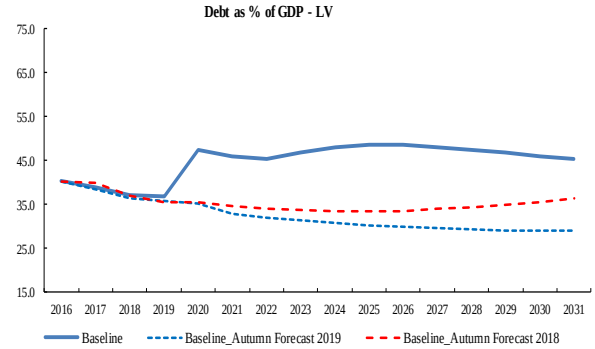
General government contingent liabilities		LV					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		2.4	1.6	1.5	1.4	1.4	6.7
of which One-off guarantees		*1.9*	*1.1*	*0.9*	*0.9*	*0.9*	*6.2*
Standardised guarantees		*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.3*	*0.0*	*0.0*	*0.0*	*0.0*	*0.3*
		2013	2015	2016	2018	2019	2019
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	1.1
	Securities issued under liquidity schemes	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	0.1
	Total	0.0	0.0	0.0	0.0	0.0	1.2

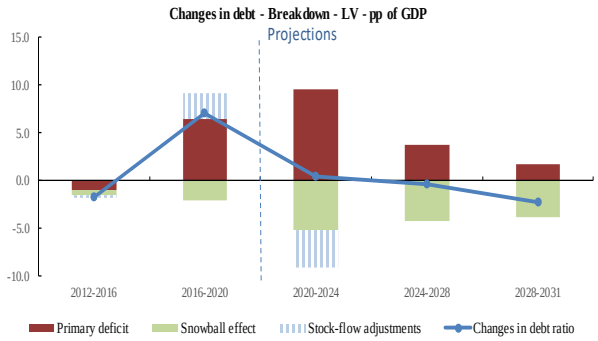
Government's contingent liability risks from banking sector - LV (2019)	Private sector credit flow (% GDP): 1.5	Change in nominal house price index: 9.0	Bank loans-to-deposits ratio (p.p.): 73.1	Share of non-performing loans (%): 1.8	Change in share of non-performing loans (p.p): -0.5	NPL coverage ratio 36.9

6. Realism of baseline assumptions









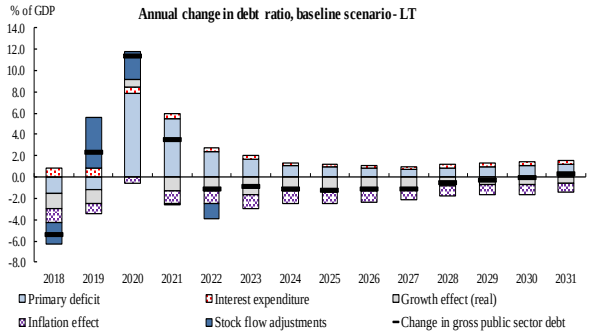
7. Underlying macro-fiscal assumptions

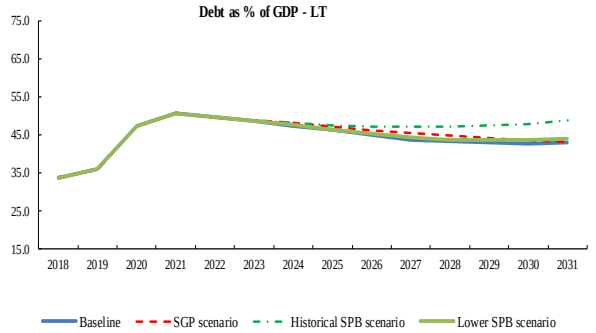
Macro-fiscal assumptions, Latvia	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.5	45.9	45.5	48.2	46.8	45.3	46.3	47.3	47.1
Primary balance	-6.7	-2.8	-2.6	-0.6	-0.6	-0.6	-4.0	-1.1	-1.8
Structural primary balance (before CoA)	-5.0	-2.1	-2.4	-0.3	-0.3	-0.3	-3.2	-0.8	-1.4
Real GDP growth	-5.6	4.9	3.5	1.4	1.8	1.7	0.9	1.6	1.5
Potential GDP growth	2.3	2.3	2.2	1.5	1.5	1.7	2.2	1.6	1.7
Inflation rate	1.0	1.3	1.4	1.7	1.9	2.0	1.2	1.7	1.6
Implicit interest rate (nominal)	1.8	1.5	1.6	0.9	0.9	0.8	1.7	1.0	1.2
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.5	45.9	45.5	48.1	47.0	45.8	46.3	47.4	47.1
Primary balance	-6.7	-2.8	-2.6	-0.8	-0.7	-0.7	-4.0	-1.1	-1.8
Structural primary balance	-5.0	-2.1	-2.4	-0.6	-0.6	-0.6	-3.2	-0.9	-1.5
Real GDP growth	-5.6	4.9	3.5	1.7	1.7	1.7	0.9	1.6	1.4
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.5	45.9	45.5	50.0	50.4	50.9	46.3	49.6	48.8
Primary balance	-6.7	-2.8	-2.6	-1.5	-1.5	-1.6	-4.0	-1.7	-2.3
Structural primary balance (before CoA)	-5.0	-2.1	-2.4	-1.4	-1.4	-1.4	-3.2	-1.5	-1.9
Real GDP growth	-5.6	4.9	3.5	1.7	1.7	1.7	0.9	1.6	1.5
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.5	46.0	45.8	49.8	49.0	48.2	46.5	49.0	48.3
Implicit interest rate (nominal)	1.8	1.8	2.0	1.6	1.6	1.6	1.9	1.7	1.7
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.5	45.8	45.2	46.7	44.7	42.7	46.2	45.8	45.9
Implicit interest rate (nominal)	1.8	1.3	1.2	0.3	0.1	0.0	1.4	0.3	0.6
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.5	45.7	45.1	46.8	45.0	43.2	46.1	45.9	46.0
Real GDP growth	-5.6	5.4	4.0	1.9	2.3	2.2	1.3	2.1	1.9
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.5	46.1	45.9	49.7	48.7	47.6	46.5	48.8	48.2
Real GDP growth	-5.6	4.4	3.0	0.9	1.3	1.2	0.6	1.1	1.0
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.5	45.9	45.5	48.6	47.4	46.2	46.3	47.7	47.4
Primary balance	-6.7	-2.8	-2.6	-0.8	-0.7	-0.8	-4.0	-1.2	-1.9
Structural primary balance (before CoA)	-5.0	-2.1	-2.4	-0.5	-0.5	-0.5	-3.2	-0.9	-1.5
Real GDP growth	-5.6	4.9	3.5	1.4	1.8	1.7	0.9	1.6	1.5
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.5	46.2	46.1	48.7	47.3	45.7	46.6	47.8	47.5
Exchange rate depreciation	0.0%	0.6%	0.6%	0.0%	0.0%	0.0%	0.4%	0.0%	0.1%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.5	45.6	44.8	45.3	43.0	40.7	46.0	44.4	44.8
Implicit interest rate (nominal)	1.8	1.3	1.2	0.2	0.1	0.0	1.4	0.3	0.6
Real GDP growth	-5.6	5.4	4.0	1.9	2.3	2.2	1.3	2.1	1.9
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.5	46.0	45.7	49.9	49.3	48.5	46.4	49.1	48.4
Implicit interest rate (nominal)	1.8	1.7	1.8	1.3	1.2	1.2	1.8	1.3	1.5
Real GDP growth	-6.1	4.4	3.0	0.9	1.3	1.2	0.4	1.1	0.9

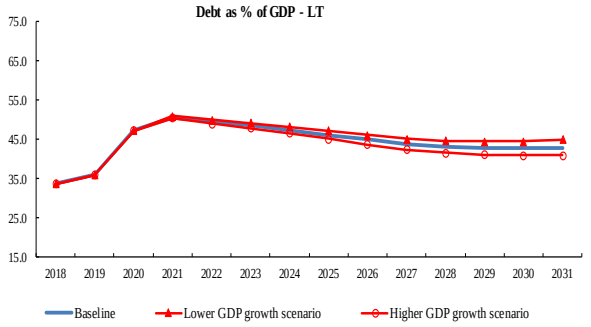
Lithuania

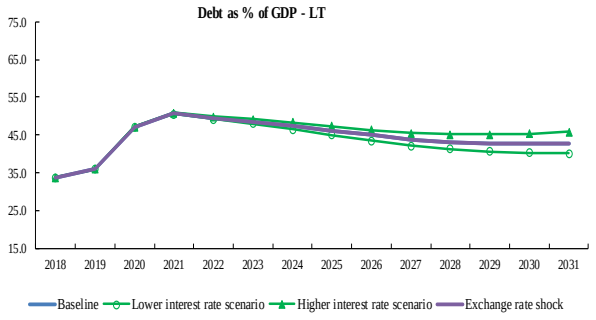
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

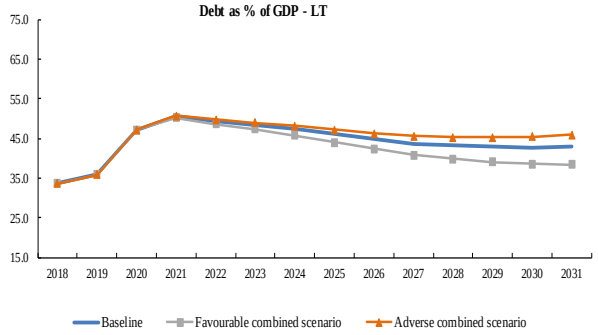
LT - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**33.7**	**35.9**	**47.2**	**50.7**	**49.5**	**48.5**	**47.4**	**46.1**	**44.9**	**43.7**	**43.2**	**42.8**	**42.7**	**42.9**
Changes in the ratio (-1+2+3)	*-5.4*	*2.2*	*11.3*	*3.5*	*-1.2*	*-0.9*	*-1.2*	*-1.3*	*-1.2*	*-1.2*	*-0.6*	*-0.3*	*-0.2*	*0.2*
of which														
(1) Primary balance (1.1+1.2+1.3)	**1.5**	**1.1**	**-7.8**	**-5.5**	**-2.4**	**-1.7**	**-1.0**	**-0.9**	**-0.8**	**-0.7**	**-0.9**	**-1.0**	**-1.1**	**-1.2**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-0.1***	***-0.4***	***-7.1***	***-4.5***	***-1.2***	***-0.7***	***-0.3***	***-0.4***	***-0.6***	***-0.7***	***-0.9***	***-1.0***	***-1.1***	***-1.2***
(1.1.1) Structural primary balance (bef. CoA)	*-0.1*	*-0.4*	*-7.1*	*-4.5*	*-1.2*	*-0.7*	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.3*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.1*	*0.3*	*0.4*	*0.6*	*0.7*	*0.9*	*1.0*
(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*
(1.2) Cyclical component	***1.6***	***1.6***	***-0.7***	***-1.0***	***-1.3***	***-1.0***	***-0.8***	***-0.5***	***-0.3***	***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)	**-1.9**	**-1.4**	**0.8**	**-1.9**	**-2.2**	**-2.6**	**-2.2**	**-2.2**	**-2.0**	**-1.9**	**-1.4**	**-1.3**	**-1.3**	**-1.0**
(2.1) Interest expenditure	*0.9*	*0.9*	*0.6*	*0.5*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.4*
(2.2) Growth effect	*-1.4*	*-1.4*	*0.8*	*-1.3*	*-1.2*	*-1.7*	*-1.3*	*-1.4*	*-1.3*	*-1.2*	*-0.8*	*-0.7*	*-0.7*	*-0.5*
(2.3) Inflation effect	*-1.3*	*-0.9*	*-0.5*	*-1.1*	*-1.3*	*-1.2*	*-1.2*	*-1.1*	*-1.1*	*-1.0*	*-0.9*	*-0.9*	*-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	**-2.1**	**4.8**	**2.6**	**-0.1**	**-1.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-2.1*	*4.8*	*2.6*	*-0.1*	*-1.4*	*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*	*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	-1.0	-1.3	-7.7	-5.0	-1.5	-1.0	-0.6	-0.7	-0.8	-1.0	-1.2	-1.3	-1.4	-1.6

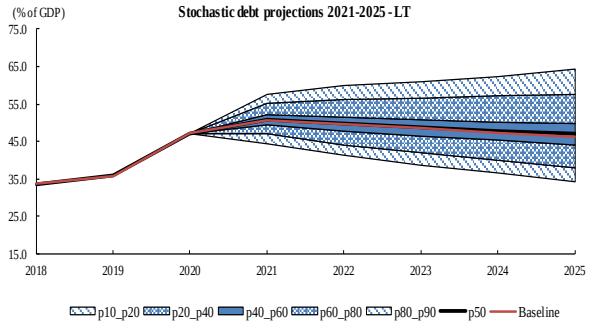












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
LOW (S0 = 0.4)	LOW	LOW (S1 = -1)	Risk category	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW (S2 = 0.3)	LOW
			Debt level (2031)	42.9	48.7	44.9	45.8	43.8				
			Debt peak year	2021	2021	2021	2021	2021				
			Percentile rank	61.0%	73.0%							
			Probability debt higher						49.6%			
			Dif. between percentiles						30.3			

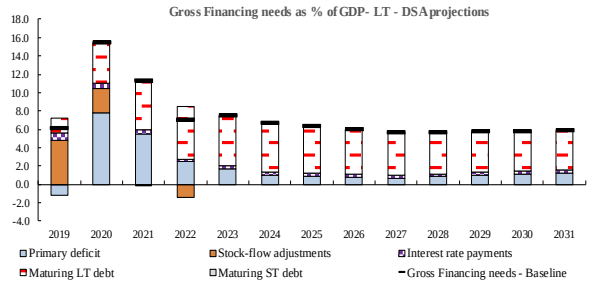
2.2. Sustainability indicators

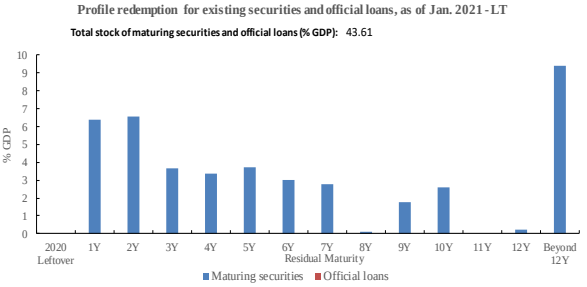
S0 indicator	2009	2020	Critical threshold
Overall index	**0.58**	**0.37**	**0.46**
Fiscal sub-index	0.58	0.40	0.36
Financial competitiveness sub-index	0.57	0.36	0.49

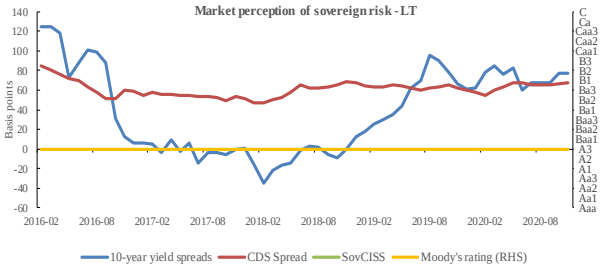
S1 indicator	2019 DSM	2020 DSM
Overall index	**-2.7**	**-1.0**
of which *Initial budgetary position*	*-1.2*	*-0.9*
Debt requirement	*-2.1*	*-1.0*
Ageing costs	*0.7*	*1.0*
Required structural primary balance related to S1	**-2.6**	**-1.2**

S2 indicator	2019 DSM	2020 DSM
Overall index	**0.5**	**0.3**
of which Initial Budgetary position	0.2	0.3
Ageing costs	0.3	-0.1
of which Pensions	*-1.3*	*-1.6*
Health care	*0.3*	*0.2*
Long-term care	*0.9*	*0.9*
Others	*0.4*	*0.5*
Required structural primary balance related to S2	**0.6**	**0.0**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, LT	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	A3		A3	WR
S&P	A+	A-1	A+	A-1
Fitch	A		A	F1+

Sovereign yield spreads (bp)* - as of November 2020	10-year	77.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - LT (2019)	Share of short-term government debt (p.p.): 0.0	Share of government debt in foreign currency (%): 0.0	Share of government debt by non-residents 75.6

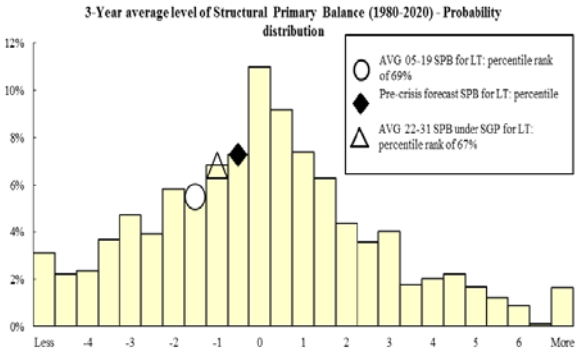
Net International Investment Position (IIP) - LT (2019)	Net IIP (% GDP): -24.1

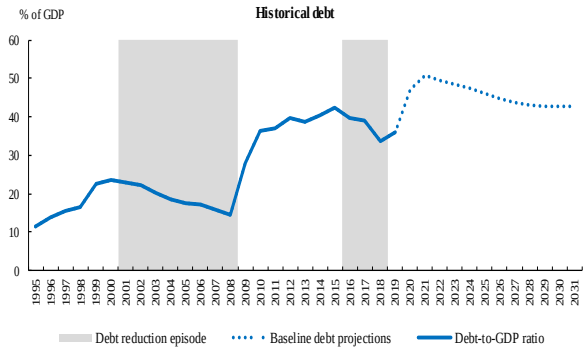
5. Risks related to government's contingent liabilities

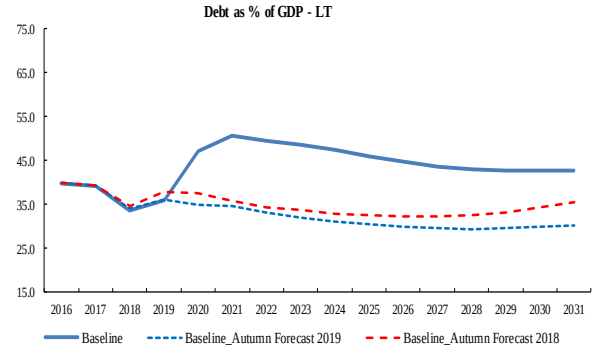
General government contingent liabilities		LT					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		0.9	0.9	1.0	1.0	0.9	6.7
of which One-off guarantees		*0.3*	*0.2*	*0.2*	*0.3*	*0.2*	*6.2*
Standardised guarantees		*0.7*	*0.6*	*0.8*	*0.8*	*0.7*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.3*
		2013	2015	2016	2018	2019	2019
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	1.1
	Securities issued under liquidity schemes	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	0.1
	Total	0.0	0.0	0.0	0.0	0.0	1.2

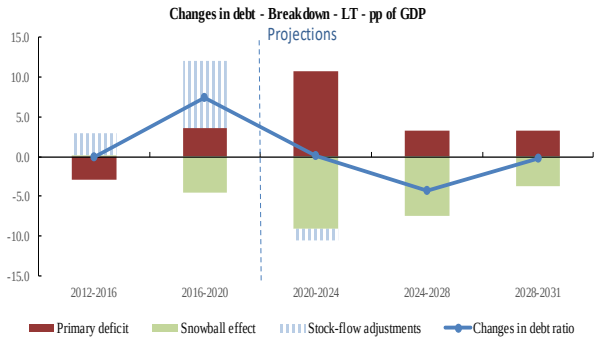
Government's contingent liability risks from banking sector - LT (2019)	Private sector credit flow (% GDP): 3.0	Change in nominal house price index: 6.8	Bank loans-to-deposits ratio (p.p.): 75.3	Share of non-performing loans (%): 1.4	Change in share of non-performing loans (p.p): -0.5	NPL coverage ratio 31.5

6. Realism of baseline assumptions









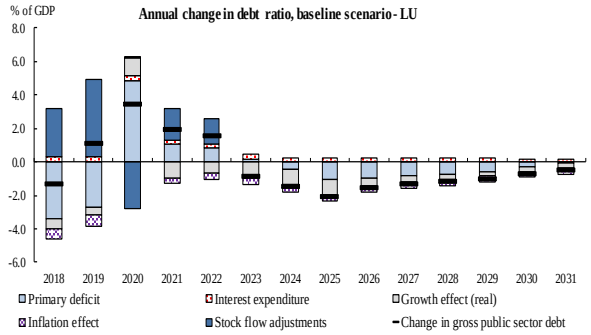
7. Underlying macro-fiscal assumptions

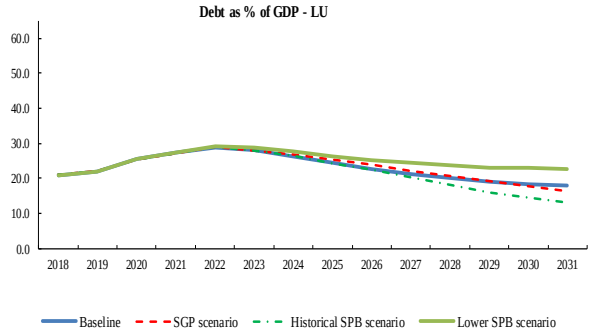
Macro-fiscal assumptions, Lithuania	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.2	50.7	49.5	43.7	42.8	42.9	49.1	44.7	45.8
Primary balance	-7.8	-5.5	-2.4	-0.7	-1.0	-1.2	-5.3	-1.0	-2.1
Structural primary balance (before CoA)	-7.1	-4.5	-1.2	-0.3	-0.3	-0.3	-4.3	-0.3	-1.3
Real GDP growth	-2.2	3.0	2.6	2.7	1.8	1.3	1.1	2.4	2.1
Potential GDP growth	3.6	3.7	3.3	2.0	1.8	1.3	3.5	2.1	2.4
Inflation rate	1.5	2.4	2.6	2.3	2.1	2.0	2.2	2.3	2.2
Implicit interest rate (nominal)	1.6	1.1	0.7	0.7	0.8	0.9	1.1	0.7	0.8
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.2	50.7	49.5	45.4	44.1	43.1	49.1	45.7	46.5
Primary balance	-7.8	-5.5	-2.4	-0.9	-0.8	-0.7	-5.3	-1.1	-2.1
Structural primary balance	-7.1	-4.5	-1.2	-0.7	-0.7	-0.6	-4.3	-0.8	-1.6
Real GDP growth	-2.2	3.0	2.6	2.3	1.9	1.4	1.1	2.4	2.1
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.2	50.7	49.5	47.1	47.3	48.7	49.1	47.7	48.1
Primary balance	-7.8	-5.5	-2.4	-1.6	-1.8	-2.0	-5.3	-1.8	-2.6
Structural primary balance (before CoA)	-7.1	-4.5	-1.2	-1.0	-1.0	-1.0	-4.3	-1.1	-1.9
Real GDP growth	-2.2	3.0	2.6	2.3	2.0	1.3	1.1	2.4	2.1
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.2	50.8	49.9	45.4	45.1	45.8	49.3	46.4	47.1
Implicit interest rate (nominal)	1.6	1.4	1.1	1.4	1.6	1.7	1.4	1.5	1.4
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.2	50.5	49.1	42.1	40.7	40.2	48.9	43.0	44.5
Implicit interest rate (nominal)	1.6	0.8	0.2	-0.1	-0.1	0.0	0.9	0.0	0.2
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.2	50.4	49.0	42.4	41.2	40.9	48.9	43.4	44.7
Real GDP growth	-2.2	3.5	3.1	3.2	2.3	1.8	1.5	2.9	2.6
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.2	50.9	49.9	45.1	44.6	44.9	49.3	46.1	46.9
Real GDP growth	-2.2	2.5	2.1	2.2	1.3	0.8	0.8	1.9	1.7
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.2	50.7	49.5	44.2	43.5	43.8	49.1	45.2	46.2
Primary balance	-7.8	-5.5	-2.4	-0.8	-1.1	-1.4	-5.3	-1.2	-2.2
Structural primary balance (before CoA)	-7.1	-4.5	-1.2	-0.4	-0.4	-0.4	-4.3	-0.4	-1.4
Real GDP growth	-2.2	3.0	2.6	2.7	1.8	1.3	1.1	2.4	2.1
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.2	50.7	49.5	43.7	42.8	42.9	49.1	44.7	45.8
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.2	50.3	48.7	40.8	39.1	38.4	48.7	41.8	43.5
Implicit interest rate (nominal)	1.6	0.8	0.2	-0.1	-0.1	0.0	0.9	0.0	0.2
Real GDP growth	-2.2	3.5	3.1	3.2	2.3	1.8	1.5	2.9	2.6
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	47.2	50.8	49.8	45.5	45.3	46.0	49.2	46.5	47.1
Implicit interest rate (nominal)	1.6	1.3	0.9	1.1	1.2	1.3	1.3	1.1	1.1
Real GDP growth	-2.7	2.5	2.1	2.1	1.3	0.8	0.6	1.9	1.6

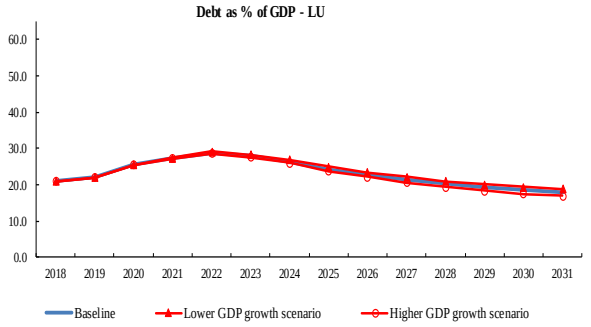
Luxembourg

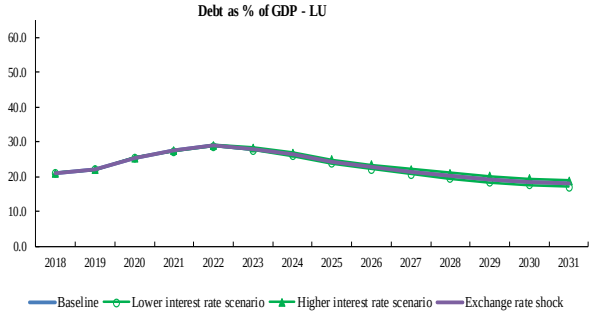
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

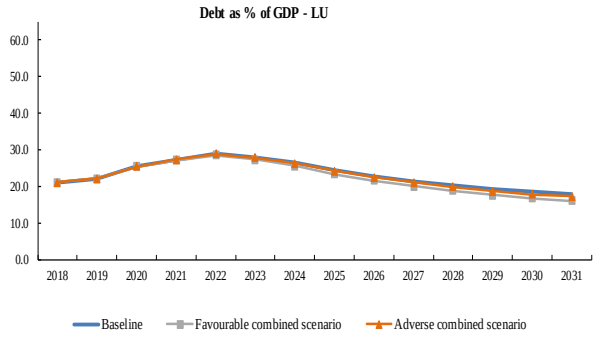
LU - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**21.0**	**22.0**	**25.4**	**27.3**	**28.9**	**28.0**	**26.4**	**24.3**	**22.8**	**21.4**	**20.2**	**19.2**	**18.4**	**17.9**
Changes in the ratio (-1+2+3)	*-1.4*	*1.0*	*3.4*	*1.9*	*1.5*	*-0.9*	*-1.5*	*-2.1*	*-1.6*	*-1.4*	*-1.2*	*-1.0*	*-0.7*	*-0.5*
of which														
(1) Primary balance (1.1+1.2+1.3)	**3.4**	**2.7**	**-4.8**	**-1.0**	**-0.8**	**-0.2**	**0.4**	**1.1**	**1.0**	**0.9**	**0.7**	**0.6**	**0.3**	**0.1**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***3.2***	***2.7***	***-1.9***	***1.1***	***1.2***	***1.2***	***1.1***	***1.1***	***1.0***	***0.9***	***0.7***	***0.6***	***0.3***	***0.1***
(1.1.1) Structural primary balance (bef. CoA)	*3.2*	*2.7*	*-1.9*	*1.1*	*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						*0.1*	*0.2*	*0.4*	*0.5*	*0.7*	*1.0*	*1.2*	*1.4*	*1.6*
(1.1.3) Others (taxes and property incomes)						*0.1*	*0.2*	*0.2*	*0.3*	*0.4*	*0.5*	*0.5*	*0.5*	*0.5*
(1.2) Cyclical component	***0.2***	***0.0***	***-2.9***	***-2.2***	***-2.0***	***-1.3***	***-0.7***	***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)	**-0.9**	**-0.8**	**1.4**	**-1.0**	**-0.8**	**-1.1**	**-1.1**	**-1.0**	**-0.6**	**-0.5**	**-0.5**	**-0.4**	**-0.4**	**-0.5**
(2.1) Interest expenditure	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*
(2.2) Growth effect	*-0.7*	*-0.5*	*1.0*	*-0.9*	*-0.7*	*-1.0*	*-0.9*	*-0.9*	*-0.4*	*-0.4*	*-0.3*	*-0.3*	*-0.3*	*-0.3*
(2.3) Inflation effect	*-0.5*	*-0.7*	*0.1*	*-0.3*	*-0.4*	*-0.4*	*-0.4*	*-0.4*	*-0.4*	*-0.4*	*-0.4*	*-0.4*	*-0.4*	*-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	**2.9**	**4.6**	**-2.8**	**1.9**	**1.5**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*2.9*	*4.6*	*-2.8*	*1.9*	*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	*0.0*	*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	2.9	2.4	-2.2	0.8	0.9	0.9	0.9	0.8	0.8	0.6	0.5	0.4	0.1	-0.1

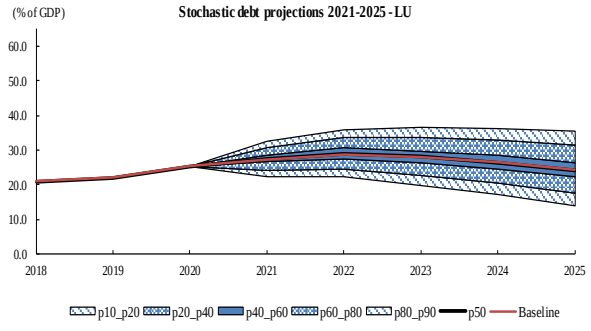












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
LOW (S0 = 0.3)	LOW	LOW (S1 = -3.9)	Risk category	LOW	LOW	LOW	LOW	LOW	LOW	LOW	HIGH (S2 = 10.7)	HIGH
			Debt level (2031)	17.9	13.0	18.9	18.9	22.8				
			Debt peak year	2022	2022	2022	2022	2022				
			Percentile rank	33.0%	24.0%							
			Probability debt higher						43.9%			
			Dif. between percentiles						21.4			

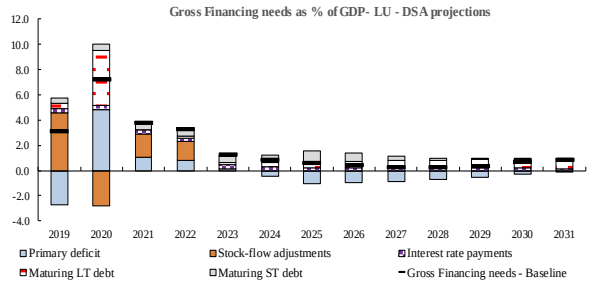
2.2. Sustainability indicators

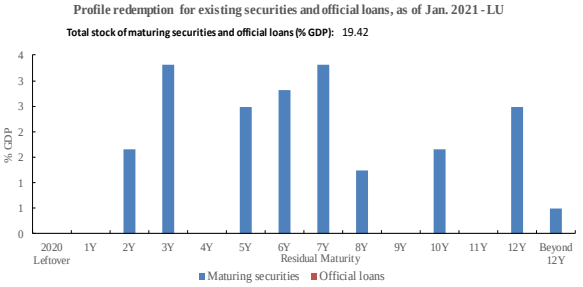
S0 indicator	2009	2020	Critical threshold
Overall index	**0.23**	**0.30**	**0.46**
Fiscal sub-index	0.26	0.23	0.36
Financial competitiveness sub-index	0.22	0.33	0.49

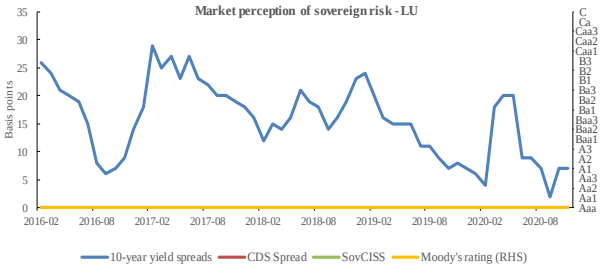
S1 indicator	2019 DSM	2020 DSM
Overall index	**-5.7**	**-3.9**
of which *Initial budgetary position*	*-2.8*	*-2.8*
Debt requirement	*-3.9*	*-2.6*
Ageing costs	*1.1*	*1.4*
Required structural primary balance related to S1	**-4.5**	**-2.7**

S2 indicator	2019 DSM	2020 DSM
Overall index	**8.6**	**10.7**
of which Initial Budgetary position	-0.7	-0.7
Ageing costs	9.4	11.4
of which Pensions	*6.1*	*7.4*
Health care	*0.9*	*1.0*
Long-term care	*2.1*	*2.6*
Others	*0.2*	*0.3*
Required structural primary balance related to S2	**9.8**	**11.9**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, LU	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aaa		Aaa	
S&P	AAA	A-1+	AAA	A-1+
Fitch	AAA		AAA	F1+

Sovereign yield spreads (bp)* - as of November 2020	10-year	7.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - LU (2019)	Share of short-term government debt (p.p.): 3.2	Share of government debt in foreign currency (%): 0.0	Share of government debt by non-residents (%): 45.3

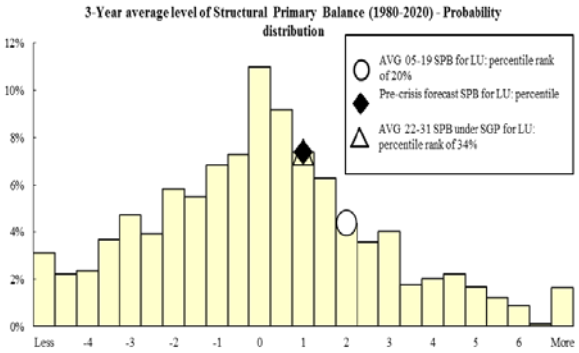
Net International Investment Position (IIP) - LU (2019)	Net IIP (% GDP): 56.2

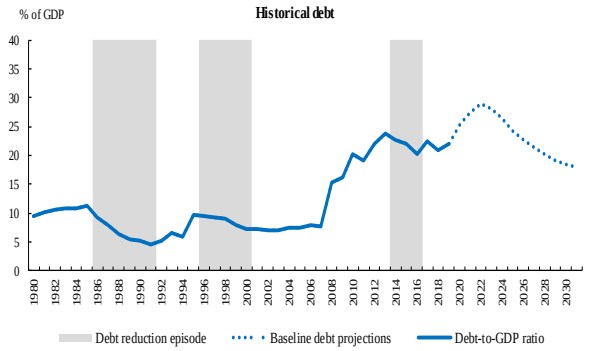
5. Risks related to government's contingent liabilities

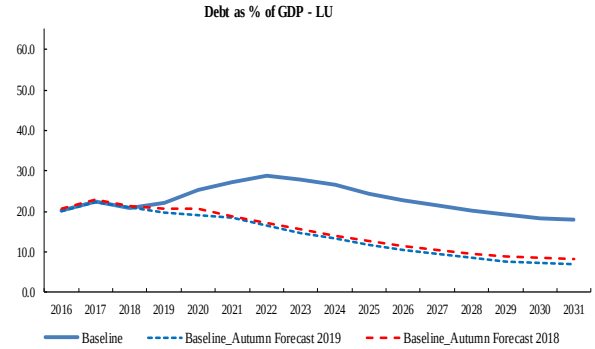
General government contingent liabilities		LU					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		9.0	11.3	12.5	11.9	11.1	6.7
of which One-off guarantees		*8.2*	*10.5*	*11.6*	*11.0*	*10.3*	*6.2*
Standardised guarantees		*0.8*	*0.8*	*0.8*	*0.9*	*0.9*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.3*
		2013	2015	2016	2018	2019	2019
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	4.9	3.5	3.9	3.3	2.9	1.1
	Securities issued under liquidity schemes	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	0.1
	Total	4.9	3.5	3.9	3.3	2.9	1.2

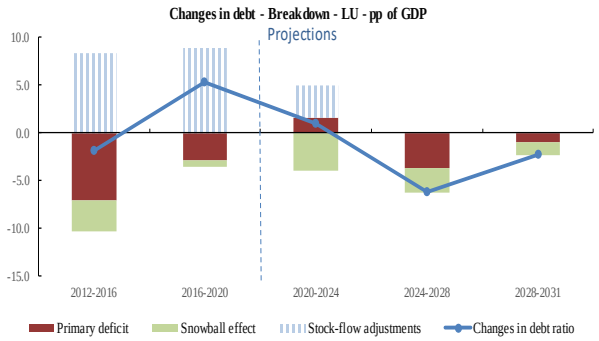
Government's contingent liability risks from banking sector - LU (2019)	Private sector credit flow (% GDP): 3.8	Change in nominal house price index: 10.1	Bank loans-to-deposits ratio (p.p.): 142.8	Share of non-performing loans (%): 1.1	Change in share of non-performing loans (p.p): 0.0	NPL coverage ratio 38.6

6. Realism of baseline assumptions









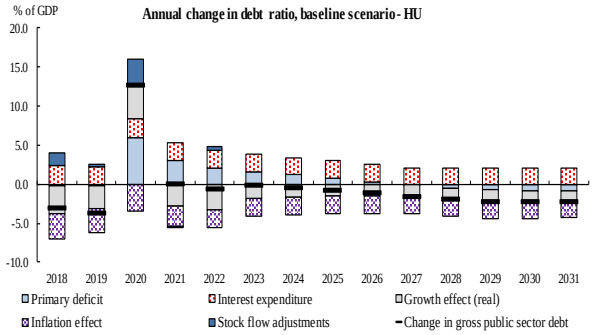
7. Underlying macro-fiscal assumptions

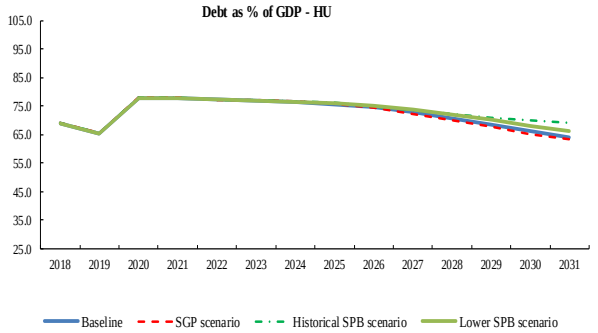
Macro-fiscal assumptions, Luxembourg	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.4	27.3	28.9	21.4	19.2	17.9	27.2	22.1	23.3
Primary balance	-4.8	-1.0	-0.8	0.9	0.6	0.1	-2.2	0.5	-0.2
Structural primary balance (before CoA)	-1.9	1.1	1.2	1.2	1.2	1.2	0.1	1.2	0.9
Real GDP growth	-4.5	3.9	2.7	1.6	1.4	1.7	0.7	2.2	1.8
Potential GDP growth	1.9	2.2	2.3	1.6	1.4	1.7	2.1	1.7	1.8
Inflation rate	-0.2	1.4	1.3	1.7	1.8	2.0	0.8	1.7	1.5
Implicit interest rate (nominal)	1.4	1.1	1.1	1.0	1.0	1.0	1.2	1.0	1.1
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.4	27.3	28.9	22.3	19.3	16.3	27.2	22.2	23.5
Primary balance	-4.8	-1.0	-0.8	0.9	1.0	1.0	-2.2	0.7	0.0
Structural primary balance	-1.9	1.1	1.2	1.1	1.1	1.1	0.1	1.1	0.9
Real GDP growth	-4.5	3.9	2.7	1.9	1.6	1.8	0.7	2.2	1.8
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.4	27.3	28.9	20.3	16.2	13.0	27.2	20.4	22.1
Primary balance	-4.8	-1.0	-0.8	1.5	1.6	1.1	-2.2	1.1	0.3
Structural primary balance (before CoA)	-1.9	1.1	1.2	2.2	2.2	2.2	0.1	2.1	1.6
Real GDP growth	-4.5	3.9	2.7	2.1	1.9	1.7	0.7	2.2	1.8
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.4	27.4	29.1	22.1	20.1	18.9	27.3	22.8	23.9
Implicit interest rate (nominal)	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.4	27.2	28.7	20.7	18.4	17.0	27.1	21.4	22.8
Implicit interest rate (nominal)	1.4	0.8	0.7	0.6	0.6	0.6	1.0	0.6	0.7
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.4	27.2	28.6	20.7	18.3	17.0	27.1	21.4	22.8
Real GDP growth	-4.5	4.4	3.2	2.1	1.9	2.2	1.0	2.7	2.3
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.4	27.4	29.1	22.1	20.1	18.9	27.3	22.8	23.9
Real GDP growth	-4.5	3.4	2.2	1.1	0.9	1.2	0.4	1.7	1.4
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.4	27.3	29.2	24.4	23.2	22.8	27.3	25.0	25.6
Primary balance	-4.8	-1.0	-1.2	0.3	0.0	-0.6	-2.4	0.0	-0.6
Structural primary balance (before CoA)	-1.9	1.1	0.6	0.6	0.6	0.6	-0.1	0.6	0.4
Real GDP growth	-4.5	3.9	3.1	1.6	1.4	1.7	0.8	2.2	1.8
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.4	27.3	28.9	21.4	19.2	17.9	27.2	22.1	23.3
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.4	27.1	28.5	20.0	17.6	16.1	27.0	20.8	22.3
Implicit interest rate (nominal)	1.4	0.8	0.7	0.6	0.6	0.6	1.0	0.6	0.7
Real GDP growth	-4.5	4.4	3.2	2.1	1.9	2.2	1.0	2.7	2.3
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	25.4	27.3	28.8	21.0	18.7	17.2	27.2	21.7	23.1
Implicit interest rate (nominal)	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Real GDP growth	-5.0	3.4	2.2	1.1	0.9	1.2	0.2	1.7	1.3

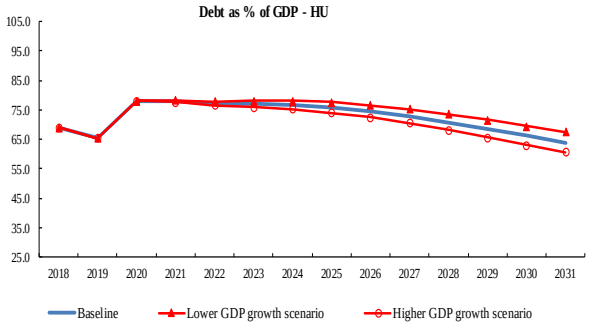
Hungary

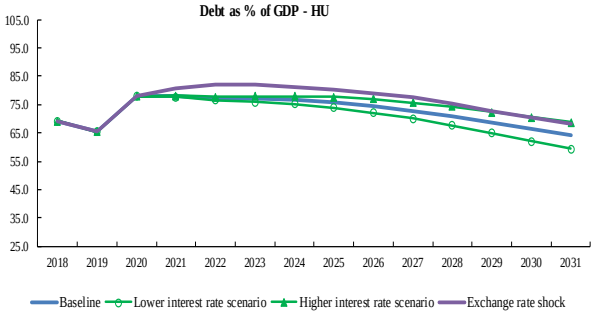
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

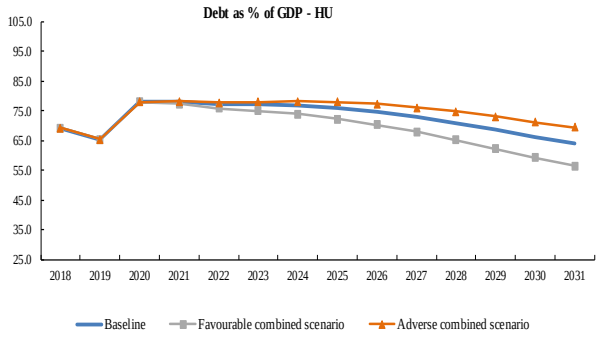
HU - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**69.1**	**65.4**	**78.0**	**77.9**	**77.2**	**77.0**	**76.6**	**75.8**	**74.5**	**72.9**	**70.8**	**68.5**	**66.2**	**64.0**
Changes in the ratio (-1+2+3)	*-3.0*	*-3.7*	*12.6*	*-0.1*	*-0.7*	*-0.2*	*-0.5*	*-0.8*	*-1.2*	*-1.7*	*-2.0*	*-2.3*	*-2.3*	*-2.3*
of which														
(1) Primary balance (1.1+1.2+1.3)	**0.2**	**0.2**	**-5.9**	**-3.0**	**-2.0**	**-1.6**	**-1.2**	**-0.8**	**-0.4**	**0.1**	**0.5**	**0.6**	**0.8**	**0.9**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-1.8***	***-2.1***	***-4.2***	***-1.8***	***-1.7***	***-1.2***	***-0.8***	***-0.4***	***0.0***	***0.5***	***0.9***	***0.9***	***0.9***	***0.9***
(1.1.1) Structural primary balance (bef. CoA)	*-1.8*	*-2.1*	*-4.2*	*-1.8*	*-1.7*	*-1.2*	*-0.8*	*-0.4*	*0.0*	*0.5*	*0.9*	*0.9*	*0.9*	*0.9*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(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*
(1.2) Cyclical component	***2.0***	***2.4***	***-1.7***	***-1.1***	***-0.3***	***-0.4***	***-0.4***	***-0.4***	***-0.4***	***-0.4***	***-0.4***	***-0.3***	***-0.1***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***-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)	**-4.5**	**-3.8**	**3.3**	**-3.0**	**-3.2**	**-1.8**	**-1.6**	**-1.6**	**-1.6**	**-1.6**	**-1.5**	**-1.7**	**-1.5**	**-1.4**
(2.1) Interest expenditure	*2.4*	*2.2*	*2.5*	*2.4*	*2.3*	*2.3*	*2.2*	*2.2*	*2.2*	*2.1*	*2.1*	*2.1*	*2.0*	*2.0*
(2.2) Growth effect	*-3.5*	*-2.9*	*4.2*	*-2.9*	*-3.3*	*-1.8*	*-1.6*	*-1.5*	*-1.6*	*-1.6*	*-1.5*	*-1.7*	*-1.6*	*-1.5*
(2.3) Inflation effect	*-3.3*	*-3.2*	*-3.4*	*-2.6*	*-2.3*	*-2.2*	*-2.2*	*-2.2*	*-2.2*	*-2.2*	*-2.1*	*-2.1*	*-2.0*	*-1.9*
(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	**1.7**	**0.3**	**3.4**	**0.0**	**0.5**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*1.7*	*-0.4*	*2.6*	*-0.1*	*0.5*	*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	*0.0*	*0.6*	*0.8*	*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	-4.1	-4.3	-6.7	-4.2	-4.0	-3.5	-3.0	-2.6	-2.1	-1.7	-1.2	-1.2	-1.1	-1.1

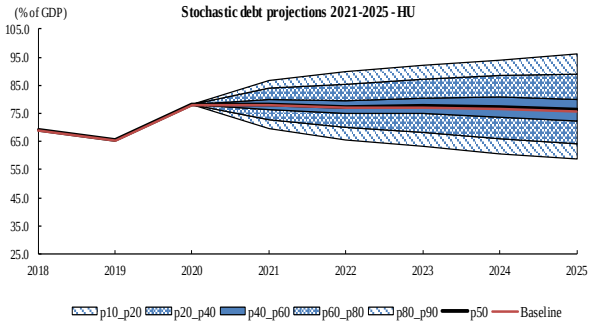












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
LOW (S0 = 0.5)	MEDIUM	LOW (S1 = -0.3)	Risk category	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM (S2 = 3.3)	MEDIUM
			Debt level (2031)	64.0	69.0	67.5	68.9	66.4				
			Debt peak year	2020	2020	2021	2021	2020				
			Percentile rank	55.0%	66.0%							
			Probability debt higher						45.5%			
			Dif. between percentiles						37.4			

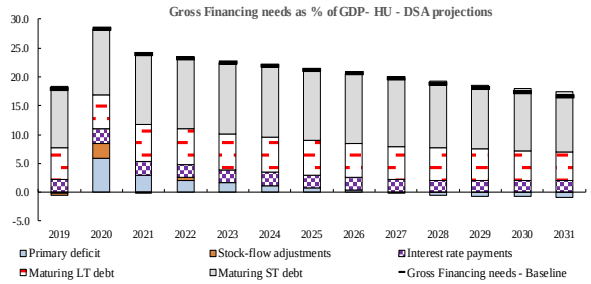
2.2. Sustainability indicators

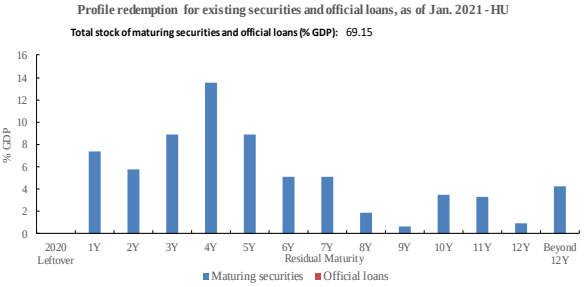
S0 indicator	2009	2020	Critical threshold
Overall index	**0.74**	**0.46**	**0.46**
Fiscal sub-index	0.56	0.84	0.36
Financial competitiveness sub-index	0.84	0.25	0.49

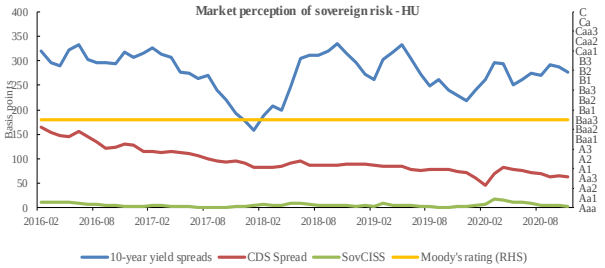
S1 indicator	2019 DSM	2020 DSM
Overall index	**-2.7**	**-0.3**
of which *Initial budgetary position*	*-2.9*	*-1.8*
Debt requirement	*0.4*	*0.6*
Ageing costs	*-0.2*	*0.9*
Required structural primary balance related to S1	**-1.8**	**0.6**

S2 indicator	2019 DSM	2020 DSM
Overall index	**2.7**	**3.3**
of which Initial Budgetary position	-0.6	-1.1
Ageing costs	3.3	4.3
of which Pensions	*1.9*	*2.9*
Health care	*0.6*	*0.5*
Long-term care	*0.4*	*0.4*
Others	*0.4*	*0.6*
Required structural primary balance related to S2	**3.6**	**4.2**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, HU	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Baa3		Baa3	
S&P	BBB	A-2	BBB	A-2
Fitch	BBB		BBB	F2

Sovereign yield spreads (bp)* - as of November 2020	10-year	276.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - HU (2019)	Share of short-term government debt (p.p.): 11.4	Share of government debt in foreign currency (%): 20.5	Share of government debt by non-residents (%): 33.9

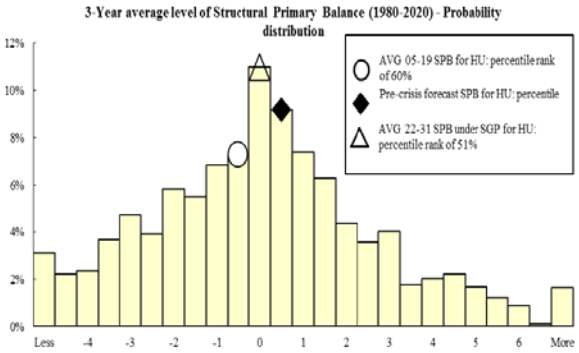
Net International Investment Position (IIP) - HU (2019)	Net IIP (% GDP): -43.7

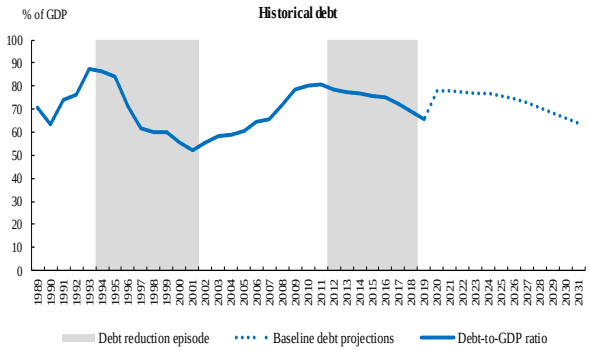
5. Risks related to government's contingent liabilities

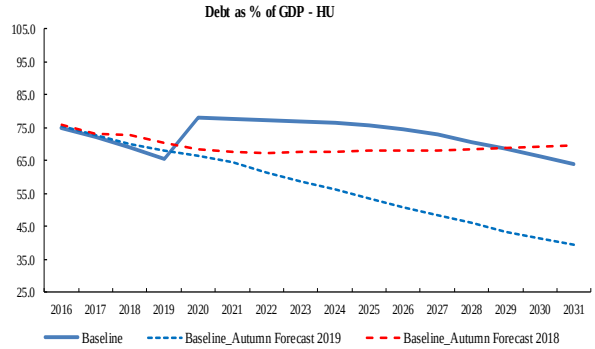
General government contingent liabilities		HU					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		6.6	6.1	5.8	5.0	5.2	6.7
of which One-off guarantees		*6.2*	*5.9*	*5.6*	*4.9*	*5.1*	*6.2*
Standardised guarantees		*0.3*	*0.2*	*0.2*	*0.1*	*0.1*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*2.2*	*1.8*	*1.7*	*1.5*	*1.3*	*0.3*
		2013	2015	2016	2018	2019	2019
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	1.1
	Securities issued under liquidity schemes	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	0.1
	Total	0.0	0.0	0.0	0.0	0.0	1.2

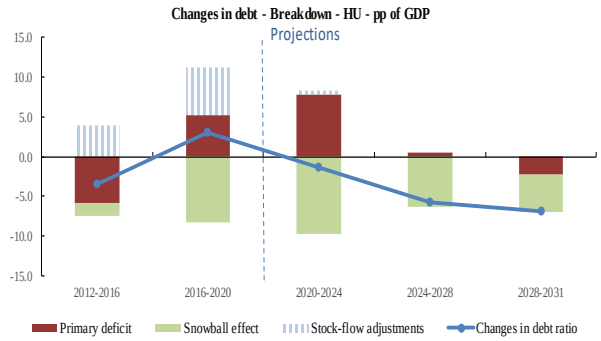
Government's contingent liability risks from banking sector - HU (2019)	Private sector credit flow (% GDP): 3.2	Change in nominal house price index: 16.9	Bank loans-to-deposits ratio (p.p.): 79.6	Share of non-performing loans (%): 4.4	Change in share of non-performing loans (p.p): -1.2	NPL coverage ratio 66.4

6. Realism of baseline assumptions









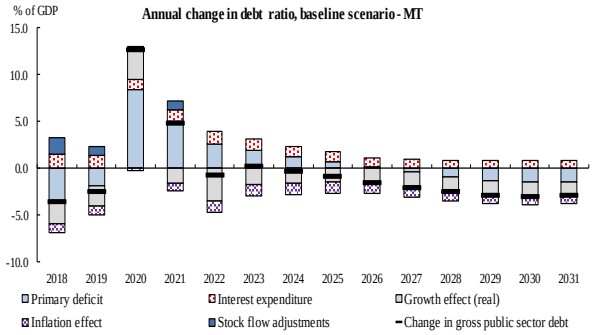
7. Underlying macro-fiscal assumptions

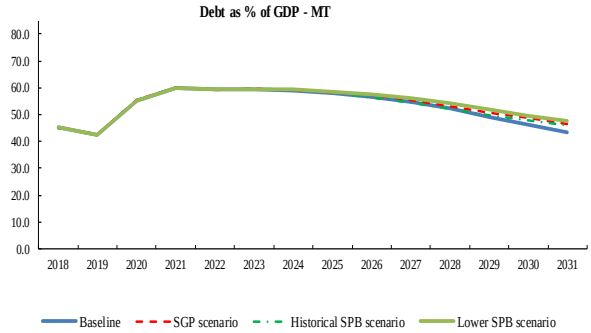
Macro-fiscal assumptions, Hungary	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	78.0	77.9	77.2	72.9	68.5	64.0	77.7	71.8	73.3
Primary balance	-5.9	-3.0	-2.0	0.1	0.6	0.9	-3.6	-0.1	-1.0
Structural primary balance (before CoA)	-4.2	-1.8	-1.7	0.5	0.9	0.9	-2.6	0.2	-0.5
Real GDP growth	-6.4	4.0	4.5	2.2	2.5	2.3	0.7	2.3	1.9
Potential GDP growth	2.5	2.5	2.7	2.2	2.2	2.0	2.6	2.2	2.3
Inflation rate	5.5	3.4	3.0	3.0	3.0	3.0	4.0	3.0	3.2
Implicit interest rate (nominal)	3.7	3.3	3.2	3.0	3.1	3.2	3.4	3.1	3.2
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	78.0	77.9	77.2	72.4	67.6	63.2	77.7	71.4	72.9
Primary balance	-5.9	-3.0	-2.0	0.4	0.8	0.9	-3.6	0.0	-0.9
Structural primary balance	-4.2	-1.8	-1.7	0.9	1.1	1.0	-2.6	0.3	-0.4
Real GDP growth	-6.4	4.0	4.5	2.2	2.5	2.2	0.7	2.3	1.9
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	78.0	77.9	77.2	73.8	71.0	69.0	77.7	73.4	74.5
Primary balance	-5.9	-3.0	-2.0	-0.5	-0.3	-0.3	-3.6	-0.7	-1.4
Structural primary balance (before CoA)	-4.2	-1.8	-1.7	-0.3	-0.3	-0.3	-2.6	-0.5	-1.0
Real GDP growth	-6.4	4.0	4.5	2.5	2.4	2.1	0.7	2.3	1.9
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	78.0	78.2	77.8	75.8	72.5	68.9	78.0	74.7	75.5
Implicit interest rate (nominal)	3.7	3.7	3.7	3.8	3.9	4.1	3.7	3.8	3.8
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	78.0	77.6	76.6	70.1	64.9	59.5	77.4	69.1	71.1
Implicit interest rate (nominal)	3.7	2.9	2.7	2.3	2.3	2.4	3.1	2.4	2.5
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	78.0	77.6	76.5	70.5	65.7	60.6	77.3	69.5	71.5
Real GDP growth	-6.4	4.5	5.0	2.7	3.0	2.8	1.0	2.8	2.4
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	78.0	78.3	77.9	75.3	71.6	67.5	78.0	74.2	75.2
Real GDP growth	-6.4	3.5	4.0	1.7	2.0	1.8	0.4	1.8	1.4
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	78.0	77.9	77.2	73.6	70.1	66.4	77.7	72.8	74.0
Primary balance	-5.9	-3.0	-2.0	-0.2	0.2	0.4	-3.6	-0.4	-1.2
Structural primary balance (before CoA)	-4.2	-1.8	-1.7	0.1	0.4	0.4	-2.6	-0.1	-0.7
Real GDP growth	-6.4	4.0	4.5	2.2	2.4	2.3	0.7	2.3	1.9
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	78.0	80.6	82.2	77.4	72.9	68.1	80.3	76.3	77.3
Exchange rate depreciation	0.0%	8.0%	8.0%	0.0%	0.0%	0.0%	5.3%	0.0%	1.3%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	78.0	77.3	75.9	67.9	62.1	56.3	77.1	66.9	69.4
Implicit interest rate (nominal)	3.7	2.9	2.7	2.3	2.3	2.4	3.1	2.4	2.5
Real GDP growth	-6.4	4.5	5.0	2.7	3.0	2.8	1.0	2.8	2.4
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	78.0	78.2	77.8	76.1	72.9	69.5	78.0	75.0	75.8
Implicit interest rate (nominal)	3.7	3.5	3.4	3.4	3.5	3.7	3.6	3.4	3.5
Real GDP growth	-6.9	3.5	4.0	1.7	2.0	1.8	0.2	1.7	1.4

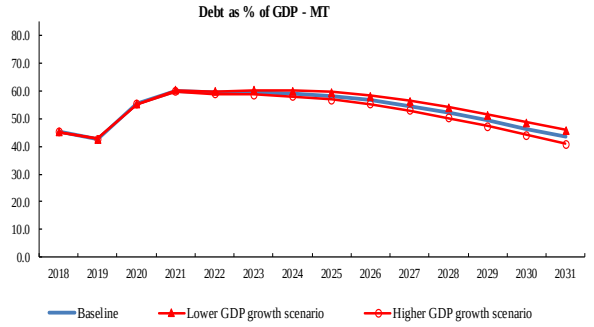
Malta

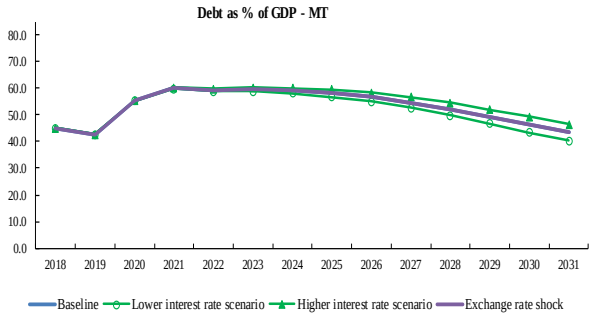
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

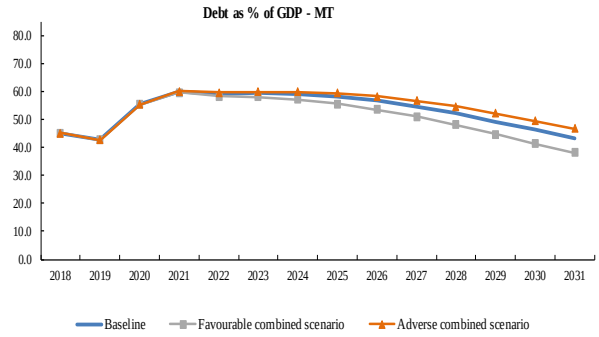
MT - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**45.2**	**42.6**	**55.2**	**60.0**	**59.3**	**59.5**	**59.1**	**58.2**	**56.6**	**54.6**	**52.1**	**49.2**	**46.2**	**43.3**
Changes in the ratio (-1+2+3)	*-3.6*	*-2.6*	*12.6*	*4.8*	*-0.7*	*0.2*	*-0.4*	*-0.9*	*-1.5*	*-2.1*	*-2.5*	*-2.9*	*-3.0*	*-2.9*
of which														
(1) Primary balance (1.1+1.2+1.3)	**3.5**	**1.9**	**-8.4**	**-5.1**	**-2.6**	**-1.9**	**-1.3**	**-0.7**	**-0.1**	**0.4**	**0.8**	**1.3**	**1.4**	**1.5**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***1.3***	***-0.3***	***-5.8***	***-2.5***	***-1.3***	***-0.9***	***-0.4***	***0.0***	***0.5***	***0.9***	***1.4***	***1.8***	***1.7***	***1.6***
(1.1.1) Structural primary balance (bef. CoA)	*1.3*	*-0.3*	*-5.8*	*-2.5*	*-1.3*	*-0.9*	*-0.4*	*0.0*	*0.5*	*0.9*	*1.4*	*1.8*	*1.8*	*1.8*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.2*
(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*
(1.2) Cyclical component	***2.2***	***2.2***	***-2.6***	***-2.6***	***-1.3***	***-1.0***	***-0.8***	***-0.7***	***-0.6***	***-0.6***	***-0.5***	***-0.5***	***-0.3***	***-0.2***
(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)	**-1.8**	**-1.7**	**4.2**	**-1.2**	**-3.4**	**-1.7**	**-1.7**	**-1.6**	**-1.7**	**-1.7**	**-1.6**	**-1.6**	**-1.6**	**-1.5**
(2.1) Interest expenditure	*1.5*	*1.4*	*1.1*	*1.2*	*1.3*	*1.2*	*1.1*	*1.1*	*1.0*	*1.0*	*0.9*	*0.9*	*0.8*	*0.8*
(2.2) Growth effect	*-2.4*	*-2.1*	*3.4*	*-1.6*	*-3.4*	*-1.7*	*-1.6*	*-1.5*	*-1.5*	*-1.5*	*-1.5*	*-1.4*	*-1.5*	*-1.4*
(2.3) Inflation effect	*-1.0*	*-1.0*	*-0.2*	*-0.8*	*-1.3*	*-1.2*	*-1.2*	*-1.2*	*-1.2*	*-1.1*	*-1.1*	*-1.0*	*-1.0*	*-0.9*
(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	**1.7**	**1.0**	**0.1**	**0.9**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*1.7*	*1.0*	*0.1*	*0.9*	*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	-0.3	-1.7	-6.9	-3.7	-2.6	-2.1	-1.5	-1.0	-0.5	0.0	0.5	0.9	0.9	0.8

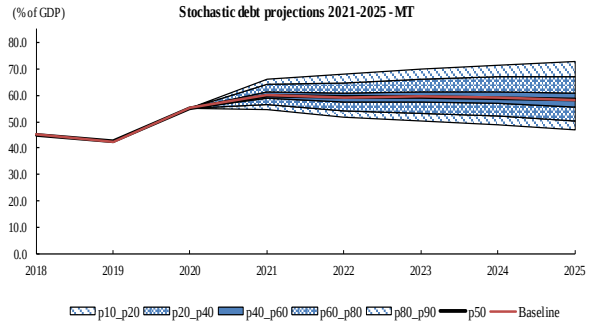












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
LOW (S0 = 0.3)	LOW	LOW (S1 = -3.5)	Risk category	LOW	LOW	LOW	LOW	LOW	LOW	LOW	MEDIUM (S2 = 4.6)	MEDIUM
			Debt level (2031)	43.3	45.8	45.8	46.6	47.5				
			Debt peak year	2021	2021	2021	2021	2021				
			Percentile rank	44.0%	57.0%							
			Probability debt higher						61.7%			
			Dif. between percentiles						25.8			

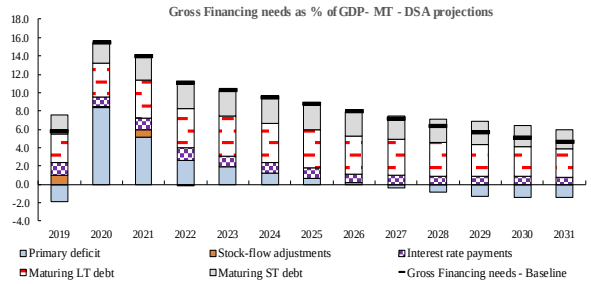
2.2. Sustainability indicators

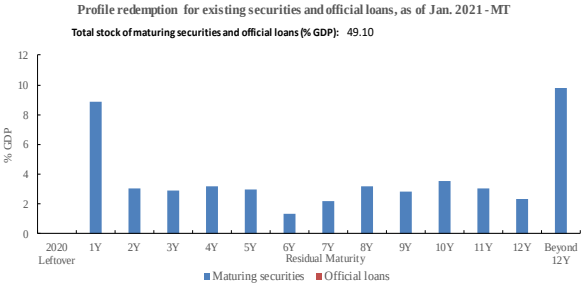
S0 indicator	2009	2020	Critical threshold
Overall index	**0.45**	**0.29**	**0.46**
Fiscal sub-index	0.20	0.49	0.36
Financial competitiveness sub-index	0.58	0.18	0.49

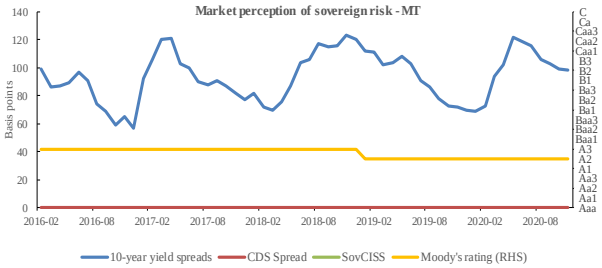
S1 indicator	2019 DSM	2020 DSM
Overall index	**-6.4**	**-3.5**
of which *Initial budgetary position*	*-4.8*	*-3.3*
Debt requirement	*-2.0*	*-1.1*
Ageing costs	*0.3*	*0.9*
Required structural primary balance related to S1	**-4.0**	**-1.6**

S2 indicator	2019 DSM	2020 DSM
Overall index	**3.0**	**4.6**
of which Initial Budgetary position	-2.2	-1.7
Ageing costs	5.2	6.3
of which Pensions	*2.0*	*3.5*
Health care	*1.8*	*1.5*
Long-term care	*1.0*	*0.9*
Others	*0.4*	*0.4*
Required structural primary balance related to S2	**5.5**	**6.5**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, MT	Local currency long term	Local currency short term	Foreign currency long term	Foreign currency short term
Moody's	A2			
S&P	A-	A-2	A-	A-2
Fitch	A+		A+	F1+

Sovereign yield spreads (bp)* - as of November 2020	10-year	98.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - MT (2019)	Share of short-term government debt (p.p.): 7.3	Share of government debt in foreign currency (%): 0.0	Share of government debt by non-residents (%): 15.2

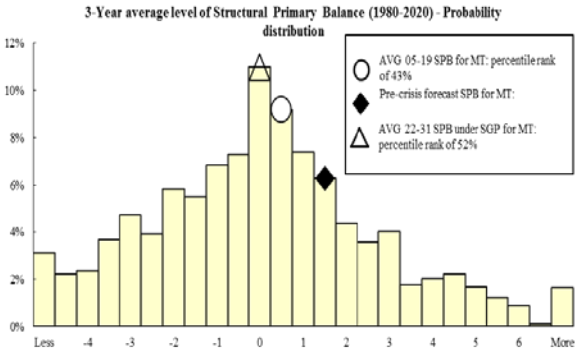
Net International Investment Position (IIP) - MT (2019)	Net IIP (% GDP): 54.6

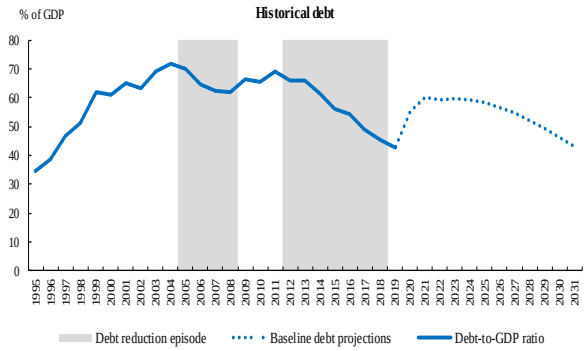
5. Risks related to government's contingent liabilities

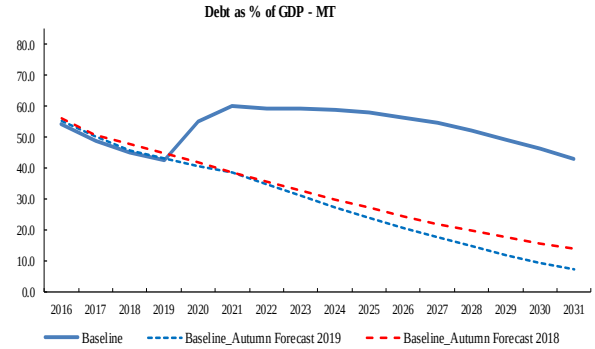
General government contingent liabilities		MT					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		15.7	14.6	13.5	9.5	8.7	6.7
of which One-off guarantees		*15.7*	*14.6*	*13.5*	*9.5*	*8.7*	*6.2*
Standardised guarantees		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.3*
		2013	2015	2016	2018	2019	2019
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.	1.1
	Securities issued under liquidity schemes	n.a.	n.a.	n.a.	n.a.	n.a.	0.0
	Special purpose entity	n.a.	n.a.	n.a.	n.a.	n.a.	0.1
	Total	n.a.	n.a.	n.a.	n.a.	n.a.	1.2

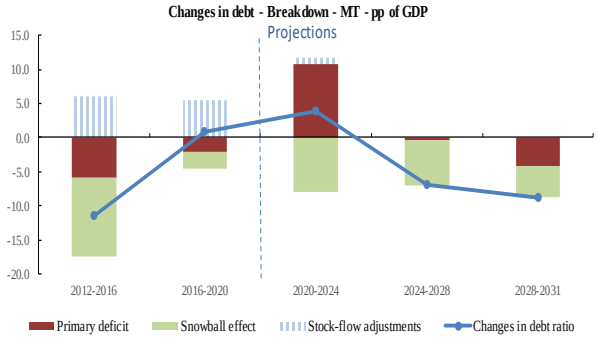
Government's contingent liability risks from banking sector - MT (2019)	Private sector credit flow (% GDP): 8.5	Change in nominal house price index: 6.1	Bank loans-to-deposits ratio (p.p.): 50.6	Share of non-performing loans (%): 3.5	Change in share of non-performing loans (p.p): 0.5	NPL coverage ratio 30.6

6. Realism of baseline assumptions









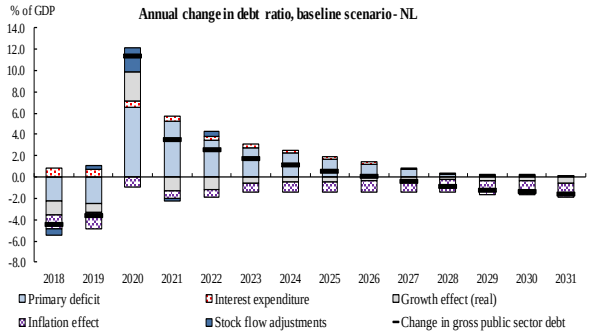
7. Underlying macro-fiscal assumptions

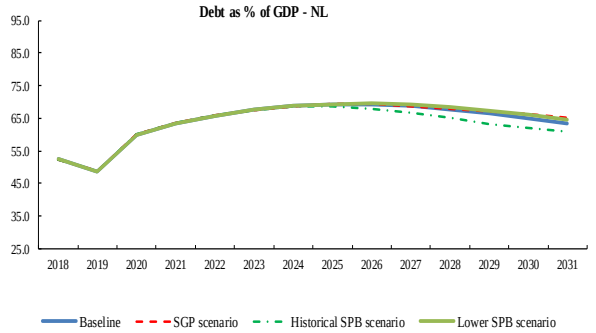
Macro-fiscal assumptions, Malta	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	55.2	60.0	59.3	54.6	49.2	43.3	58.2	53.2	54.4
Primary balance	-8.4	-5.1	-2.6	0.4	1.3	1.5	-5.4	0.2	-1.2
Structural primary balance (before CoA)	-5.8	-2.5	-1.3	0.9	1.8	1.8	-3.2	0.8	-0.2
Real GDP growth	-7.3	3.0	6.2	2.8	2.8	3.1	0.6	2.9	2.3
Potential GDP growth	2.3	3.0	3.4	2.7	2.8	2.7	2.9	2.6	2.7
Inflation rate	0.6	1.5	2.1	2.1	2.0	2.0	1.4	2.1	1.9
Implicit interest rate (nominal)	2.3	2.2	2.4	1.8	1.8	1.8	2.3	1.9	2.0
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	55.2	60.0	59.3	55.4	50.8	46.4	58.2	54.3	55.3
Primary balance	-8.4	-5.1	-2.6	0.1	0.6	0.7	-5.4	-0.2	-1.5
Structural primary balance	-5.8	-2.5	-1.3	0.6	0.9	0.8	-3.2	0.3	-0.6
Real GDP growth	-7.3	3.0	6.2	2.8	3.1	2.9	0.6	2.9	2.3
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	55.2	60.0	59.3	54.3	49.6	45.8	58.2	53.6	54.7
Primary balance	-8.4	-5.1	-2.6	0.2	0.6	0.5	-5.4	-0.2	-1.5
Structural primary balance (before CoA)	-5.8	-2.5	-1.3	0.6	0.6	0.6	-3.2	0.3	-0.6
Real GDP growth	-7.3	3.0	6.2	3.2	3.2	2.7	0.6	2.9	2.3
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	55.2	60.2	59.7	56.6	52.0	46.6	58.4	55.2	56.0
Implicit interest rate (nominal)	2.3	2.6	2.8	2.5	2.5	2.6	2.6	2.6	2.6
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	55.2	59.9	58.9	52.6	46.7	40.3	58.0	51.3	53.0
Implicit interest rate (nominal)	2.3	1.9	1.9	1.1	1.0	1.1	2.0	1.2	1.4
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	55.2	59.8	58.8	52.9	47.1	40.9	57.9	51.5	53.1
Real GDP growth	-7.3	3.5	6.7	3.3	3.3	3.6	0.9	3.4	2.8
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	55.2	60.3	59.8	56.4	51.4	45.8	58.5	54.9	55.8
Real GDP growth	-7.3	2.5	5.7	2.3	2.3	2.6	0.3	2.4	1.8
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	55.2	60.0	59.3	55.9	51.9	47.5	58.2	54.9	55.7
Primary balance	-8.4	-5.1	-2.6	-0.2	0.5	0.6	-5.4	-0.4	-1.6
Structural primary balance (before CoA)	-5.8	-2.5	-1.3	0.3	0.9	0.9	-3.2	0.2	-0.7
Real GDP growth	-7.3	3.0	6.2	2.8	2.8	3.0	0.6	2.9	2.3
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	55.2	60.0	59.3	54.6	49.2	43.3	58.2	53.2	54.4
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	55.2	59.6	58.4	51.0	44.7	38.0	57.7	49.7	51.7
Implicit interest rate (nominal)	2.3	1.9	1.9	1.1	1.0	1.1	2.0	1.2	1.4
Real GDP growth	-7.3	3.5	6.7	3.3	3.3	3.6	0.9	3.4	2.8
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	55.2	60.2	59.6	56.7	52.1	46.8	58.3	55.3	56.0
Implicit interest rate (nominal)	2.3	2.4	2.6	2.2	2.2	2.2	2.4	2.2	2.3
Real GDP growth	-7.8	2.5	5.7	2.3	2.3	2.6	0.1	2.3	1.8

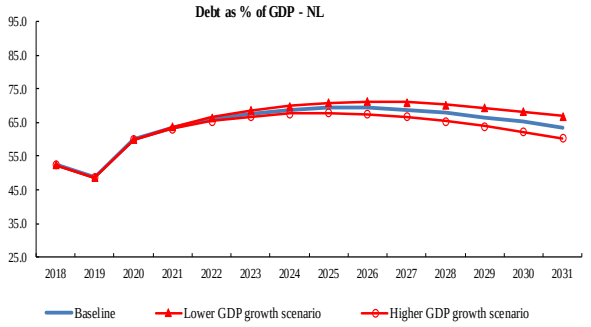
Netherlands

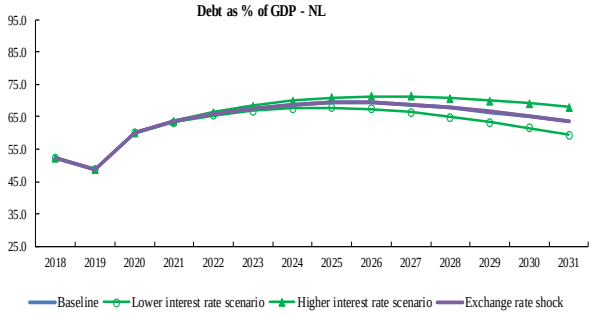
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

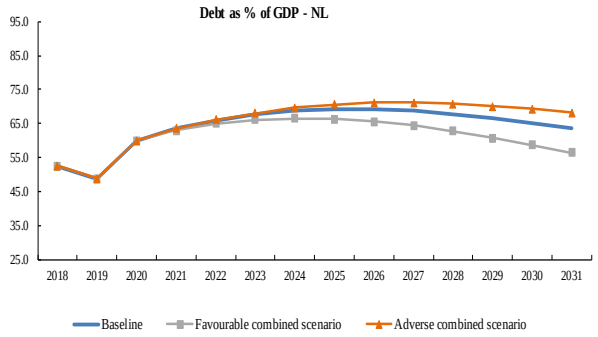
NL - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**52.4**	**48.7**	**60.0**	**63.5**	**65.9**	**67.6**	**68.8**	**69.3**	**69.3**	**68.8**	**67.8**	**66.5**	**65.1**	**63.5**
Changes in the ratio (-1+2+3)	*-4.5*	*-3.7*	*11.3*	*3.5*	*2.5*	*1.7*	*1.1*	*0.5*	*0.0*	*-0.5*	*-1.0*	*-1.3*	*-1.4*	*-1.6*
of which														
(1) Primary balance (1.1+1.2+1.3)	**2.3**	**2.5**	**-6.5**	**-5.3**	**-3.4**	**-2.8**	**-2.2**	**-1.7**	**-1.2**	**-0.7**	**-0.2**	**-0.1**	**-0.1**	**0.0**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***1.2***	***1.1***	***-3.9***	***-3.5***	***-2.3***	***-1.9***	***-1.4***	***-0.9***	***-0.5***	***0.0***	***0.4***	***0.3***	***0.1***	***0.0***
(1.1.1) Structural primary balance (bef. CoA)	*1.2*	*1.1*	*-3.9*	*-3.5*	*-2.3*	*-1.9*	*-1.4*	*-0.9*	*-0.5*	*0.0*	*0.4*	*0.4*	*0.4*	*0.4*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.2*	*0.5*	*0.7*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.2*	*0.2*
(1.2) Cyclical component	***1.1***	***1.2***	***-2.6***	***-1.7***	***-1.1***	***-0.9***	***-0.8***	***-0.8***	***-0.7***	***-0.7***	***-0.7***	***-0.4***	***-0.2***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.2***	***0.0***	***-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)	**-1.7**	**-1.6**	**2.4**	**-1.6**	**-1.5**	**-1.1**	**-1.1**	**-1.2**	**-1.2**	**-1.2**	**-1.2**	**-1.4**	**-1.4**	**-1.7**
(2.1) Interest expenditure	*0.9*	*0.8*	*0.6*	*0.4*	*0.4*	*0.3*	*0.3*	*0.3*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*
(2.2) Growth effect	*-1.3*	*-0.8*	*2.7*	*-1.3*	*-1.2*	*-0.6*	*-0.5*	*-0.5*	*-0.4*	*-0.3*	*-0.2*	*-0.4*	*-0.4*	*-0.5*
(2.3) Inflation effect	*-1.4*	*-1.5*	*-0.9*	*-0.8*	*-0.7*	*-0.8*	*-0.9*	*-1.0*	*-1.0*	*-1.1*	*-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	**-0.5**	**0.3**	**2.4**	**-0.2**	**0.5**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-0.5*	*0.3*	*2.4*	*-0.2*	*0.5*	*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	*0.0*	*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	0.3	0.3	-4.6	-3.9	-2.7	-2.2	-1.7	-1.2	-0.7	-0.2	0.3	0.1	0.0	-0.2

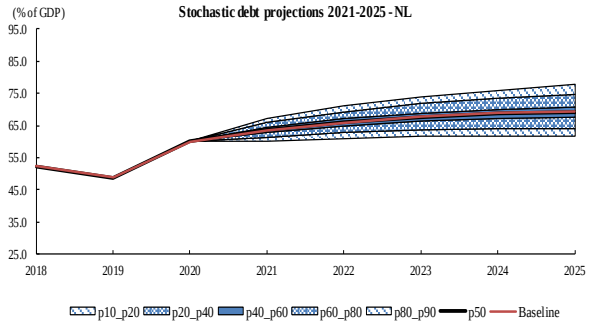












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
LOW (S0 = 0.4)	MEDIUM	MEDIUM (S1 = 0.1)	Risk category	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	MEDIUM	MEDIUM (S2 = 3.3)	MEDIUM
			Debt level (2031)	63.5	60.8	66.8	67.9	64.6				
			Debt peak year	2025	2025	2026	2026	2026				
			Percentile rank	63.0%	64.0%							
			Probability debt higher						93.8%			
			Dif. between percentiles						16.2			

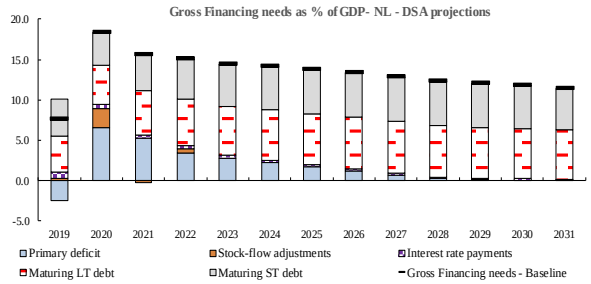
2.2. Sustainability indicators

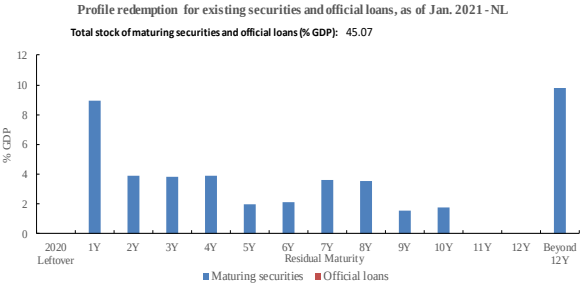
S0 indicator	2009	2020	Critical threshold
Overall index	**0.41**	**0.39**	**0.46**
Fiscal sub-index	0.57	0.60	0.36
Financial competitiveness sub-index	0.33	0.27	0.49

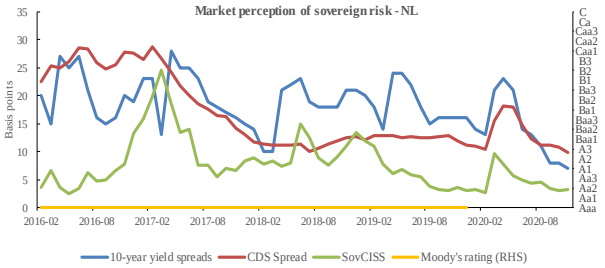
S1 indicator	2019 DSM	2020 DSM
Overall index	**-3.2**	**0.1**
of which *Initial budgetary position*	*-2.3*	*-1.8*
Debt requirement	*-1.3*	*0.3*
Ageing costs	*0.4*	*1.6*
Required structural primary balance related to S1	**-2.4**	**0.5**

S2 indicator	2019 DSM	2020 DSM
Overall index	**2.8**	**3.3**
of which Initial Budgetary position	0.0	0.3
Ageing costs	2.8	3.0
of which Pensions	*0.6*	*0.9*
Health care	*0.5*	*0.4*
Long-term care	*1.9*	*1.7*
Others	*-0.2*	*0.0*
Required structural primary balance related to S2	**3.6**	**3.7**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, NL	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aaau		Aaau	P-1u
S&P	AAAu	A-1+u	AAAu	A-1+u
Fitch	AAA		AAA	

Sovereign yield spreads (bp)* - as of November 2020	10-year	7.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - NL (2019)	Share of short-term government debt (p.p.): 8.8	Share of government debt in foreign currency (%): 0.1	Share of government debt by non-residents (%): 40.0

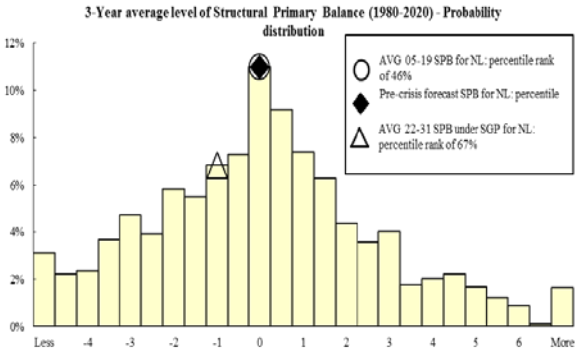
Net International Investment Position (IIP) - NL (2019)	Net IIP (% GDP): 90.0

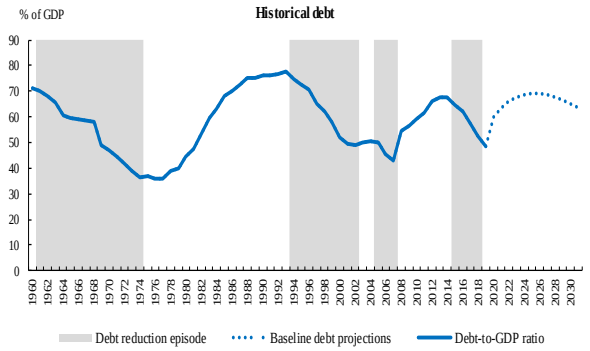
5. Risks related to government's contingent liabilities

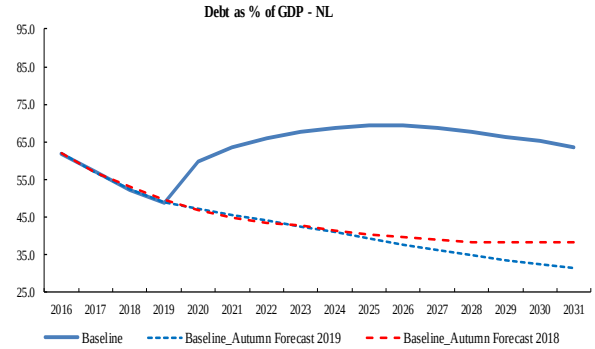
General government contingent liabilities		NL					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		6.6	3.8	3.6	3.5	3.3	6.7
of which One-off guarantees		*6.6*	*3.8*	*3.6*	*3.5*	*3.3*	*6.2*
Standardised guarantees		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.3*
		2013	2015	2016	2018	2019	2019
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	1.6	0.0	0.0	0.0	0.0	1.1
	Securities issued under liquidity schemes	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	0.1
	Total	1.6	0.0	0.0	0.0	0.0	1.2

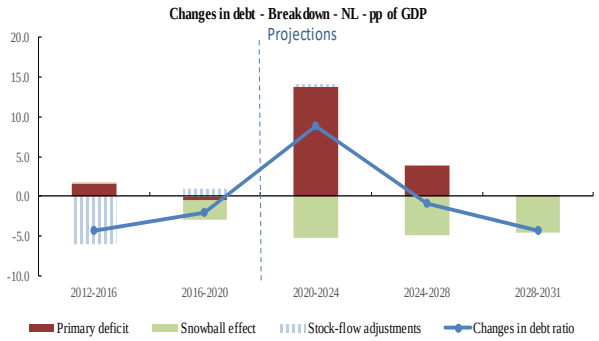
Government's contingent liability risks from banking sector - NL (2019)	Private sector credit flow (% GDP): 0.0	Change in nominal house price index: 7.3	Bank loans-to-deposits ratio (p.p.): 118.1	Share of non-performing loans (%): 2.0	Change in share of non-performing loans (p.p): 0.0	NPL coverage ratio 27.9

6. Realism of baseline assumptions









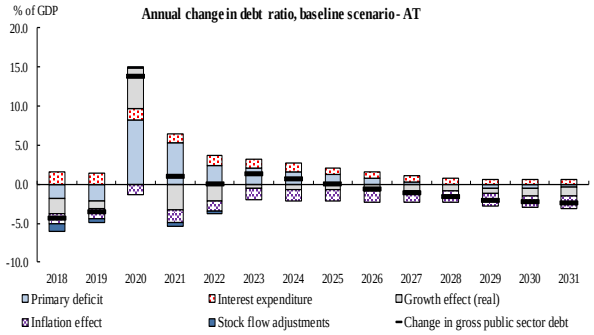
7. Underlying macro-fiscal assumptions

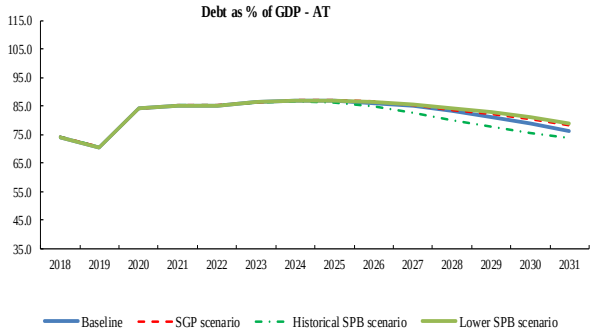
Macro-fiscal assumptions, Netherlands	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	60.0	63.5	65.9	68.8	66.5	63.5	63.1	67.4	66.3
Primary balance	-6.5	-5.3	-3.4	-0.7	-0.1	0.0	-5.1	-1.0	-2.0
Structural primary balance (before CoA)	-3.9	-3.5	-2.3	0.0	0.4	0.4	-3.3	-0.3	-1.1
Real GDP growth	-5.3	2.2	1.9	0.4	0.6	0.9	-0.4	0.6	0.4
Potential GDP growth	0.9	0.6	0.9	0.4	0.2	0.5	0.8	0.4	0.5
Inflation rate	1.9	1.3	1.2	1.6	1.8	2.0	1.5	1.6	1.6
Implicit interest rate (nominal)	1.2	0.8	0.7	0.3	0.3	0.3	0.9	0.3	0.5
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	60.0	63.5	65.9	68.7	67.2	65.3	63.1	67.8	66.6
Primary balance	-6.5	-5.3	-3.4	-0.8	-0.6	-0.4	-5.1	-1.2	-2.2
Structural primary balance	-3.9	-3.5	-2.3	-0.3	-0.3	-0.3	-3.3	-0.7	-1.3
Real GDP growth	-5.3	2.2	1.9	0.8	0.4	0.6	-0.4	0.6	0.4
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	60.0	63.5	65.9	66.7	63.3	60.8	63.1	65.6	65.0
Primary balance	-6.5	-5.3	-3.4	-0.2	0.3	0.0	-5.1	-0.7	-1.8
Structural primary balance (before CoA)	-3.9	-3.5	-2.3	0.4	0.4	0.4	-3.3	0.0	-0.8
Real GDP growth	-5.3	2.2	1.9	0.9	0.7	0.7	-0.4	0.6	0.4
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	60.0	63.6	66.4	71.3	70.0	67.9	63.3	70.0	68.3
Implicit interest rate (nominal)	1.2	1.1	1.1	1.0	1.1	1.1	1.1	1.0	1.1
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	60.0	63.3	65.5	66.4	63.2	59.4	62.9	65.0	64.5
Implicit interest rate (nominal)	1.2	0.5	0.2	-0.4	-0.5	-0.6	0.6	-0.4	-0.1
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	60.0	63.2	65.4	66.7	63.8	60.4	62.8	65.4	64.7
Real GDP growth	-5.3	2.7	2.4	0.9	1.1	1.4	-0.1	1.1	0.8
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	60.0	63.7	66.5	70.9	69.3	66.8	63.4	69.6	68.0
Real GDP growth	-5.3	1.7	1.4	-0.1	0.1	0.4	-0.8	0.1	-0.1
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	60.0	63.5	65.9	69.1	67.2	64.6	63.1	67.8	66.7
Primary balance	-6.5	-5.3	-3.4	-0.8	-0.3	-0.2	-5.1	-1.1	-2.1
Structural primary balance (before CoA)	-3.9	-3.5	-2.3	-0.2	0.2	0.2	-3.3	-0.5	-1.2
Real GDP growth	-5.3	2.2	1.9	0.5	0.6	0.8	-0.4	0.6	0.4
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	60.0	63.5	66.0	68.8	66.5	63.5	63.1	67.5	66.4
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	60.0	63.0	64.9	64.4	60.7	56.5	62.6	63.0	62.9
Implicit interest rate (nominal)	1.2	0.5	0.2	-0.4	-0.5	-0.6	0.6	-0.4	-0.1
Real GDP growth	-5.3	2.7	2.4	0.9	1.1	1.4	-0.1	1.1	0.8
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	60.0	63.5	66.1	71.2	70.0	68.1	63.2	69.9	68.2
Implicit interest rate (nominal)	1.2	0.9	0.9	0.7	0.7	0.7	1.0	0.7	0.8
Real GDP growth	-5.8	1.7	1.4	-0.1	0.1	0.3	-0.9	0.1	-0.2

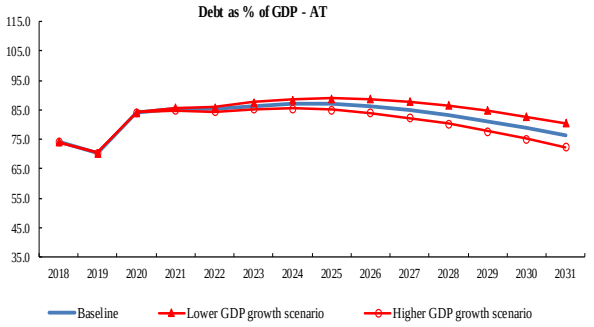
Austria

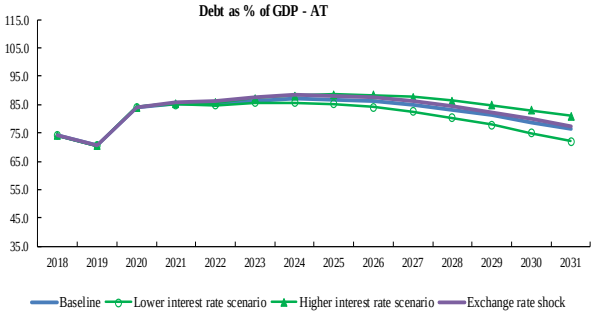
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

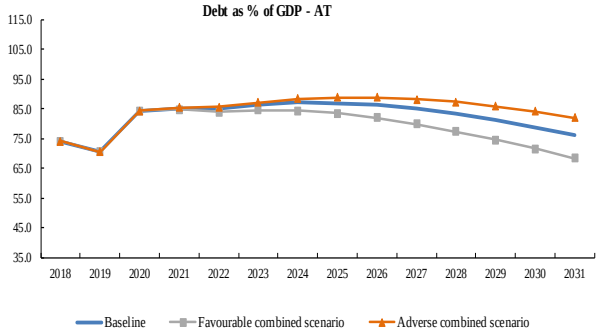
AT - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**74.0**	**70.5**	**84.2**	**85.2**	**85.1**	**86.4**	**87.0**	**86.9**	**86.2**	**85.0**	**83.3**	**81.2**	**78.8**	**76.3**
Changes in the ratio (-1+2+3)	*-4.4*	*-3.5*	*13.7*	*1.0*	*-0.1*	*1.3*	*0.6*	*-0.1*	*-0.7*	*-1.2*	*-1.7*	*-2.1*	*-2.4*	*-2.5*
of which														
(1) Primary balance (1.1+1.2+1.3)	**1.8**	**2.1**	**-8.2**	**-5.2**	**-2.4**	**-2.1**	**-1.7**	**-1.2**	**-0.8**	**-0.3**	**0.1**	**0.6**	**0.5**	**0.4**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***0.6***	***0.7***	***-5.2***	***-3.9***	***-2.1***	***-1.6***	***-1.2***	***-0.7***	***-0.3***	***0.2***	***0.7***	***1.1***	***0.9***	***0.6***
(1.1.1) Structural primary balance (bef. CoA)	*0.6*	*0.7*	*-5.2*	*-3.9*	*-2.1*	*-1.6*	*-1.2*	*-0.7*	*-0.3*	*0.2*	*0.7*	*1.1*	*1.1*	*1.1*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.2*	*0.4*
(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*
(1.2) Cyclical component	***1.2***	***1.4***	***-3.1***	***-1.3***	***-0.3***	***-0.4***	***-0.5***	***-0.5***	***-0.5***	***-0.6***	***-0.6***	***-0.6***	***-0.4***	***-0.2***
(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)	**-1.6**	**-0.9**	**5.3**	**-3.6**	**-2.2**	**-0.8**	**-1.1**	**-1.3**	**-1.5**	**-1.6**	**-1.6**	**-1.5**	**-1.9**	**-2.1**
(2.1) Interest expenditure	*1.6*	*1.4*	*1.4*	*1.2*	*1.2*	*1.1*	*1.0*	*0.9*	*0.8*	*0.8*	*0.7*	*0.7*	*0.6*	*0.6*
(2.2) Growth effect	*-1.9*	*-1.0*	*5.2*	*-3.3*	*-2.1*	*-0.5*	*-0.6*	*-0.7*	*-0.8*	*-0.8*	*-0.7*	*-0.6*	*-0.9*	*-1.1*
(2.3) Inflation effect	*-1.3*	*-1.3*	*-1.4*	*-1.6*	*-1.4*	*-1.4*	*-1.4*	*-1.5*	*-1.5*	*-1.5*	*-1.6*	*-1.6*	*-1.6*	*-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	**-1.0**	**-0.6**	**0.2**	**-0.6**	**-0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-1.0*	*-0.6*	*0.3*	*-0.5*	*-0.3*	*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*	*0.1*	*0.0*	*-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	-1.0	-0.8	-6.6	-5.2	-3.4	-2.8	-2.2	-1.6	-1.1	-0.5	0.0	0.5	0.3	0.1

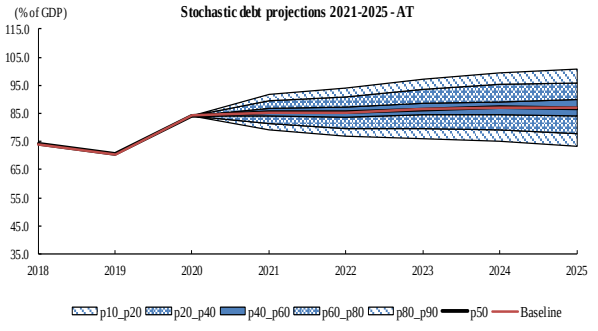












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
LOW (S0 = 0.4)	MEDIUM	LOW (S1 = -0.3)	Risk category	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM (S2 = 2.4)	MEDIUM
			Debt level (2031)	76.3	73.6	80.5	81.0	78.9				
			Debt peak year	2024	2024	2025	2025	2025				
			Percentile rank	57.0%	62.0%							
			Probability debt higher						59.9%			
			Dif. between percentiles						27.5			

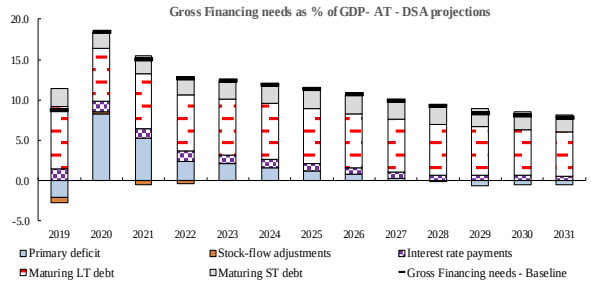
2.2. Sustainability indicators

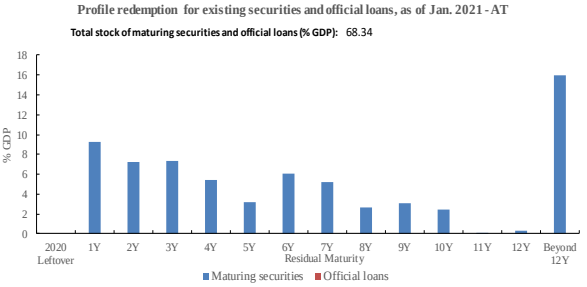
S0 indicator	2009	2020	Critical threshold
Overall index	**0.31**	**0.40**	**0.46**
Fiscal sub-index	0.64	0.88	0.36
Financial competitiveness sub-index	0.16	0.15	0.49

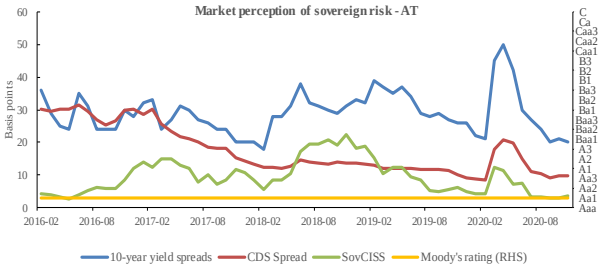
S1 indicator	2019 DSM	2020 DSM
Overall index	**-2.3**	**-0.3**
of which *Initial budgetary position*	*-3.6*	*-2.9*
Debt requirement	*0.4*	*1.4*
Ageing costs	*0.8*	*1.2*
Required structural primary balance related to S1	**-0.8**	**0.8**

S2 indicator	2019 DSM	2020 DSM
Overall index	**2.3**	**2.4**
of which Initial Budgetary position	-0.9	-0.6
Ageing costs	3.2	3.0
of which Pensions	*0.6*	*0.0*
Health care	*1.0*	*1.0*
Long-term care	*1.4*	*1.6*
Others	*0.1*	*0.3*
Required structural primary balance related to S2	**3.8**	**3.5**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, AT	Local currency long term	Local currency short term	Foreign currency long term	Foreign currency short term
Moody's	Aa1		Aa1	P-1
S&P	AA+	A-1+	AA+	A-1+
Fitch	AA+		AA+	F1+

Sovereign yield spreads (bp)* - as of November 2020	10-year	20.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - AT (2019)	Share of short-term government debt (p.p.): 4.2	Share of government debt in foreign currency (%): 0.6	Share of government debt by non-residents 66.5

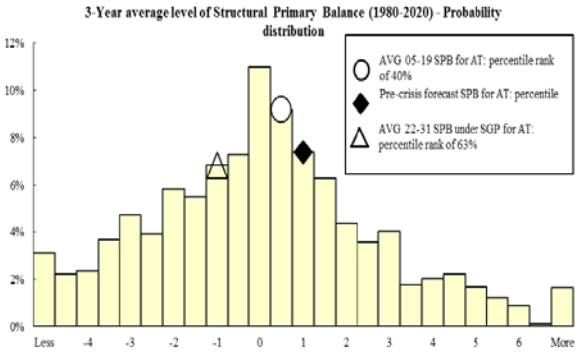
Net International Investment Position (IIP) - AT (2019)	Net IIP (% GDP): 12.1

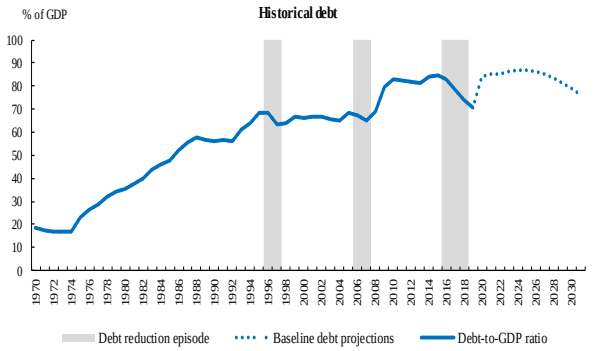
5. Risks related to government's contingent liabilities

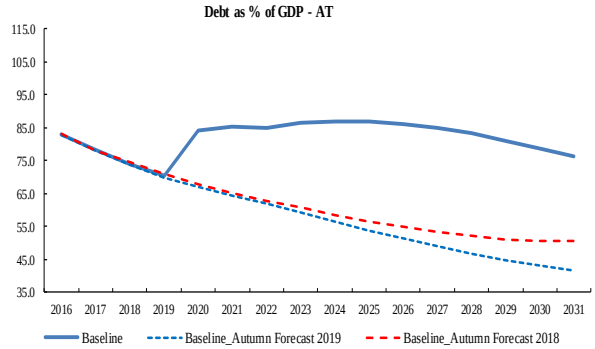
General government contingent liabilities		AT					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		33.4	18.8	17.1	16.2	16.3	6.7
of which One-off guarantees		*33.4*	*18.8*	*17.1*	*16.2*	*16.3*	*6.2*
Standardised guarantees		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.3*
		2013	2015	2016	2018	2019	2019
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	1.0	0.5	0.5	0.0	0.0	1.1
	Securities issued under liquidity schemes	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	0.1
	Total	1.0	0.5	0.5	0.0	0.0	1.2

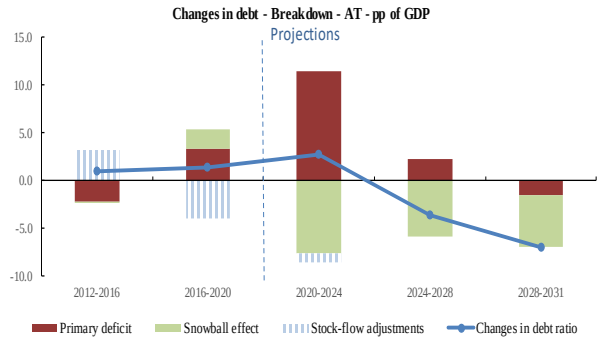
Government's contingent liability risks from banking sector - AT (2019)	Private sector credit flow (% GDP): 4.5	Change in nominal house price index: 5.8	Bank loans-to-deposits ratio (p.p.): 102.2	Share of non-performing loans (%): 2.1	Change in share of non-performing loans (p.p): -0.4	NPL coverage ratio 52.7

6. Realism of baseline assumptions









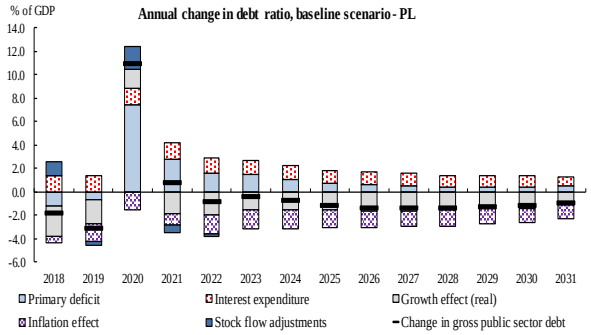
7. Underlying macro-fiscal assumptions

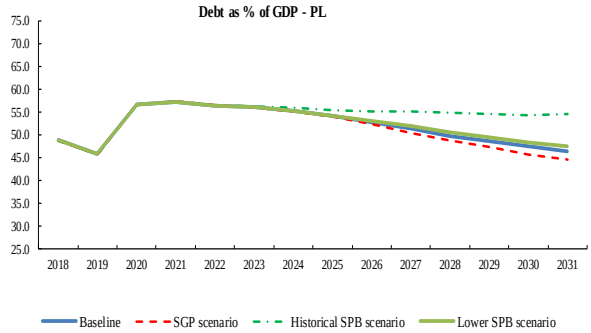
Macro-fiscal assumptions, Austria	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	84.2	85.2	85.1	85.0	81.2	76.3	84.9	83.5	83.8
Primary balance	-8.2	-5.2	-2.4	-0.3	0.6	0.4	-5.3	-0.5	-1.7
Structural primary balance (before CoA)	-5.2	-3.9	-2.1	0.2	1.1	1.1	-3.7	0.1	-0.9
Real GDP growth	-7.1	4.1	2.5	0.9	0.8	1.4	-0.1	0.9	0.7
Potential GDP growth	0.7	0.8	0.8	1.0	0.8	1.1	0.8	0.9	0.9
Inflation rate	2.0	1.9	1.6	1.8	1.9	2.0	1.8	1.8	1.8
Implicit interest rate (nominal)	1.9	1.5	1.5	0.9	0.8	0.8	1.6	1.0	1.1
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	84.2	85.2	85.1	85.4	82.1	78.4	84.9	84.1	84.3
Primary balance	-8.2	-5.2	-2.4	-0.4	-0.1	0.0	-5.3	-0.8	-1.9
Structural primary balance	-5.2	-3.9	-2.1	0.2	0.2	0.1	-3.7	-0.4	-1.2
Real GDP growth	-7.1	4.1	2.5	0.9	1.0	1.2	-0.1	0.9	0.7
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	84.2	85.2	85.1	82.6	77.6	73.6	84.9	81.5	82.4
Primary balance	-8.2	-5.2	-2.4	0.2	0.8	0.3	-5.3	-0.2	-1.5
Structural primary balance (before CoA)	-5.2	-3.9	-2.1	0.8	0.8	0.8	-3.7	0.3	-0.7
Real GDP growth	-7.1	4.1	2.5	1.4	1.2	1.1	-0.1	1.0	0.7
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	84.2	85.4	85.6	87.6	84.9	81.0	85.1	86.1	85.9
Implicit interest rate (nominal)	1.9	1.8	1.9	1.5	1.5	1.5	1.8	1.6	1.6
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	84.2	85.0	84.7	82.5	77.8	72.0	84.6	80.9	81.9
Implicit interest rate (nominal)	1.9	1.3	1.2	0.3	0.1	0.1	1.5	0.4	0.6
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	84.2	84.8	84.4	82.3	77.8	72.4	84.5	80.8	81.7
Real GDP growth	-7.1	4.6	3.0	1.4	1.3	2.0	0.2	1.4	1.1
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	84.2	85.6	85.9	87.8	84.8	80.5	85.2	86.2	86.0
Real GDP growth	-7.1	3.6	2.0	0.4	0.3	0.9	-0.5	0.4	0.2
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	84.2	85.2	85.1	85.7	82.8	78.9	84.9	84.4	84.5
Primary balance	-8.2	-5.2	-2.4	-0.7	0.1	-0.1	-5.3	-0.8	-1.9
Structural primary balance (before CoA)	-5.2	-3.9	-2.1	-0.2	0.6	0.6	-3.7	-0.3	-1.2
Real GDP growth	-7.1	4.1	2.5	0.9	0.8	1.4	-0.1	0.9	0.7
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	84.2	85.9	86.5	86.2	82.4	77.5	85.5	84.7	84.9
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	84.2	84.7	83.9	79.9	74.5	68.3	84.3	78.4	79.9
Implicit interest rate (nominal)	1.9	1.3	1.2	0.3	0.1	0.1	1.5	0.4	0.6
Real GDP growth	-7.1	4.6	3.0	1.4	1.3	2.0	0.2	1.4	1.1
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	84.2	85.4	85.6	88.2	85.8	82.1	85.1	86.7	86.3
Implicit interest rate (nominal)	1.9	1.6	1.7	1.2	1.2	1.1	1.7	1.3	1.4
Real GDP growth	-7.6	3.6	2.0	0.4	0.2	0.9	-0.6	0.4	0.1

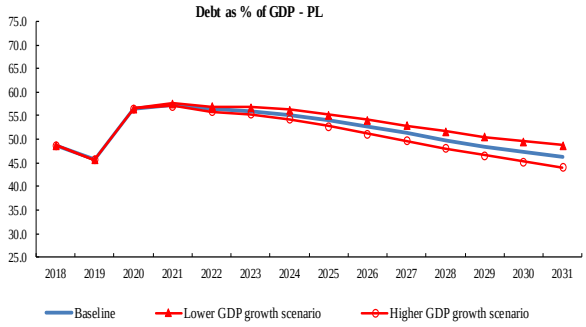
Poland

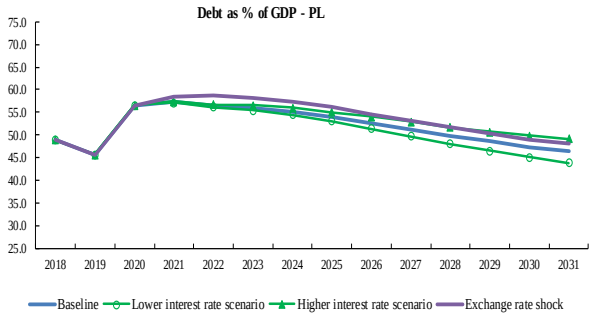
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

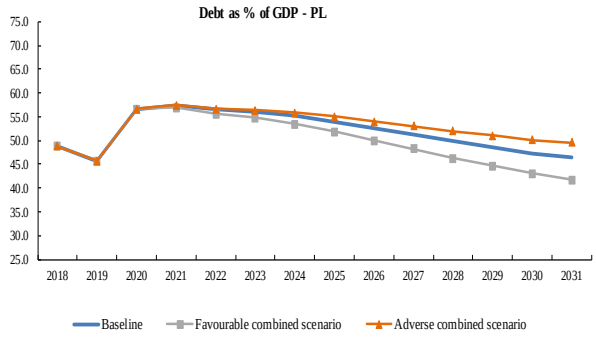
PL - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**48.8**	**45.7**	**56.6**	**57.3**	**56.4**	**56.0**	**55.2**	**54.0**	**52.6**	**51.3**	**49.8**	**48.5**	**47.3**	**46.4**
Changes in the ratio (-1+2+3)	*-1.8*	*-3.1*	*10.9*	*0.7*	*-0.9*	*-0.4*	*-0.8*	*-1.2*	*-1.4*	*-1.4*	*-1.5*	*-1.3*	*-1.2*	*-1.0*
of which														
(1) Primary balance (1.1+1.2+1.3)	**1.2**	**0.7**	**-7.4**	**-2.8**	**-1.7**	**-1.5**	**-1.1**	**-0.7**	**-0.7**	**-0.6**	**-0.4**	**-0.5**	**-0.5**	**-0.5**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-0.4***	***-1.5***	***-6.8***	***-2.4***	***-1.5***	***-1.1***	***-0.7***	***-0.3***	***-0.4***	***-0.4***	***-0.4***	***-0.5***	***-0.5***	***-0.5***
(1.1.1) Structural primary balance (bef. CoA)	*-0.4*	*-1.5*	*-6.8*	*-2.4*	*-1.5*	*-1.1*	*-0.7*	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.3*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*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*
(1.2) Cyclical component	***1.6***	***2.2***	***-0.9***	***-0.6***	***-0.3***	***-0.3***	***-0.4***	***-0.4***	***-0.3***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***0.3***	***0.2***	***0.1***	***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**	**-2.2**	**1.5**	**-1.4**	**-2.2**	**-1.9**	**-1.9**	**-1.9**	**-2.0**	**-1.9**	**-1.9**	**-1.7**	**-1.7**	**-1.4**
(2.1) Interest expenditure	*1.4*	*1.4*	*1.4*	*1.4*	*1.3*	*1.2*	*1.2*	*1.1*	*1.1*	*1.0*	*1.0*	*0.9*	*0.9*	*0.9*
(2.2) Growth effect	*-2.5*	*-2.1*	*1.6*	*-1.8*	*-1.9*	*-1.5*	*-1.6*	*-1.6*	*-1.6*	*-1.6*	*-1.6*	*-1.4*	*-1.4*	*-1.1*
(2.3) Inflation effect	*-0.6*	*-1.5*	*-1.5*	*-1.0*	*-1.6*	*-1.6*	*-1.5*	*-1.5*	*-1.4*	*-1.4*	*-1.3*	*-1.3*	*-1.2*	*-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	**1.1**	**-0.3**	**1.9**	**-0.7**	**-0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*1.2*	*-0.5*	*1.5*	*-0.8*	*-0.3*	*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*	*0.4*	*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	-1.8	-2.9	-8.2	-3.7	-2.8	-2.4	-1.9	-1.5	-1.5	-1.4	-1.4	-1.4	-1.4	-1.3

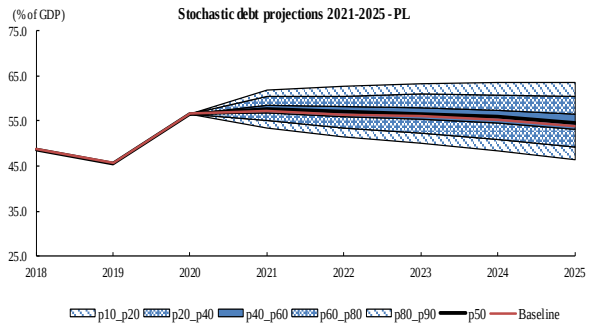












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
LOW (S0 = 0.4)	LOW	LOW (S1 = -1.6)	Risk category	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW (S2 = 1.6)	LOW
			Debt level (2031)	46.4	54.5	48.7	49.1	47.5				
			Debt peak year	2021	2021	2021	2021	2021				
			Percentile rank	64.0%	77.0%							
			Probability debt higher						38.7%			
			Dif. between percentiles						17.2			

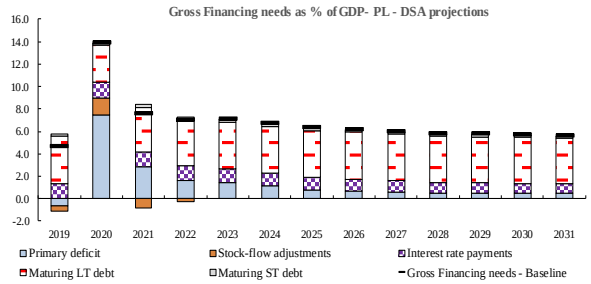
2.2. Sustainability indicators

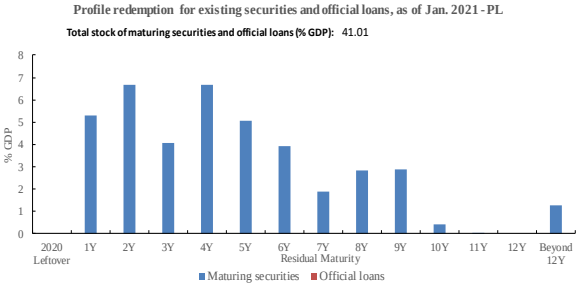
S0 indicator	2009	2020	Critical threshold
Overall index	**0.55**	**0.45**	**0.46**
Fiscal sub-index	0.22	0.40	0.36
Financial competitiveness sub-index	0.73	0.48	0.49

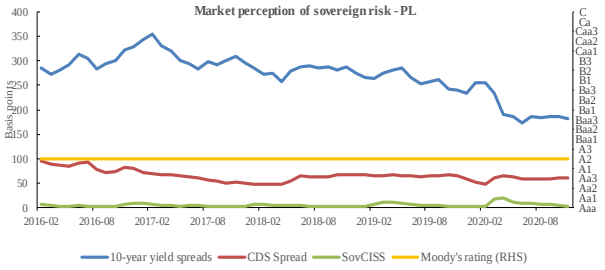
S1 indicator	2019 DSM	2020 DSM
Overall index	**-2.2**	**-1.6**
of which *Initial budgetary position*	*-1.2*	*-1.2*
Debt requirement	*-1.4*	*-0.5*
Ageing costs	*0.3*	*0.1*
Required structural primary balance related to S1	**-2.6**	**-1.9**

S2 indicator	2019 DSM	2020 DSM
Overall index	**1.9**	**1.6**
of which Initial Budgetary position	0.7	0.6
Ageing costs	1.2	1.0
of which Pensions	*-0.6*	*-0.9*
Health care	*0.7*	*0.7*
Long-term care	*0.6*	*0.7*
Others	*0.5*	*0.5*
Required structural primary balance related to S2	**1.6**	**1.2**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, PL	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	A2	P-1	A2	P-1
S&P	A	A-1	A-	A-2
Fitch	A-		A-	

Sovereign yield spreads (bp)* - as of November 2020	10-year	181.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - PL (2019)	Share of short-term government debt (p.p.): 1.1	Share of government debt in foreign currency (%): 28.4	Share of government debt by non-residents (%): 44.1

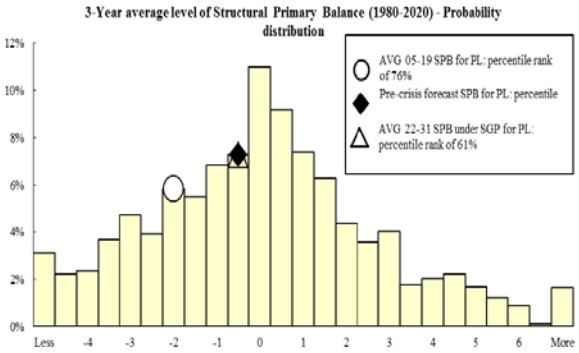
Net International Investment Position (IIP) - PL (2019)	Net IIP (% GDP): -49.4

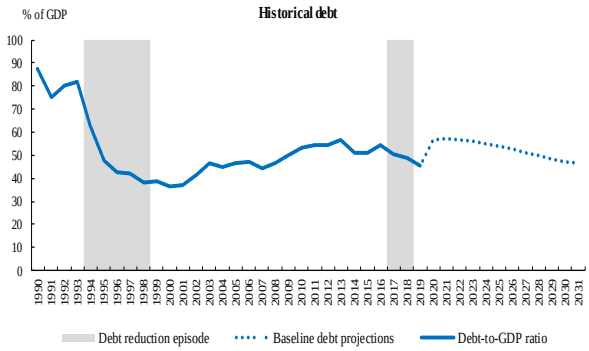
5. Risks related to government's contingent liabilities

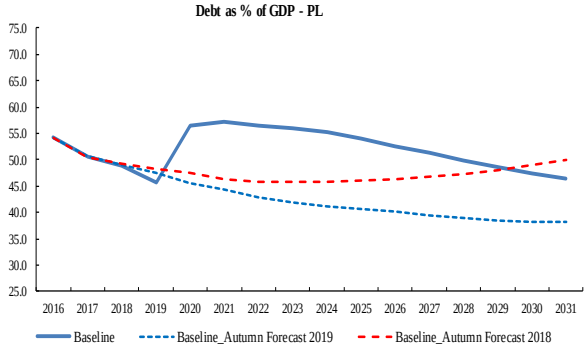
General government contingent liabilities		PL					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		1.7	1.5	1.7	1.4	1.3	6.7
of which One-off guarantees		*1.3*	*1.0*	*1.0*	*0.7*	*0.7*	*6.2*
Standardised guarantees		*0.4*	*0.6*	*0.7*	*0.7*	*0.6*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.3*
		2013	2015	2016	2018	2019	2019
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.	1.1
	Securities issued under liquidity schemes	n.a.	n.a.	n.a.	n.a.	n.a.	0.0
	Special purpose entity	n.a.	n.a.	n.a.	n.a.	n.a.	0.1
	Total	n.a.	n.a.	n.a.	n.a.	n.a.	1.2

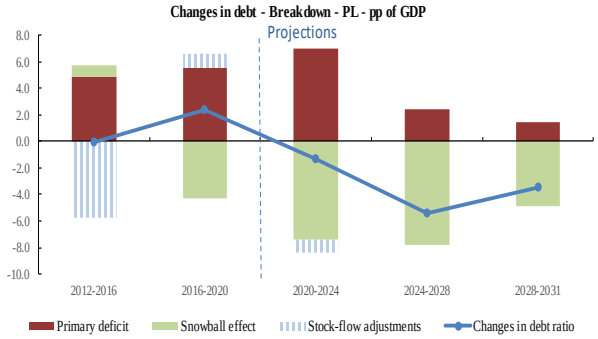
Government's contingent liability risks from banking sector - PL (2019)	Private sector credit flow (% GDP): 3.3	Change in nominal house price index: 8.7	Bank loans-to-deposits ratio (p.p.): 86.8	Share of non-performing loans (%): 4.9	Change in share of non-performing loans (p.p): 0.1	NPL coverage ratio 62.3

6. Realism of baseline assumptions









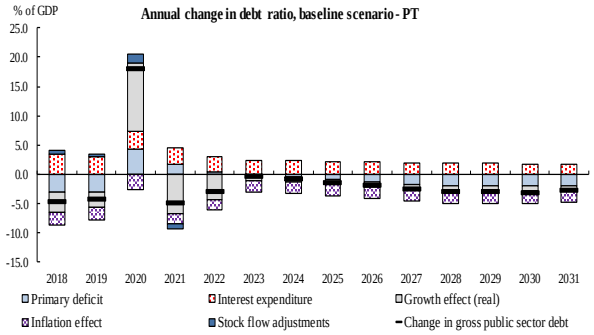
7. Underlying macro-fiscal assumptions

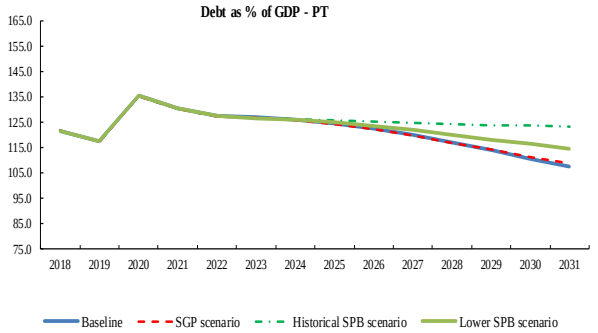
Macro-fiscal assumptions, Poland	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	56.6	57.3	56.4	51.3	48.5	46.4	56.8	51.2	52.6
Primary balance	-7.4	-2.8	-1.7	-0.6	-0.5	-0.5	-4.0	-0.7	-1.5
Structural primary balance (before CoA)	-6.8	-2.4	-1.5	-0.3	-0.3	-0.3	-3.6	-0.5	-1.3
Real GDP growth	-3.6	3.3	3.5	3.2	3.0	2.5	1.1	3.0	2.5
Potential GDP growth	2.6	2.8	2.8	2.9	3.0	2.5	2.7	2.9	2.9
Inflation rate	3.5	1.7	2.9	2.7	2.6	2.5	2.7	2.7	2.7
Implicit interest rate (nominal)	3.1	2.5	2.4	2.1	2.0	1.9	2.7	2.1	2.2
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	56.6	57.3	56.4	50.5	47.2	44.5	56.8	50.4	52.0
Primary balance	-7.4	-2.8	-1.7	-0.2	-0.2	-0.2	-4.0	-0.5	-1.4
Structural primary balance	-6.8	-2.4	-1.5	0.0	-0.1	-0.2	-3.6	-0.3	-1.1
Real GDP growth	-3.6	3.3	3.5	3.2	3.1	2.6	1.1	3.0	2.5
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	56.6	57.3	56.4	54.9	54.5	54.5	56.8	55.1	55.5
Primary balance	-7.4	-2.8	-1.7	-1.7	-1.7	-1.8	-4.0	-1.7	-2.3
Structural primary balance (before CoA)	-6.8	-2.4	-1.5	-1.6	-1.6	-1.6	-3.6	-1.6	-2.1
Real GDP growth	-3.6	3.3	3.5	2.9	3.0	2.5	1.1	3.0	2.5
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	56.6	57.4	56.7	52.9	50.7	49.1	56.9	52.9	53.9
Implicit interest rate (nominal)	3.1	2.8	2.8	2.7	2.7	2.7	2.9	2.7	2.7
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	56.6	57.2	56.1	49.7	46.5	43.8	56.6	49.7	51.4
Implicit interest rate (nominal)	3.1	2.3	2.1	1.4	1.3	1.1	2.5	1.5	1.7
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	56.6	57.0	55.9	49.7	46.6	44.1	56.5	49.7	51.4
Real GDP growth	-3.6	3.8	4.0	3.7	3.5	3.0	1.4	3.5	3.0
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	56.6	57.6	56.9	52.9	50.6	48.7	57.0	52.9	53.9
Real GDP growth	-3.6	2.8	3.0	2.7	2.5	2.0	0.8	2.5	2.1
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	56.6	57.3	56.4	51.8	49.4	47.5	56.8	51.8	53.0
Primary balance	-7.4	-2.8	-1.7	-0.7	-0.6	-0.7	-4.0	-0.8	-1.6
Structural primary balance (before CoA)	-6.8	-2.4	-1.5	-0.5	-0.5	-0.5	-3.6	-0.6	-1.4
Real GDP growth	-3.6	3.3	3.5	3.2	3.0	2.5	1.1	3.0	2.5
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	56.6	58.5	58.7	53.2	50.3	48.0	57.9	53.2	54.4
Exchange rate depreciation	0.0%	4.3%	4.3%	0.0%	0.0%	0.0%	2.9%	0.0%	0.7%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	56.6	56.9	55.6	48.2	44.6	41.7	56.4	48.2	50.2
Implicit interest rate (nominal)	3.1	2.3	2.1	1.4	1.3	1.1	2.5	1.5	1.7
Real GDP growth	-3.6	3.8	4.0	3.7	3.5	3.0	1.4	3.5	3.0
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	56.6	57.4	56.6	53.0	51.0	49.5	56.9	53.0	53.9
Implicit interest rate (nominal)	3.1	2.6	2.6	2.4	2.3	2.3	2.8	2.4	2.5
Real GDP growth	-4.1	2.8	3.0	2.6	2.5	2.0	0.6	2.4	2.0

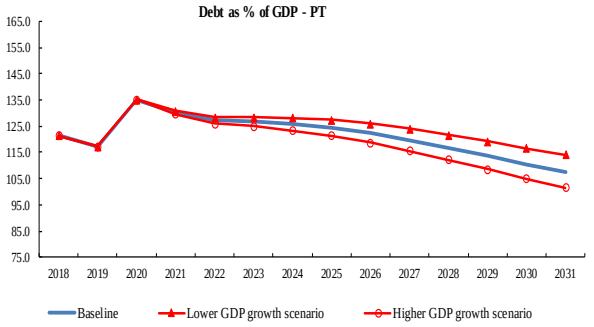
Portugal

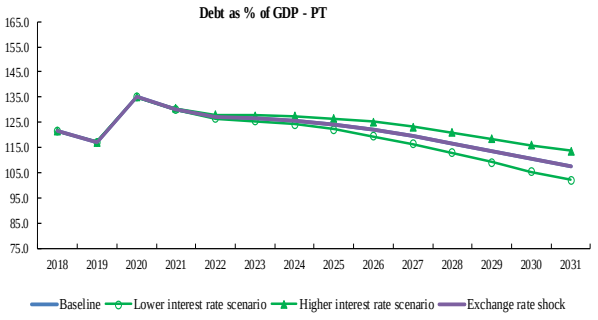
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

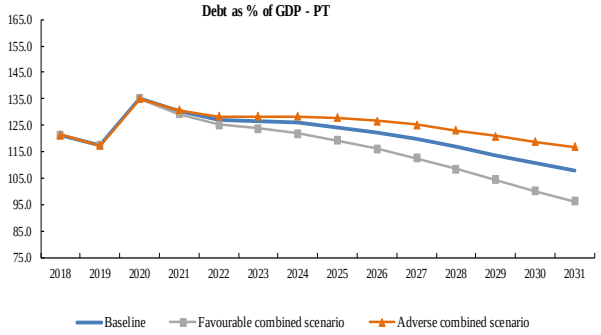
PT - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**121.5**	**117.2**	**135.1**	**130.3**	**127.2**	**126.7**	**125.8**	**124.3**	**122.3**	**119.8**	**116.8**	**113.7**	**110.5**	**107.6**
Changes in the ratio (-1+2+3)	*-4.7*	*-4.3*	*17.9*	*-4.9*	*-3.1*	*-0.5*	*-0.9*	*-1.5*	*-2.0*	*-2.5*	*-3.0*	*-3.1*	*-3.2*	*-2.9*
of which														
(1) Primary balance (1.1+1.2+1.3)	**3.0**	**3.1**	**-4.4**	**-1.8**	**-0.5**	**0.0**	**0.4**	**0.9**	**1.3**	**1.8**	**1.9**	**2.0**	**2.0**	**1.9**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***2.0***	***1.6***	***-0.3***	***-0.6***	***-0.1***	***0.4***	***0.9***	***1.4***	***1.9***	***2.4***	***2.2***	***2.1***	***2.0***	***1.9***
(1.1.1) Structural primary balance (bef. CoA)	*2.0*	*1.6*	*-0.3*	*-0.6*	*-0.1*	*0.4*	*0.9*	*1.4*	*1.9*	*2.4*	*2.4*	*2.4*	*2.4*	*2.4*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.2*	*0.3*	*0.5*
(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*
(1.2) Cyclical component	***1.7***	***2.1***	***-3.5***	***-1.4***	***-0.4***	***-0.4***	***-0.5***	***-0.5***	***-0.5***	***-0.6***	***-0.4***	***-0.2***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-0.7***	***-0.6***	***-0.5***	***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)	**-2.3**	**-1.7**	**12.2**	**-5.9**	**-3.5**	**-0.5**	**-0.4**	**-0.6**	**-0.7**	**-0.7**	**-1.1**	**-1.2**	**-1.2**	**-1.0**
(2.1) Interest expenditure	*3.4*	*3.0*	*2.9*	*2.6*	*2.5*	*2.4*	*2.3*	*2.2*	*2.1*	*2.0*	*2.0*	*1.9*	*1.8*	*1.8*
(2.2) Growth effect	*-3.4*	*-2.6*	*11.7*	*-6.8*	*-4.3*	*-1.1*	*-0.9*	*-0.9*	*-0.8*	*-0.7*	*-1.0*	*-0.9*	*-0.8*	*-0.6*
(2.3) Inflation effect	*-2.2*	*-2.0*	*-2.5*	*-1.7*	*-1.8*	*-1.8*	*-1.9*	*-2.0*	*-2.0*	*-2.1*	*-2.1*	*-2.1*	*-2.2*	*-2.2*
(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	**0.7**	**0.4**	**1.4**	**-0.9**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*0.7*	*0.4*	*1.4*	*-0.9*	*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	-1.3	-1.4	-3.3	-3.3	-2.6	-2.0	-1.4	-0.8	-0.3	0.3	0.3	0.3	0.2	0.1

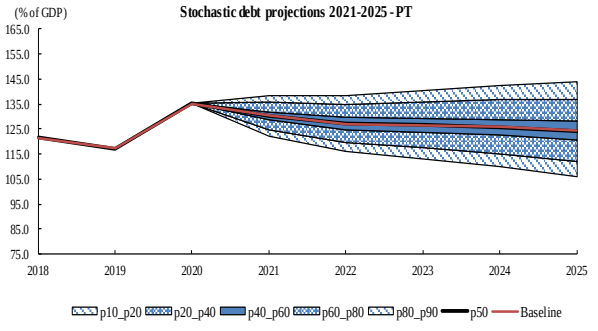












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)	Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections	DSA	S2	Long term
HIGH (S0 = 0.6)	HIGH	MEDIUM (S1 = 2)	Risk category	HIGH	HIGH	HIGH	HIGH	HIGH	MEDIUM	HIGH	LOW (S2 = -1.5)	MEDIUM
			Debt level (2031)	107.6	123.2	114.1	113.8	114.4				
			Debt peak year	2020	2020	2020	2020	2020				
			Percentile rank	27.0%	60.0%							
			Probability debt higher						23.5%			
			Dif. between percentiles						38.2			

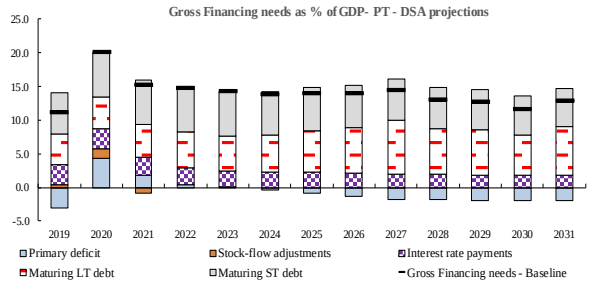
2.2. Sustainability indicators

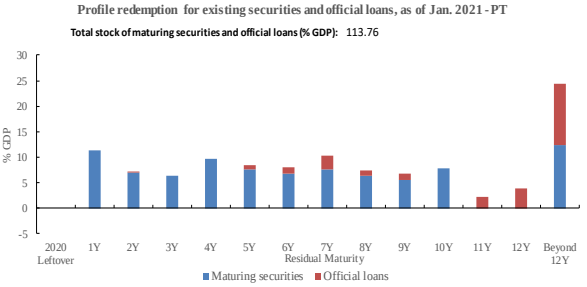
S0 indicator	2009	2020	Critical threshold
Overall index	**0.82**	**0.61**	**0.46**
Fiscal sub-index	1.00	0.96	0.36
Financial competitiveness sub-index	0.72	0.42	0.49

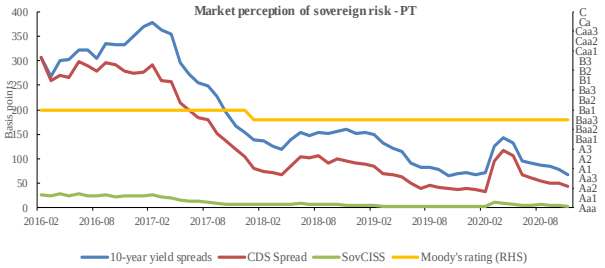
S1 indicator	2019 DSM	2020 DSM
Overall index	**2.3**	**2.0**
of which *Initial budgetary position*	*-2.5*	*-2.9*
Debt requirement	*4.3*	*4.0*
Ageing costs	*0.5*	*0.9*
Required structural primary balance related to S1	**4.6**	**4.4**

S2 indicator	2019 DSM	2020 DSM
Overall index	**-0.3**	**-1.5**
of which Initial Budgetary position	-1.0	-1.7
Ageing costs	0.8	0.2
of which Pensions	*-1.0*	*-2.0*
Health care	*1.7*	*1.5*
Long-term care	*0.6*	*0.7*
Others	*-0.5*	*0.0*
Required structural primary balance related to S2	**2.1**	**0.9**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, PT	Local currency long term	Local currency short term	Foreign currency long term	Foreign currency short term
Moody's	Baa3	(P)P-3	Baa3	
S&P	BBBu	A-2u	BBBu	A-2u
Fitch	BBB		BBB	WD

Sovereign yield spreads (bp)* - as of November 2020	10-year	68.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - PT (2019)	Share of short-term government debt (p.p.): 17.8	Share of government debt in foreign currency (%): 0.0	Share of government debt by non-residents 51.7

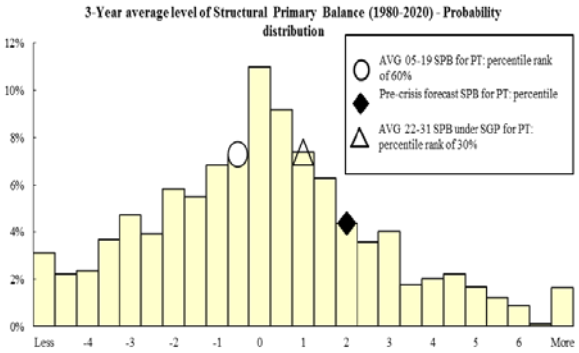
Net International Investment Position (IIP) - PT (2019)	Net IIP (% GDP): -100.3

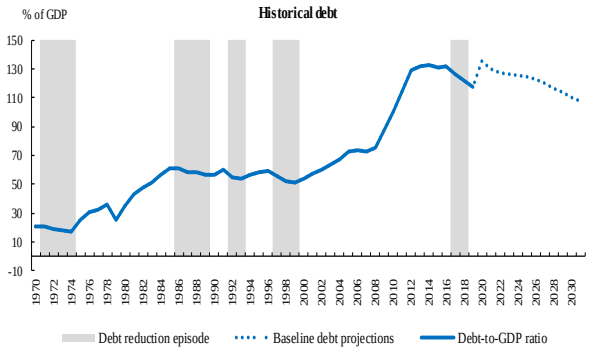
5. Risks related to government's contingent liabilities

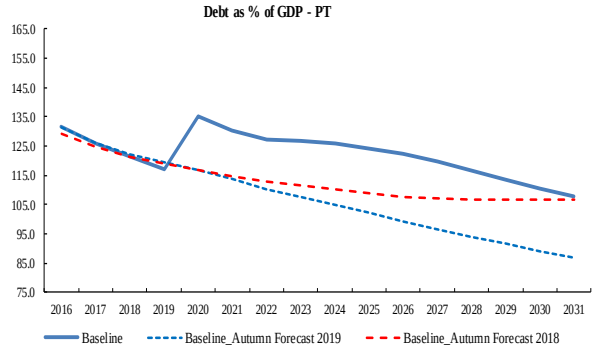
General government contingent liabilities		PT					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		13.3	6.7	5.6	6.3	5.6	6.7
of which One-off guarantees		*13.3*	*6.7*	*5.6*	*6.3*	*5.6*	*6.2*
Standardised guarantees		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*3.6*	*3.2*	*3.0*	*2.7*	*2.5*	*0.3*
		2013	2015	2016	2018	2019	2019
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	9.5	3.5	2.5	2.9	2.2	1.1
	Securities issued under liquidity schemes	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	0.1
	Total	9.5	3.5	2.5	2.9	2.2	1.2

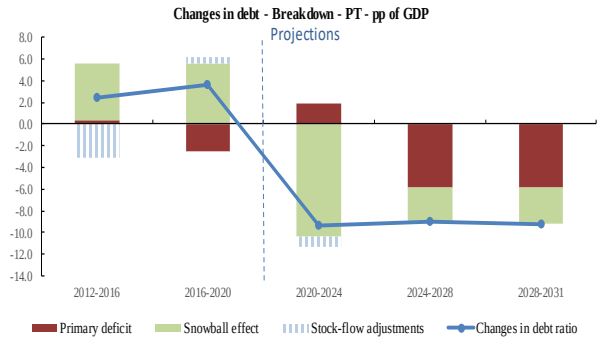
Government's contingent liability risks from banking sector - PT (2019)	Private sector credit flow (% GDP): 2.2	Change in nominal house price index: 9.6	Bank loans-to-deposits ratio (p.p.): 80.1	Share of non-performing loans (%): 5.7	Change in share of non-performing loans (p.p): -3.2	NPL coverage ratio 51.7

6. Realism of baseline assumptions









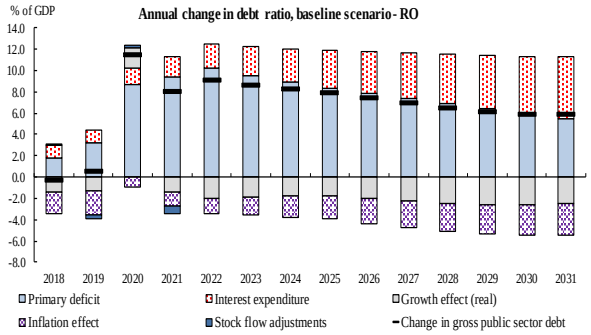
7. Underlying macro-fiscal assumptions

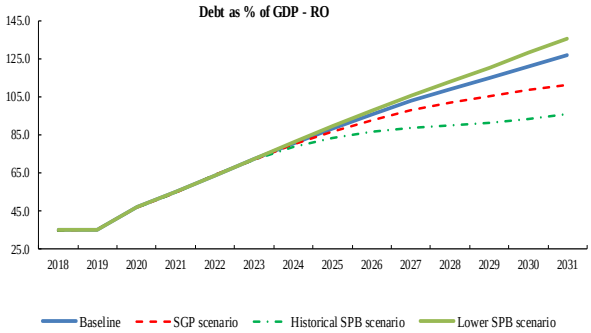
Macro-fiscal assumptions, Portugal	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	135.1	130.3	127.2	119.8	113.7	107.6	130.9	118.6	121.7
Primary balance	-4.4	-1.8	-0.5	1.8	2.0	1.9	-2.2	1.3	0.5
Structural primary balance (before CoA)	-0.3	-0.6	-0.1	2.4	2.4	2.4	-0.4	1.8	1.3
Real GDP growth	-9.3	5.4	3.5	0.6	0.8	0.5	-0.2	0.7	0.5
Potential GDP growth	0.7	1.3	1.4	0.6	0.5	0.5	1.1	0.6	0.8
Inflation rate	2.2	1.3	1.4	1.7	1.9	2.0	1.6	1.7	1.7
Implicit interest rate (nominal)	2.3	2.1	2.0	1.7	1.7	1.6	2.1	1.7	1.8
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	135.1	130.3	127.2	119.6	114.0	108.5	130.9	118.8	121.8
Primary balance	-4.4	-1.8	-0.5	1.6	1.8	1.8	-2.2	1.2	0.4
Structural primary balance	-0.3	-0.6	-0.1	2.0	1.9	1.8	-0.4	1.6	1.1
Real GDP growth	-9.3	5.4	3.5	0.9	0.7	0.6	-0.2	0.7	0.5
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	135.1	130.3	127.2	124.5	123.8	123.2	130.9	124.7	126.2
Primary balance	-4.4	-1.8	-0.5	-0.3	-0.5	-0.8	-2.2	-0.5	-0.9
Structural primary balance (before CoA)	-0.3	-0.6	-0.1	-0.3	-0.3	-0.3	-0.4	-0.3	-0.3
Real GDP growth	-9.3	5.4	3.5	0.6	0.5	0.5	-0.2	0.7	0.5
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	135.1	130.6	127.9	123.3	118.5	113.8	131.2	122.2	124.4
Implicit interest rate (nominal)	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	135.1	129.9	126.5	116.5	109.2	102.0	130.5	115.3	119.1
Implicit interest rate (nominal)	2.3	1.8	1.7	1.2	1.1	1.0	1.9	1.2	1.4
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	135.1	129.7	126.0	115.7	108.5	101.5	130.3	114.6	118.5
Real GDP growth	-9.3	5.9	4.0	1.1	1.3	1.0	0.2	1.2	1.0
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	135.1	130.9	128.4	124.1	119.1	114.1	131.5	122.9	125.0
Real GDP growth	-9.3	4.9	3.0	0.1	0.3	0.0	-0.5	0.2	0.0
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	135.1	130.3	127.2	121.8	118.1	114.4	130.9	121.3	123.7
Primary balance	-4.4	-1.8	-0.5	0.9	0.9	0.7	-2.2	0.6	-0.1
Structural primary balance (before CoA)	-0.3	-0.6	-0.1	1.2	1.2	1.2	-0.4	0.9	0.6
Real GDP growth	-9.3	5.4	3.5	0.6	0.6	0.5	-0.2	0.7	0.5
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	135.1	130.3	127.2	119.8	113.7	107.6	130.9	118.6	121.7
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	135.1	129.3	125.3	112.5	104.3	96.2	129.9	111.4	116.0
Implicit interest rate (nominal)	2.3	1.8	1.7	1.2	1.1	1.0	1.9	1.2	1.4
Real GDP growth	-9.3	5.9	4.0	1.1	1.3	1.0	0.2	1.2	1.0
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	135.1	130.8	128.2	125.2	121.0	116.7	131.4	124.0	125.8
Implicit interest rate (nominal)	2.3	2.2	2.2	2.0	2.0	2.0	2.2	2.0	2.1
Real GDP growth	-9.8	4.9	3.0	0.0	0.3	0.0	-0.7	0.2	0.0

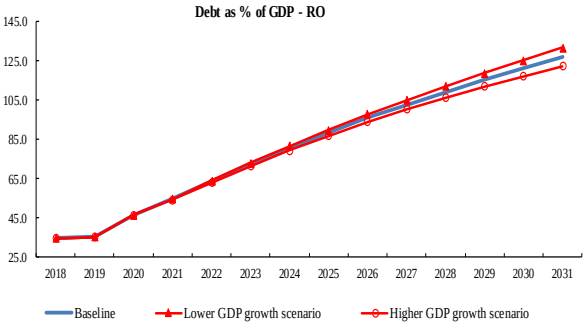
Romania

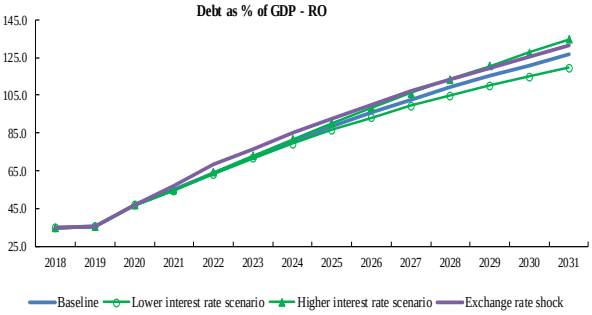
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

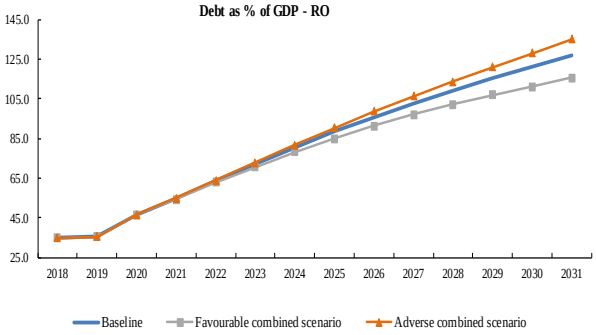
RO - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**34.7**	**35.3**	**46.7**	**54.6**	**63.6**	**72.2**	**80.4**	**88.3**	**95.7**	**102.6**	**109.0**	**115.1**	**121.0**	**126.8**
Changes in the ratio (-1+2+3)	*-0.4*	*0.5*	*11.4*	*7.9*	*9.0*	*8.6*	*8.2*	*7.9*	*7.4*	*6.9*	*6.4*	*6.1*	*5.8*	*5.8*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-1.8**	**-3.2**	**-8.6**	**-9.4**	**-10.2**	**-9.5**	**-8.9**	**-8.4**	**-7.8**	**-7.3**	**-6.9**	**-6.4**	**-5.9**	**-5.4**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-2.1***	***-3.8***	***-6.9***	***-8.0***	***-9.2***	***-8.8***	***-8.3***	***-7.9***	***-7.4***	***-6.9***	***-6.5***	***-6.0***	***-5.6***	***-5.1***
(1.1.1) Structural primary balance (bef. CoA)	*-2.1*	*-3.8*	*-6.9*	*-8.0*	*-9.2*	*-8.8*	*-8.3*	*-7.9*	*-7.4*	*-6.9*	*-6.5*	*-6.0*	*-5.6*	*-5.1*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(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*
(1.2) Cyclical component	***0.6***	***0.8***	***-1.7***	***-1.4***	***-1.0***	***-0.8***	***-0.6***	***-0.5***	***-0.4***	***-0.4***	***-0.4***	***-0.4***	***-0.3***	***-0.3***
(1.3) One-off and other temporary measures	***-0.3***	***-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)	**-2.3**	**-2.4**	**2.5**	**-0.8**	**-1.2**	**-0.9**	**-0.7**	**-0.5**	**-0.5**	**-0.4**	**-0.4**	**-0.3**	**-0.1**	**0.4**
(2.1) Interest expenditure	*1.1*	*1.2*	*1.6*	*1.9*	*2.2*	*2.7*	*3.1*	*3.5*	*3.9*	*4.3*	*4.7*	*5.0*	*5.4*	*5.8*
(2.2) Growth effect	*-1.4*	*-1.3*	*1.9*	*-1.5*	*-1.9*	*-1.8*	*-1.8*	*-1.8*	*-2.0*	*-2.2*	*-2.5*	*-2.6*	*-2.6*	*-2.5*
(2.3) Inflation effect	*-2.0*	*-2.2*	*-1.0*	*-1.3*	*-1.5*	*-1.8*	*-2.0*	*-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	**0.2**	**-0.3**	**0.2**	**-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	*0.0*	*-0.8*	*-0.1*	*-0.7*	*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	*0.2*	*0.5*	*0.3*	*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	-3.2	-5.0	-8.6	-9.9	-11.5	-11.4	-11.4	-11.3	-11.3	-11.2	-11.1	-11.1	-11.0	-10.9

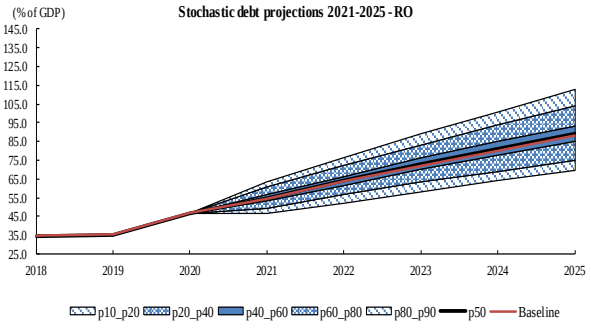












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
HIGH (S0 = 0.5)	HIGH	HIGH (S1 = 14.8)	Risk category	HIGH	HIGH	HIGH	HIGH	HIGH	MEDIUM	HIGH	HIGH (S2 = 6.5)	HIGH
			Debt level (2031)	126.8	95.8	131.5	134.4	135.7				
			Debt peak year	2031	2031	2031	2031	2031				
			Percentile rank	100.0%	97.0%							
			Probability debt higher						99.7%			
			Dif. between percentiles						43.6			

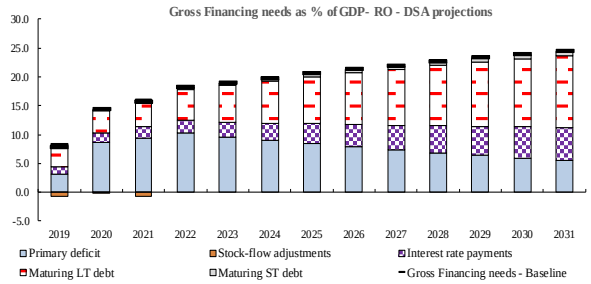
2.2. Sustainability indicators

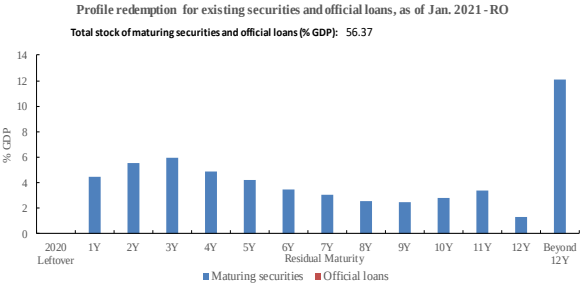
S0 indicator	2009	2020	Critical threshold
Overall index	**0.70**	**0.49**	**0.46**
Fiscal sub-index	0.46	0.53	0.36
Financial competitiveness sub-index	0.81	0.47	0.49

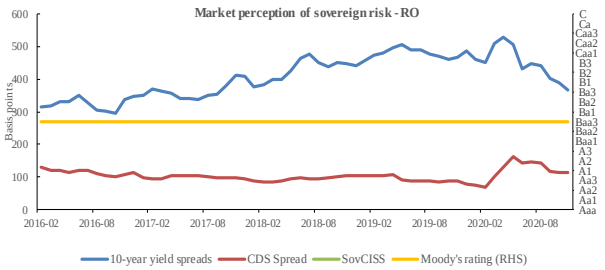
S1 indicator	2019 DSM	2020 DSM
Overall index	**5.7**	**14.8**
of which *Initial budgetary position*	*5.4*	*8.8*
Debt requirement	*-1.5*	*4.3*
Ageing costs	*1.8*	*1.7*
Required structural primary balance related to S1	**1.1**	**10.1**

S2 indicator	2019 DSM	2020 DSM
Overall index	**8.8**	**6.5**
of which Initial Budgetary position	5.1	4.9
Ageing costs	3.7	1.6
of which Pensions	*2.4*	*0.7*
Health care	*0.7*	*0.3*
Long-term care	*0.2*	*0.2*
Others	*0.4*	*0.4*
Required structural primary balance related to S2	**4.2**	**1.9**

3. Financing needs and financial information







Sovereign Ratings	Local currency		Foreign currency	
as of Jan 2021, RO	long term	short term	long term	short term
Moody's	Baa3		Baa3	
S&P	BBB-	A-3	BBB-	A-3
Fitch	BBB-		BBB-	F3

Sovereign yield spreads (bp)* - as of November 2020	10-year	365.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - RO (2019)	Share of short-term government debt (p.p.): 3.1	**Share of government debt in foreign currency 48.7**	Share of government debt by non-residents (%): 46.3

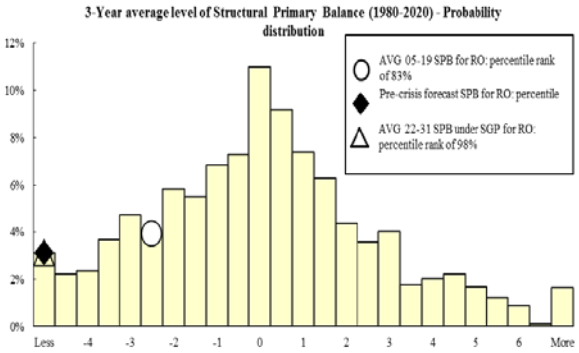
Net International Investment Position (IIP) - RO (2019)	Net IIP (% GDP): -43.5

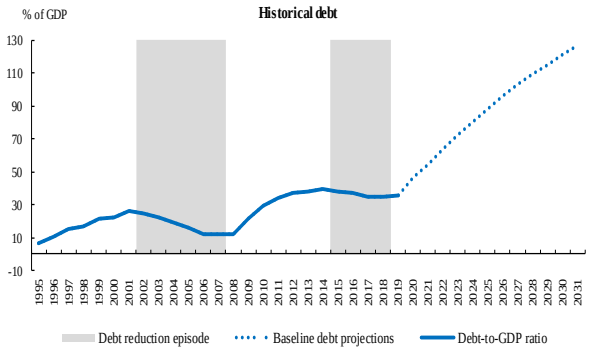
5. Risks related to government's contingent liabilities

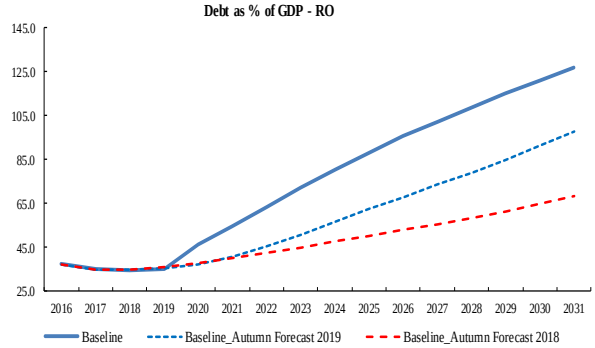
General government contingent liabilities		RO					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		2.2	2.4	2.4	2.2	2.1	6.7
of which One-off guarantees		*0.8*	*0.6*	*0.5*	*0.4*	*0.4*	*6.2*
Standardised guarantees		*1.3*	*1.8*	*1.9*	*1.8*	*1.8*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.3*
		2013	2015	2016	2018	2019	2019
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.	1.1
	Securities issued under liquidity schemes	n.a.	n.a.	n.a.	n.a.	n.a.	0.0
	Special purpose entity	n.a.	n.a.	n.a.	n.a.	n.a.	0.1
	Total	n.a.	n.a.	n.a.	n.a.	n.a.	1.2

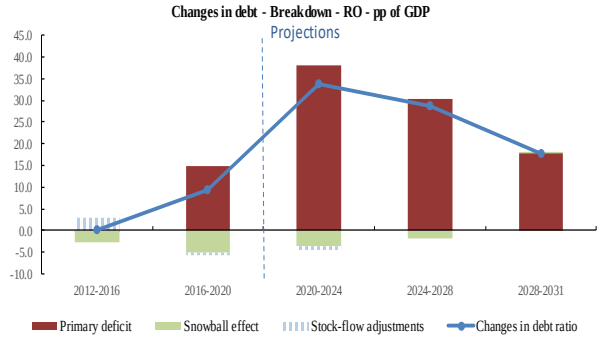
Government's contingent liability risks from banking sector - RO (2019)	Private sector credit flow (% GDP): 2.0	Change in nominal house price index: 3.4	Bank loans-to-deposits ratio (p.p.): 61.0	**Share of non-performing loans (%): 4.2**	Change in share of non-performing loans (p.p): -0.7	NPL coverage ratio 65.5

6. Realism of baseline assumptions









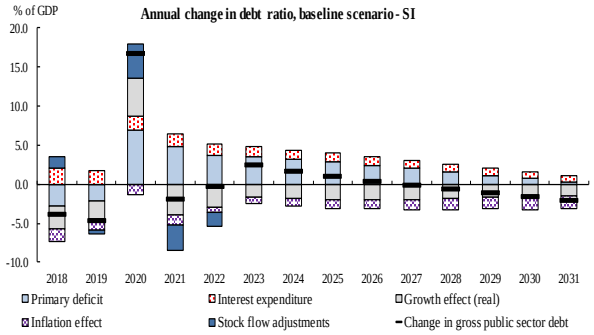
7. Underlying macro-fiscal assumptions

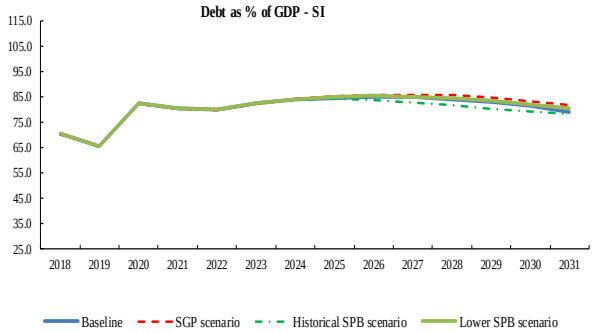
Macro-fiscal assumptions, Romania	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	46.7	54.6	63.6	102.6	115.1	126.8	55.0	101.2	89.7
Primary balance	-8.6	-9.4	-10.2	-7.3	-6.4	-5.4	-9.4	-7.4	-7.9
Structural primary balance (before CoA)	-6.9	-8.0	-9.2	-6.9	-6.0	-5.1	-8.1	-6.9	-7.2
Real GDP growth	-5.2	3.3	3.8	2.5	2.5	2.1	0.6	2.5	2.0
Potential GDP growth	2.5	2.4	2.3	2.3	2.4	2.1	2.4	2.3	2.3
Inflation rate	2.8	2.9	2.9	2.7	2.6	2.5	2.9	2.7	2.7
Implicit interest rate (nominal)	4.5	4.4	4.4	4.7	4.9	5.0	4.4	4.7	4.6
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	46.7	54.6	63.6	97.7	105.5	111.1	55.0	95.1	85.0
Primary balance	-8.6	-9.4	-10.2	-5.5	-3.9	-2.3	-9.4	-5.6	-6.6
Structural primary balance	-6.9	-8.0	-9.2	-4.9	-3.3	-1.8	-8.1	-4.9	-5.7
Real GDP growth	-5.2	3.3	3.8	2.4	2.5	2.2	0.6	2.4	2.0
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	46.7	54.6	63.6	88.5	90.9	95.8	55.0	86.5	78.6
Primary balance	-8.6	-9.4	-10.2	-3.1	-2.3	-2.3	-9.4	-4.1	-5.4
Structural primary balance (before CoA)	-6.9	-8.0	-9.2	-2.3	-2.3	-2.3	-8.1	-3.5	-4.6
Real GDP growth	-5.2	3.3	3.8	3.6	3.7	2.1	0.6	2.6	2.1
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	46.7	54.7	64.0	106.1	120.5	134.4	55.1	105.0	92.6
Implicit interest rate (nominal)	4.5	4.7	4.9	5.6	5.8	6.0	4.7	5.6	5.4
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	46.7	54.5	63.2	99.3	110.0	119.6	54.8	97.7	86.9
Implicit interest rate (nominal)	4.5	4.1	3.9	3.8	3.9	4.1	4.1	3.9	3.9
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	46.7	54.4	63.1	100.3	111.8	122.3	54.7	98.8	87.8
Real GDP growth	-5.2	3.8	4.3	3.0	3.0	2.7	1.0	3.0	2.5
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	46.7	54.8	64.1	105.0	118.6	131.5	55.2	103.8	91.6
Real GDP growth	-5.2	2.8	3.3	2.0	2.0	1.6	0.3	2.0	1.6
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	46.7	54.6	63.6	105.2	120.4	135.7	55.0	104.7	92.2
Primary balance	-8.6	-9.4	-10.2	-8.4	-7.8	-7.4	-9.4	-8.4	-8.7
Structural primary balance (before CoA)	-6.9	-8.0	-9.2	-8.1	-7.6	-7.2	-8.1	-8.1	-8.1
Real GDP growth	-5.2	3.3	3.8	2.5	2.5	2.2	0.6	2.6	2.1
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	46.7	56.8	68.1	107.0	119.5	131.1	57.2	105.6	93.5
Exchange rate depreciation	0.0%	5.2%	5.2%	0.0%	0.0%	0.0%	3.5%	0.0%	0.9%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	46.7	54.2	62.7	97.0	106.9	115.5	54.5	95.3	85.1
Implicit interest rate (nominal)	4.5	4.1	3.9	3.8	3.9	4.1	4.1	3.9	3.9
Real GDP growth	-5.2	3.8	4.3	3.0	3.0	2.7	1.0	3.0	2.5
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	46.7	54.7	64.0	106.4	121.0	135.0	55.1	105.3	92.8
Implicit interest rate (nominal)	4.5	4.6	4.7	5.1	5.3	5.5	4.6	5.1	5.0
Real GDP growth	-5.7	2.8	3.3	1.9	2.0	1.6	0.1	1.9	1.5

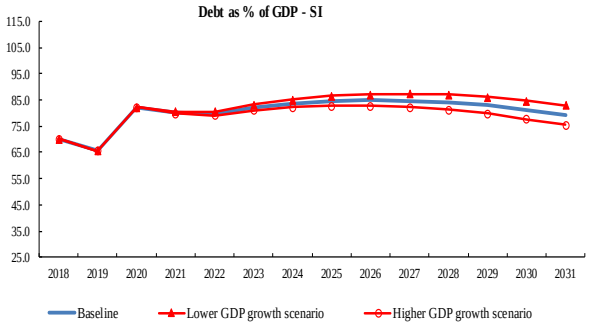
Slovenia

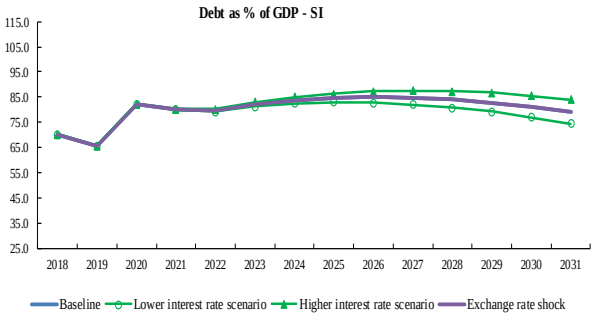
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

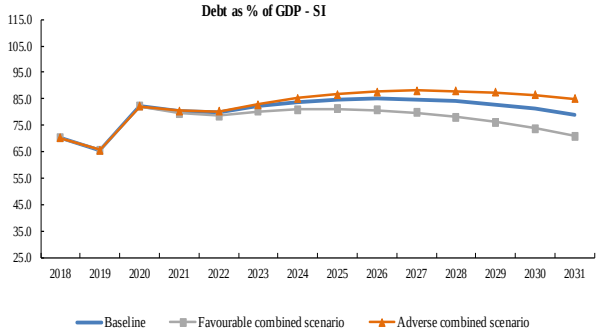
SI - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**70.3**	**65.6**	**82.2**	**80.2**	**79.8**	**82.2**	**83.7**	**84.6**	**85.0**	**84.7**	**84.0**	**82.9**	**81.2**	**79.1**
Changes in the ratio (-1+2+3)	*-3.9*	*-4.7*	*16.6*	*-2.1*	*-0.4*	*2.3*	*1.6*	*0.9*	*0.3*	*-0.2*	*-0.7*	*-1.2*	*-1.7*	*-2.1*
of which														
(1) Primary balance (1.1+1.2+1.3)	**2.7**	**2.2**	**-7.0**	**-4.8**	**-3.6**	**-3.4**	**-3.2**	**-2.8**	**-2.5**	**-2.0**	**-1.6**	**-1.2**	**-0.7**	**-0.2**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***1.0***	***-0.2***	***-5.2***	***-4.6***	***-4.1***	***-3.6***	***-3.1***	***-2.6***	***-2.2***	***-1.7***	***-1.2***	***-0.7***	***-0.3***	***0.2***
(1.1.1) Structural primary balance (bef. CoA)	*1.0*	*-0.2*	*-5.2*	*-4.6*	*-4.1*	*-3.6*	*-3.1*	*-2.6*	*-2.2*	*-1.7*	*-1.2*	*-0.7*	*-0.3*	*0.2*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(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*
(1.2) Cyclical component	***1.8***	***2.5***	***-1.6***	***-0.2***	***0.5***	***0.1***	***-0.1***	***-0.2***	***-0.3***	***-0.4***	***-0.4***	***-0.4***	***-0.5***	***-0.5***
(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)	**-2.6**	**-2.0**	**5.3**	**-3.7**	**-2.2**	**-1.1**	**-1.6**	**-1.9**	**-2.1**	**-2.3**	**-2.3**	**-2.3**	**-2.4**	**-2.3**
(2.1) Interest expenditure	*2.0*	*1.7*	*1.7*	*1.6*	*1.5*	*1.3*	*1.2*	*1.1*	*1.0*	*0.9*	*0.9*	*0.8*	*0.8*	*0.8*
(2.2) Growth effect	*-3.0*	*-2.1*	*4.9*	*-3.9*	*-2.9*	*-1.6*	*-1.8*	*-2.0*	*-2.0*	*-1.9*	*-1.8*	*-1.7*	*-1.7*	*-1.5*
(2.3) Inflation effect	*-1.6*	*-1.6*	*-1.3*	*-1.3*	*-0.8*	*-0.9*	*-1.0*	*-1.1*	*-1.2*	*-1.3*	*-1.4*	*-1.5*	*-1.5*	*-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	**1.5**	**-0.5**	**4.4**	**-3.2**	**-1.8**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*1.5*	*-0.5*	*4.4*	*-3.2*	*-1.8*	*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	-1.0	-1.9	-6.9	-6.2	-5.6	-4.9	-4.3	-3.7	-3.2	-2.6	-2.1	-1.6	-1.1	-0.6

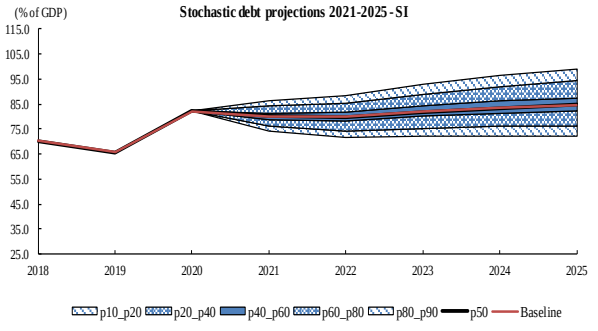












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)	Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections	DSA	S2	Long term
LOW (S0 = 0.4)	HIGH	MEDIUM (S1 = 1.6)	Risk category	MEDIUM	MEDIUM	HIGH	HIGH	MEDIUM	MEDIUM	HIGH	MEDIUM (S2 = 3.4)	HIGH
			Debt level (2031)	79.1	78.0	83.0	84.1	80.2				
			Debt peak year	2026	2025	2027	2027	2026				
			Percentile rank	79.0%	82.0%							
			Probability debt higher						59.8%			
			Dif. between percentiles						27.0			

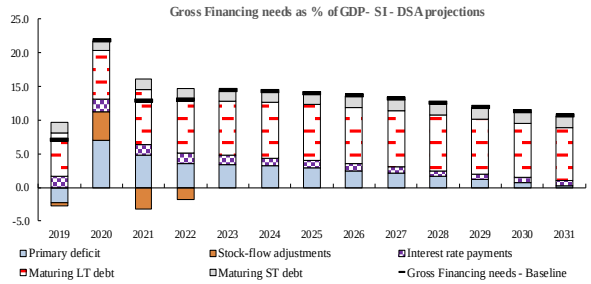
2.2. Sustainability indicators

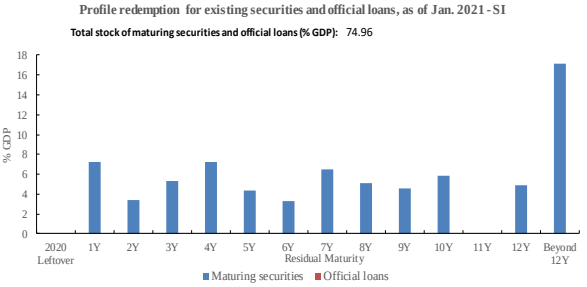
S0 indicator	2009	2020	Critical threshold
Overall index	**0.64**	**0.43**	**0.46**
Fiscal sub-index	0.56	0.72	0.36
Financial competitiveness sub-index	0.68	0.28	0.49

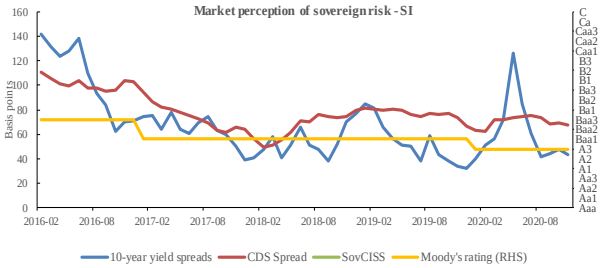
S1 indicator	2019 DSM	2020 DSM
Overall index	**-1.0**	**1.6**
of which *Initial budgetary position*	*-2.4*	*-1.6*
Debt requirement	*0.0*	*0.9*
Ageing costs	*1.4*	*2.2*
Required structural primary balance related to S1	**-0.3**	**2.3**

S2 indicator	2019 DSM	2020 DSM
Overall index	**5.4**	**3.4**
of which Initial Budgetary position	0.0	-0.3
Ageing costs	5.4	3.7
of which Pensions	*3.6*	*2.4*
Health care	*0.8*	*0.3*
Long-term care	*0.7*	*0.6*
Others	*0.4*	*0.4*
Required structural primary balance related to S2	**6.1**	**4.1**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, SI	Local currency long term	Local currency short term	Foreign currency long term	Foreign currency short term
Moody's	A3		A3	
S&P	AA-	A-1+	AA-	A-1+
Fitch	A		A	

Sovereign yield spreads (bp)* - as of November 2020	10-year	43.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - SI (2019)	Share of short-term government debt (p.p.): 3.0	Share of government debt in foreign currency (%): 0.1	**Share of government debt by non-residents 61.1**

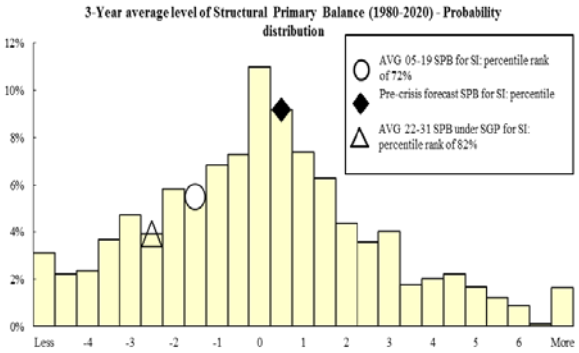
Net International Investment Position (IIP) - SI (2019)	Net IIP (% GDP): -15.4

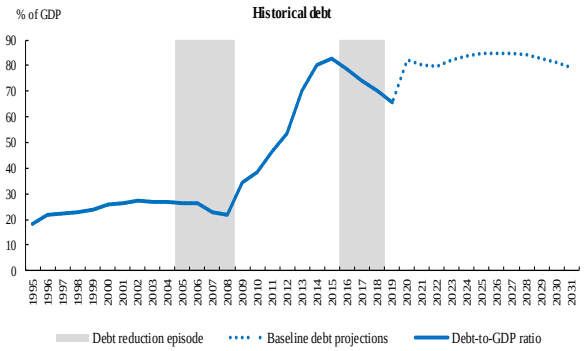
5. Risks related to government's contingent liabilities

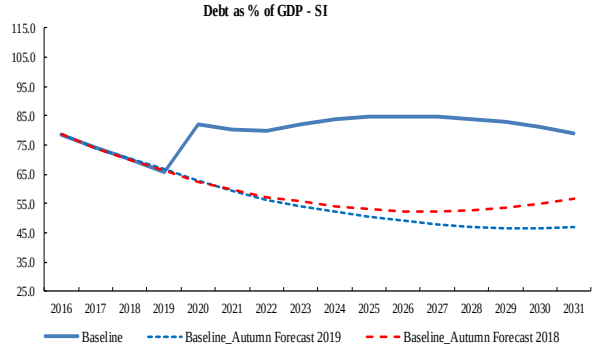
General government contingent liabilities		SI					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		14.4	10.6	9.6	8.6	7.5	6.7
of which One-off guarantees		*14.4*	*10.6*	*9.6*	*8.6*	*7.5*	*6.2*
Standardised guarantees		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.3*
		2013	2015	2016	2018	2019	2019
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	1.1	0.0	0.0	0.0	0.0	1.1
	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		0.1
	Total	1.1	0.0	0.0	0.0	0.0	1.2

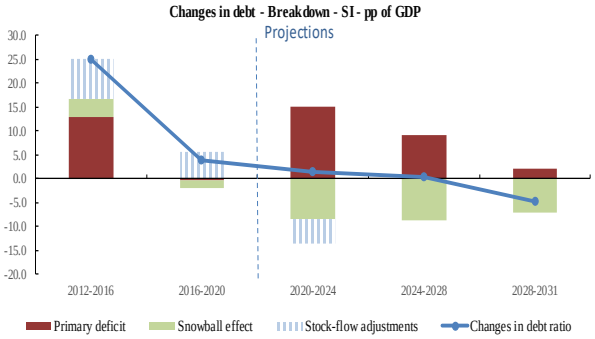
Government's contingent liability risks from banking sector - SI (2019)	Private sector credit flow (% GDP): 0.8	Change in nominal house price index: 6.7	Bank loans-to-deposits ratio (p.p.): 65.7	**Share of non-performing loans (%): 3.2**	Change in share of non-performing loans (p.p): -2.0	NPL coverage ratio 52.3

6. Realism of baseline assumptions









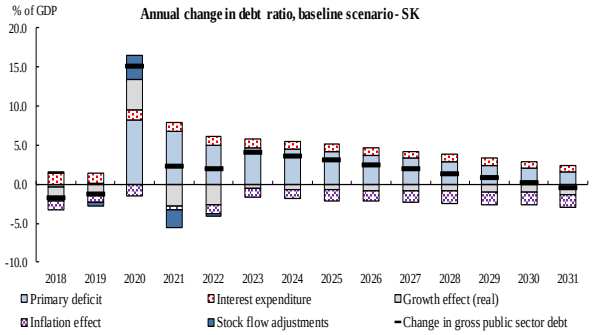
7. Underlying macro-fiscal assumptions

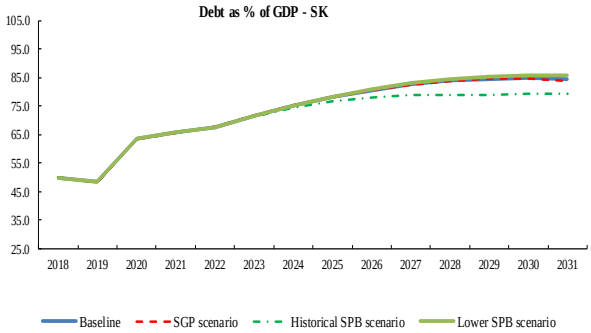
Macro-fiscal assumptions, Slovenia	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	82.2	80.2	79.8	84.7	82.9	79.1	80.7	83.0	82.5
Primary balance	-7.0	-4.8	-3.6	-2.0	-1.2	-0.2	-5.1	-2.0	-2.8
Structural primary balance (before CoA)	-5.2	-4.6	-4.1	-1.7	-0.7	0.2	-4.6	-1.7	-2.4
Real GDP growth	-7.1	5.1	3.8	2.3	2.1	1.9	0.6	2.2	1.8
Potential GDP growth	1.3	1.9	2.3	2.5	2.2	2.0	1.8	2.4	2.3
Inflation rate	2.1	1.6	1.0	1.5	1.8	2.0	1.6	1.5	1.6
Implicit interest rate (nominal)	2.5	2.0	2.0	1.2	1.0	1.0	2.2	1.2	1.5
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	82.2	80.2	79.8	85.8	84.8	81.5	80.7	84.2	83.3
Primary balance	-7.0	-4.8	-3.6	-2.4	-1.5	-0.5	-5.1	-2.3	-3.0
Structural primary balance	-5.2	-4.6	-4.1	-2.1	-1.1	0.0	-4.6	-2.0	-2.7
Real GDP growth	-7.1	5.1	3.8	2.3	2.0	1.9	0.6	2.2	1.8
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	82.2	80.2	79.8	82.6	80.1	78.0	80.7	81.6	81.4
Primary balance	-7.0	-4.8	-3.6	-1.6	-1.3	-1.3	-5.1	-1.9	-2.7
Structural primary balance (before CoA)	-5.2	-4.6	-4.1	-1.3	-1.3	-1.3	-4.6	-1.7	-2.5
Real GDP growth	-7.1	5.1	3.8	2.8	2.5	2.0	0.6	2.3	1.9
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	82.2	80.4	80.3	87.5	86.8	84.1	81.0	85.9	84.7
Implicit interest rate (nominal)	2.5	2.3	2.3	1.9	1.8	1.8	2.4	1.9	2.0
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	82.2	80.0	79.3	82.1	79.2	74.4	80.5	80.3	80.4
Implicit interest rate (nominal)	2.5	1.8	1.6	0.5	0.3	0.2	2.0	0.6	0.9
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	82.2	79.8	79.1	82.3	79.7	75.4	80.4	80.6	80.5
Real GDP growth	-7.1	5.6	4.3	2.8	2.6	2.4	0.9	2.7	2.3
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	82.2	80.5	80.5	87.3	86.1	83.0	81.1	85.6	84.5
Real GDP growth	-7.1	4.6	3.3	1.8	1.6	1.4	0.2	1.7	1.3
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	82.2	80.2	79.8	85.1	83.6	80.2	80.7	83.5	82.8
Primary balance	-7.0	-4.8	-3.6	-2.2	-1.4	-0.5	-5.1	-2.1	-2.9
Structural primary balance (before CoA)	-5.2	-4.6	-4.1	-1.9	-1.0	-0.1	-4.6	-1.9	-2.6
Real GDP growth	-7.1	5.1	3.8	2.3	2.1	1.9	0.6	2.2	1.8
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	82.2	80.2	79.8	84.7	82.9	79.1	80.7	83.0	82.5
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	82.2	79.6	78.6	79.7	76.2	70.9	80.1	78.0	78.5
Implicit interest rate (nominal)	2.5	1.8	1.6	0.5	0.3	0.2	2.0	0.6	0.9
Real GDP growth	-7.1	5.6	4.3	2.8	2.6	2.4	0.9	2.7	2.3
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	82.2	80.4	80.3	88.1	87.5	85.0	81.0	86.4	85.0
Implicit interest rate (nominal)	2.5	2.2	2.2	1.5	1.4	1.4	2.3	1.6	1.8
Real GDP growth	-7.6	4.6	3.3	1.8	1.6	1.4	0.1	1.7	1.3

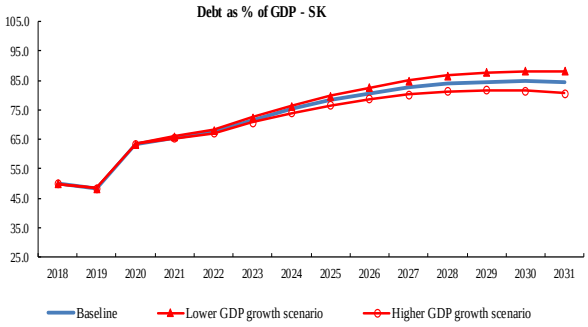
Slovakia

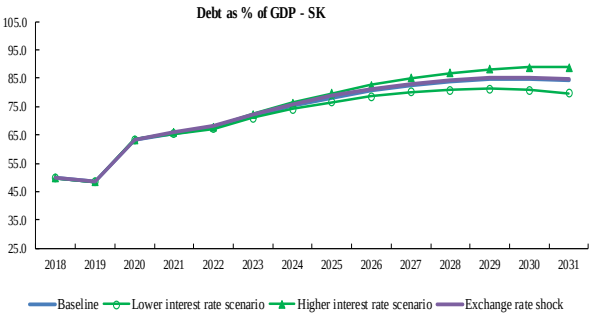
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

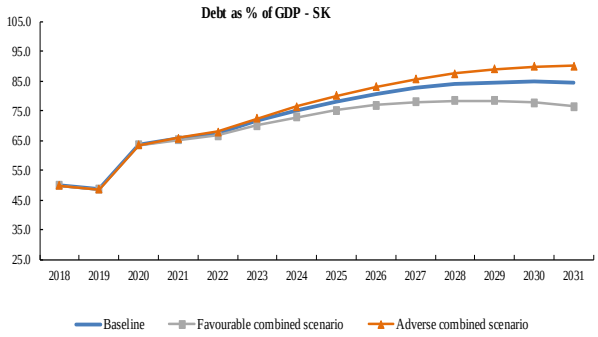
SK - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**49.9**	**48.5**	**63.4**	**65.7**	**67.6**	**71.6**	**75.2**	**78.2**	**80.6**	**82.5**	**83.8**	**84.6**	**84.8**	**84.2**
Changes in the ratio (-1+2+3)	*-1.8*	*-1.4*	*15.0*	*2.3*	*1.9*	*4.1*	*3.6*	*3.0*	*2.5*	*1.9*	*1.3*	*0.7*	*0.2*	*-0.5*
of which														
(1) Primary balance (1.1+1.2+1.3)	**0.4**	**-0.1**	**-8.3**	**-6.7**	**-4.9**	**-4.7**	**-4.4**	**-4.1**	**-3.7**	**-3.3**	**-2.9**	**-2.5**	**-2.0**	**-1.6**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-0.9***	***-1.6***	***-6.5***	***-6.2***	***-5.3***	***-4.8***	***-4.4***	***-3.9***	***-3.5***	***-3.0***	***-2.6***	***-2.1***	***-1.7***	***-1.2***
(1.1.1) Structural primary balance (bef. CoA)	*-0.9*	*-1.6*	*-6.5*	*-6.2*	*-5.3*	*-4.8*	*-4.4*	*-3.9*	*-3.5*	*-3.0*	*-2.6*	*-2.1*	*-1.7*	*-1.2*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(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*
(1.2) Cyclical component	***1.3***	***1.5***	***-1.7***	***-0.5***	***0.4***	***0.1***	***0.0***	***-0.2***	***-0.2***	***-0.3***	***-0.3***	***-0.3***	***-0.4***	***-0.4***
(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)	**-1.5**	**-1.1**	**3.5**	**-2.0**	**-2.7**	**-0.7**	**-0.9**	**-1.1**	**-1.3**	**-1.4**	**-1.6**	**-1.7**	**-1.8**	**-2.1**
(2.1) Interest expenditure	*1.3*	*1.2*	*1.3*	*1.2*	*1.1*	*1.1*	*1.0*	*1.0*	*0.9*	*0.9*	*0.9*	*0.9*	*0.9*	*0.9*
(2.2) Growth effect	*-1.8*	*-1.1*	*3.8*	*-2.8*	*-2.7*	*-0.6*	*-0.6*	*-0.7*	*-0.8*	*-0.9*	*-0.9*	*-1.0*	*-1.1*	*-1.3*
(2.3) Inflation effect	*-1.0*	*-1.2*	*-1.6*	*-0.4*	*-1.1*	*-1.2*	*-1.3*	*-1.3*	*-1.4*	*-1.5*	*-1.5*	*-1.6*	*-1.6*	*-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	**0.1**	**-0.4**	**3.1**	**-2.4**	**-0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*0.1*	*-0.5*	*3.2*	*-2.4*	*-0.3*	*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*	*-0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Pro memoria														
Structural balance	-2.3	-2.8	-7.8	-7.3	-6.4	-5.9	-5.4	-4.9	-4.4	-3.9	-3.5	-3.0	-2.6	-2.1

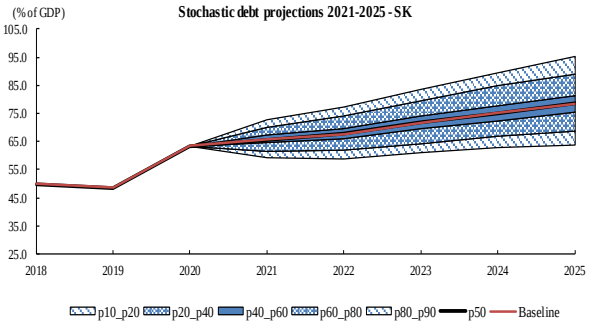












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
HIGH (S0 = 0.5)	HIGH	HIGH (S1 = 3.2)	Risk category	MEDIUM	MEDIUM	HIGH	HIGH	HIGH	MEDIUM	HIGH	HIGH (S2 = 7.7)	HIGH
			Debt level (2031)	84.2	79.2	88.0	89.0	85.6				
			Debt peak year	2030	2031	2030	2031	2030				
			Percentile rank	90.0%	90.0%							
			Probability debt higher						90.9%			
			Dif. between percentiles						31.6			

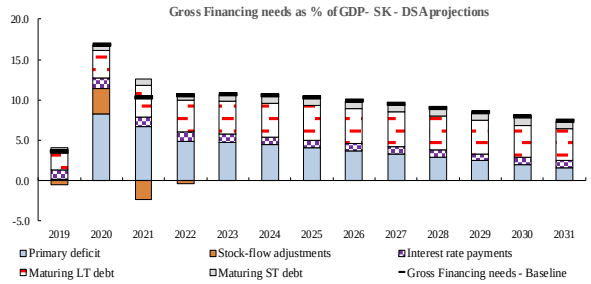
2.2. Sustainability indicators

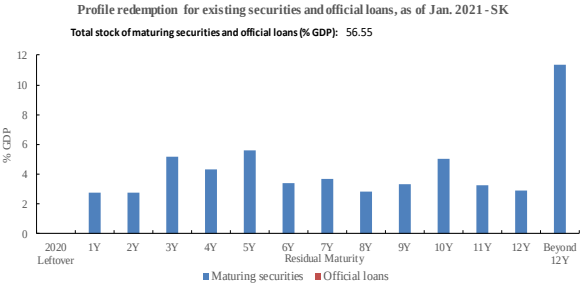
S0 indicator	2009	2020	Critical threshold
Overall index	**0.50**	**0.54**	**0.46**
Fiscal sub-index	0.47	0.73	0.36
Financial competitiveness sub-index	0.52	0.44	0.49

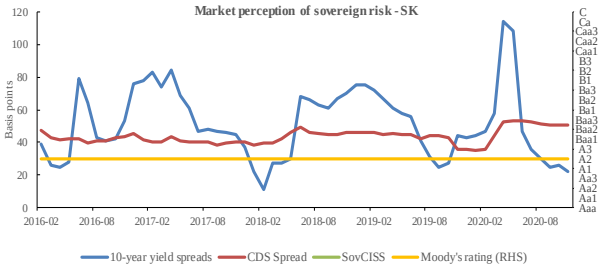
S1 indicator	2019 DSM	2020 DSM
Overall index	**-1.8**	**3.2**
of which *Initial budgetary position*	*-0.8*	*-0.2*
Debt requirement	*-1.2*	*1.5*
Ageing costs	*0.1*	*1.9*
Required structural primary balance related to S1	**-2.6**	**2.5**

S2 indicator	2019 DSM	2020 DSM
Overall index	**3.8**	**7.7**
of which Initial Budgetary position	1.3	1.4
Ageing costs	2.6	6.3
of which Pensions	*1.1*	*4.7*
Health care	*0.9*	*0.7*
Long-term care	*0.4*	*0.4*
Others	*0.1*	*0.4*
Required structural primary balance related to S2	**3.1**	**6.9**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, SK	Local currency long term	Local currency short term	Foreign currency long term	Foreign currency short term
Moody's	A2		A2	
S&P	A+	A-1	A+	A-1
Fitch	A		A	

Sovereign yield spreads (bp)* - as of November 2020	10-year	22.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - SK (2019)	Share of short-term government debt (p.p.): 1.3	Share of government debt in foreign currency (%): 0.1	Share of government debt by non-residents 57.5

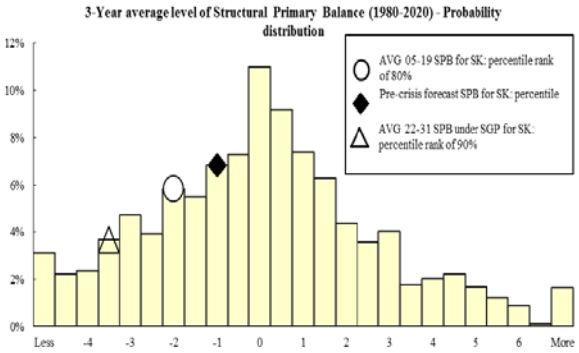
Net International Investment Position (IIP) - SK (2019)	Net IIP (% GDP): -66.3

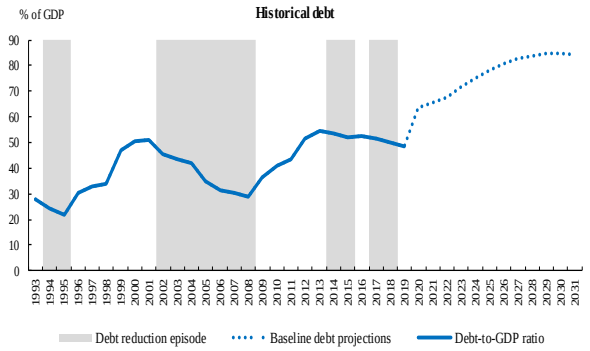
5. Risks related to government's contingent liabilities

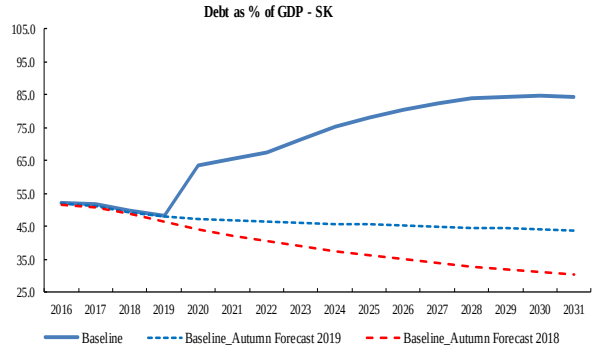
General government contingent liabilities		SK					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		0.0	0.0	0.0	0.0	0.0	6.7
of which One-off guarantees		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*6.2*
Standardised guarantees		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*1.3*	*1.1*	*3.2*	*2.9*	*2.6*	*0.3*
		2013	2015	2016	2018	2019	2019
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.	1.1
	Securities issued under liquidity schemes	n.a.	n.a.	n.a.	n.a.	n.a.	0.0
	Special purpose entity	n.a.	n.a.	n.a.	n.a.	n.a.	0.1
	Total	n.a.	n.a.	n.a.	n.a.	n.a.	1.2

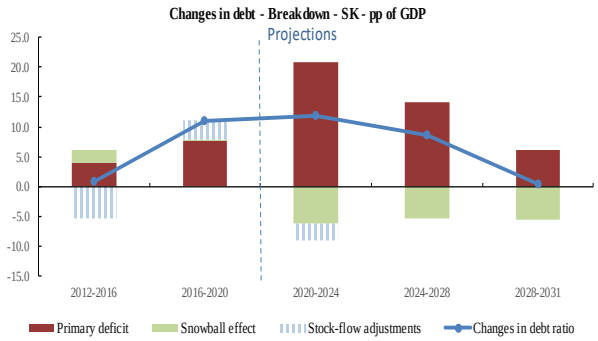
Government's contingent liability risks from banking sector - SK (2019)	Private sector credit flow (% GDP): 5.0	Change in nominal house price index: 9.1	Bank loans-to-deposits ratio (p.p.): 109.6	Share of non-performing loans (%): 2.5	Change in share of non-performing loans (p.p): -0.1	NPL coverage ratio 62.5

6. Realism of baseline assumptions









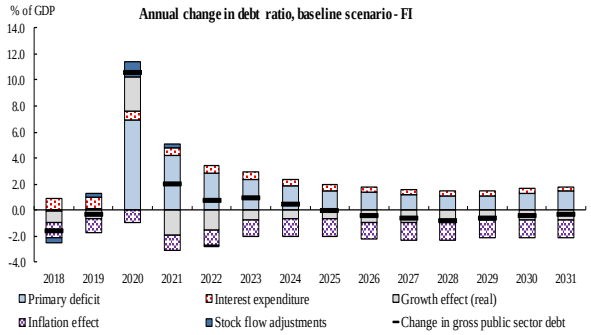
7. Underlying macro-fiscal assumptions

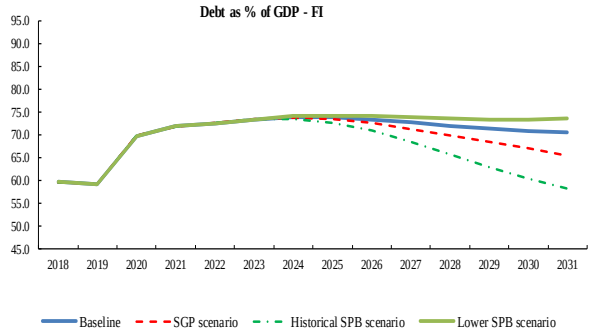
Macro-fiscal assumptions, Slovakia	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.4	65.7	67.6	82.5	84.6	84.2	65.6	80.6	76.9
Primary balance	-8.3	-6.7	-4.9	-3.3	-2.5	-1.6	-6.6	-3.2	-4.1
Structural primary balance (before CoA)	-6.5	-6.2	-5.3	-3.0	-2.1	-1.2	-6.0	-3.0	-3.8
Real GDP growth	-7.5	4.7	4.3	1.1	1.2	1.6	0.5	1.1	1.0
Potential GDP growth	0.7	1.3	1.9	1.2	1.3	1.7	1.3	1.3	1.3
Inflation rate	3.3	0.6	1.7	1.9	1.9	2.0	1.9	1.9	1.9
Implicit interest rate (nominal)	2.5	1.9	1.8	1.2	1.1	1.1	2.1	1.2	1.4
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.4	65.7	67.6	82.6	84.5	84.0	65.6	80.6	76.8
Primary balance	-8.3	-6.7	-4.9	-3.3	-2.4	-1.4	-6.6	-3.2	-4.1
Structural primary balance	-6.5	-6.2	-5.3	-3.0	-2.0	-0.9	-6.0	-3.0	-3.7
Real GDP growth	-7.5	4.7	4.3	1.1	1.2	1.5	0.5	1.1	1.0
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.4	65.7	67.6	78.7	79.0	79.2	65.6	77.4	74.4
Primary balance	-8.3	-6.7	-4.9	-2.3	-2.0	-2.0	-6.6	-2.7	-3.7
Structural primary balance (before CoA)	-6.5	-6.2	-5.3	-2.0	-2.0	-2.0	-6.0	-2.5	-3.4
Real GDP growth	-7.5	4.7	4.3	1.7	1.7	1.7	0.5	1.2	1.1
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.4	65.8	68.0	85.0	88.2	89.0	65.7	83.2	78.9
Implicit interest rate (nominal)	2.5	2.2	2.2	1.9	1.8	1.9	2.3	1.9	2.0
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.4	65.5	67.2	80.1	81.2	79.8	65.4	78.2	75.0
Implicit interest rate (nominal)	2.5	1.7	1.4	0.5	0.4	0.3	1.9	0.6	0.9
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.4	65.4	67.0	80.3	81.6	80.7	65.3	78.4	75.1
Real GDP growth	-7.5	5.2	4.8	1.6	1.7	2.1	0.8	1.6	1.4
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.4	66.0	68.1	84.9	87.7	88.0	65.8	83.0	78.7
Real GDP growth	-7.5	4.2	3.8	0.6	0.7	1.1	0.2	0.6	0.5
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.4	65.7	67.6	82.9	85.4	85.6	65.6	81.1	77.2
Primary balance	-8.3	-6.7	-4.9	-3.5	-2.7	-1.9	-6.6	-3.4	-4.2
Structural primary balance (before CoA)	-6.5	-6.2	-5.3	-3.2	-2.4	-1.6	-6.0	-3.2	-3.9
Real GDP growth	-7.5	4.7	4.3	1.1	1.3	1.6	0.5	1.1	1.0
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.4	66.1	68.3	83.2	85.2	84.9	65.9	81.3	77.4
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.4	65.2	66.6	77.9	78.4	76.4	65.1	76.0	73.3
Implicit interest rate (nominal)	2.5	1.7	1.4	0.5	0.4	0.3	1.9	0.6	0.9
Real GDP growth	-7.5	5.2	4.8	1.6	1.7	2.1	0.8	1.6	1.4
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	63.4	65.9	68.0	85.6	89.0	90.0	65.8	83.8	79.3
Implicit interest rate (nominal)	2.5	2.1	2.0	1.5	1.5	1.5	2.2	1.6	1.7
Real GDP growth	-8.0	4.2	3.8	0.5	0.7	1.1	0.0	0.6	0.4

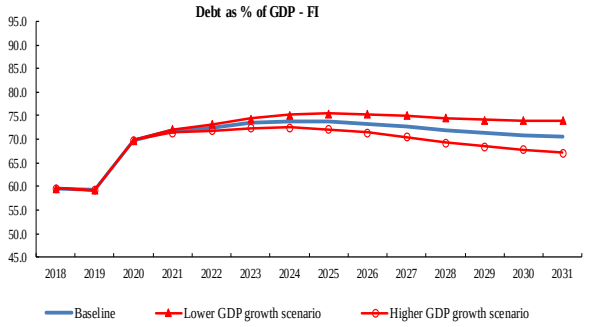
Finland

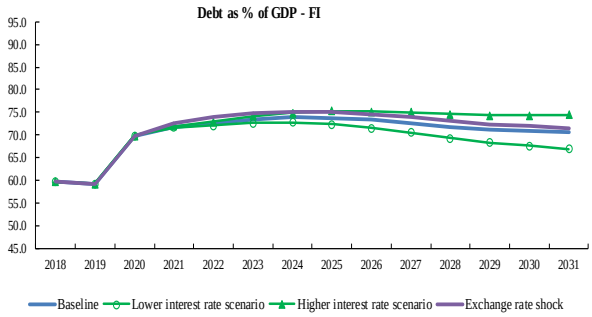
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

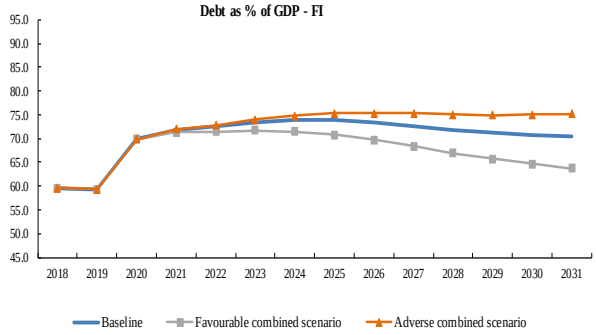
FI - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**59.6**	**59.3**	**69.8**	**71.8**	**72.5**	**73.4**	**73.8**	**73.8**	**73.3**	**72.7**	**71.9**	**71.3**	**70.8**	**70.5**
Changes in the ratio (-1+2+3)	*-1.6*	*-0.4*	*10.5*	*2.0*	*0.7*	*0.9*	*0.4*	*-0.1*	*-0.4*	*-0.6*	*-0.8*	*-0.6*	*-0.4*	*-0.3*
of which														
(1) Primary balance (1.1+1.2+1.3)	**0.0**	**-0.2**	**-6.9**	**-4.2**	**-2.9**	**-2.4**	**-1.9**	**-1.5**	**-1.4**	**-1.2**	**-1.1**	**-1.1**	**-1.3**	**-1.5**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***-0.5***	***-0.8***	***-4.6***	***-2.9***	***-2.1***	***-1.7***	***-1.3***	***-0.9***	***-1.0***	***-1.0***	***-1.1***	***-1.1***	***-1.3***	***-1.5***
(1.1.1) Structural primary balance (bef. CoA)	*-0.5*	*-0.8*	*-4.6*	*-2.9*	*-2.1*	*-1.7*	*-1.3*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.2*	*0.4*	*0.5*	*0.7*	*0.8*	*0.9*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.0*	*0.0*	*0.1*	*0.2*	*0.4*	*0.5*	*0.4*	*0.4*
(1.2) Cyclical component	***0.6***	***0.6***	***-2.3***	***-1.3***	***-0.8***	***-0.7***	***-0.6***	***-0.6***	***-0.4***	***-0.2***	***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)	**-1.1**	**-0.9**	**2.4**	**-2.4**	**-2.1**	**-1.5**	**-1.5**	**-1.5**	**-1.8**	**-1.9**	**-1.9**	**-1.7**	**-1.7**	**-1.8**
(2.1) Interest expenditure	*0.9*	*0.8*	*0.7*	*0.7*	*0.6*	*0.5*	*0.5*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*
(2.2) Growth effect	*-0.9*	*-0.7*	*2.6*	*-1.9*	*-1.5*	*-0.8*	*-0.7*	*-0.7*	*-0.9*	*-0.9*	*-0.9*	*-0.7*	*-0.7*	*-0.8*
(2.3) Inflation effect	*-1.1*	*-1.0*	*-0.9*	*-1.1*	*-1.2*	*-1.2*	*-1.3*	*-1.3*	*-1.3*	*-1.4*	*-1.4*	*-1.4*	*-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	**-0.5**	**0.4**	**1.2**	**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	*-0.2*	*0.3*	*1.2*	*0.4*	*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	*-0.2*	*0.1*	*0.0*	*-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	-1.4	-1.7	-5.3	-3.5	-2.7	-2.2	-1.8	-1.4	-1.4	-1.4	-1.5	-1.5	-1.7	-1.8

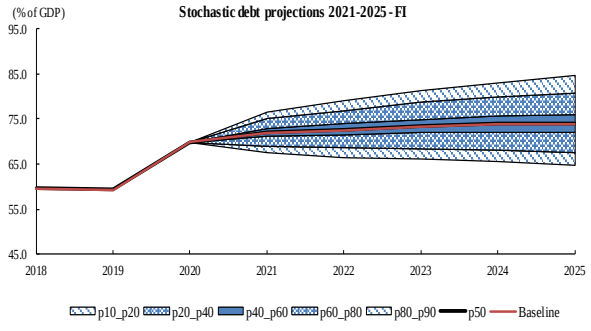












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)	Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections	DSA	S2	Long term
HIGH (S0 = 0.5)	MEDIUM	MEDIUM (S1 = 0.9)	Risk category	MEDIUM	LOW	MEDIUM	MEDIUM	MEDIUM	LOW	MEDIUM	MEDIUM (S2 = 3.2)	MEDIUM
			Debt level (2031)	70.5	58.2	74.0	74.4	73.4				
			Debt peak year	2024	2024	2025	2025	2025				
			Percentile rank	71.0%	55.0%							
			Probability debt higher						70.5%			
			Dif. between percentiles						19.9			

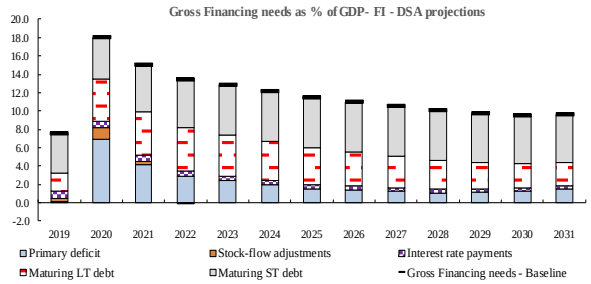
2.2. Sustainability indicators

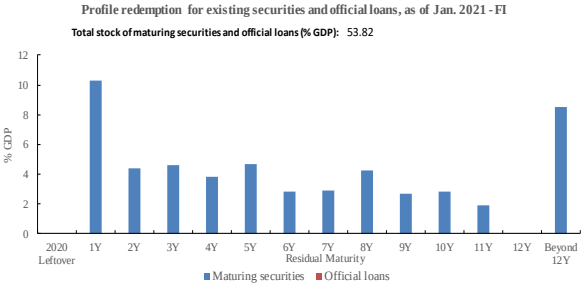
S0 indicator	2009	2020	Critical threshold
Overall index	**0.33**	**0.49**	**0.46**
Fiscal sub-index	0.35	0.67	0.36
Financial competitiveness sub-index	0.31	0.40	0.49

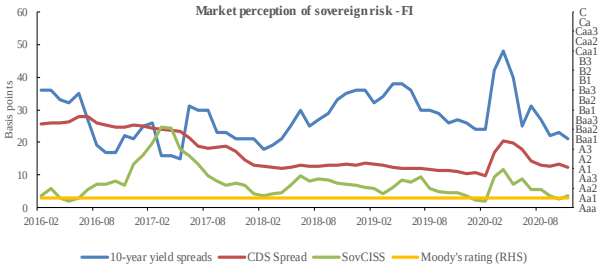
S1 indicator	2019 DSM	2020 DSM
Overall index	**0.5**	**0.9**
of which *Initial budgetary position*	*-0.8*	*-0.8*
Debt requirement	*0.0*	*1.0*
Ageing costs	*1.3*	*0.8*
Required structural primary balance related to S1	**-0.4**	**-0.1**

S2 indicator	2019 DSM	2020 DSM
Overall index	**3.6**	**3.2**
of which Initial Budgetary position	1.7	2.1
Ageing costs	1.9	1.2
of which Pensions	*0.0*	*-0.4*
Health care	*0.5*	*0.5*
Long-term care	*1.6*	*1.5*
Others	*-0.2*	*-0.4*
Required structural primary balance related to S2	**2.6**	**2.3**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, FI	Local currency long term	Local currency short term	Foreign currency long term	Foreign currency short term
Moody's	Aa1		Aa1	
S&P	AA+	A-1+	AA+	A-1+
Fitch	AA+		AA+	F1+

Sovereign yield spreads (bp)* - as of November 2020	10-year	21.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - FI (2019)	Share of short-term government debt (p.p.): 9.3	Share of government debt in foreign currency (%): 2.7	Share of government debt by non-residents 62.3

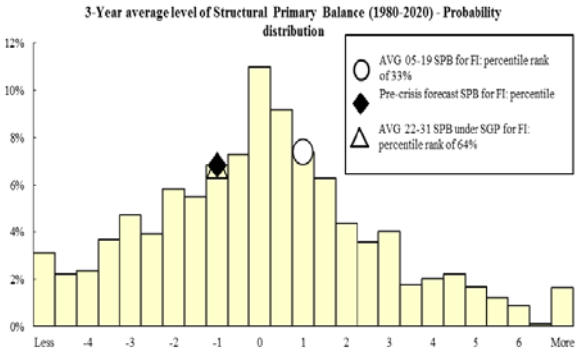
Net International Investment Position (IIP) - FI (2019)	Net IIP (% GDP): 3.6

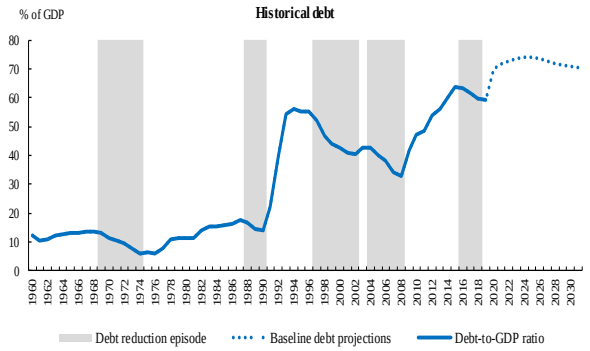
5. Risks related to government's contingent liabilities

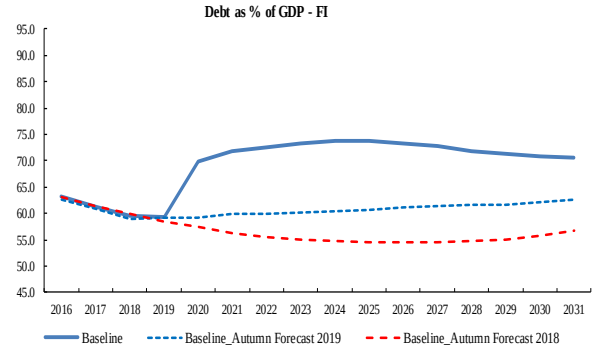
General government contingent liabilities		FI					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		23.6	28.3	27.8	31.8	32.6	6.7
of which One-off guarantees		*22.8*	*27.3*	*26.7*	*30.5*	*31.1*	*6.2*
Standardised guarantees		*0.8*	*1.0*	*1.1*	*1.2*	*1.5*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.3*
		2013	2015	2016	2018	2019	2019
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	1.1
	Securities issued under liquidity schemes	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	0.1
	Total	0.0	0.0	0.0	0.0	0.0	1.2

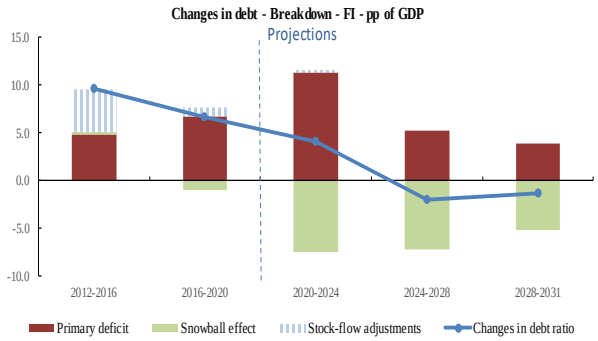
Government's contingent liability risks from banking sector - FI (2019)	Private sector credit flow (% GDP): 7.5	Change in nominal house price index: 1.0	Bank loans-to-deposits ratio (p.p.): 168.7	Share of non-performing loans (%): 1.5	Change in share of non-performing loans (p.p): 0.0	NPL coverage ratio 32.6

6. Realism of baseline assumptions









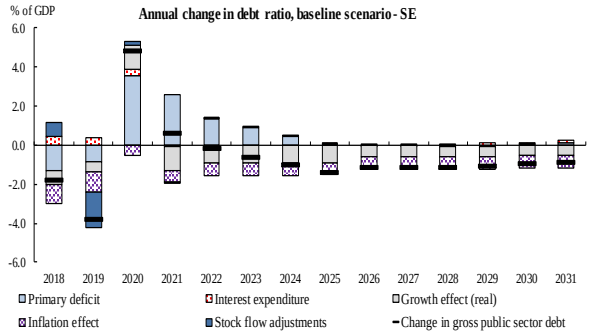
7. Underlying macro-fiscal assumptions

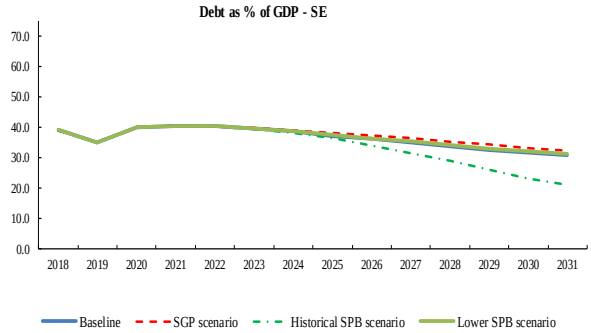
Macro-fiscal assumptions, Finland	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	69.8	71.8	72.5	72.7	71.3	70.5	71.4	72.4	72.1
Primary balance	-6.9	-4.2	-2.9	-1.2	-1.1	-1.5	-4.6	-1.5	-2.3
Structural primary balance (before CoA)	-4.6	-2.9	-2.1	-0.9	-0.9	-0.9	-3.2	-1.0	-1.6
Real GDP growth	-4.3	2.9	2.2	1.3	1.0	1.1	0.3	1.1	0.9
Potential GDP growth	0.7	1.1	1.2	1.0	1.0	1.1	1.0	1.0	1.0
Inflation rate	1.5	1.7	1.7	1.9	1.9	2.0	1.6	1.9	1.8
Implicit interest rate (nominal)	1.2	1.0	0.8	0.6	0.5	0.5	1.0	0.6	0.7
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	69.8	71.8	72.5	71.3	68.4	65.4	71.4	70.6	70.8
Primary balance	-6.9	-4.2	-2.9	-0.5	-0.3	-0.2	-4.6	-0.9	-1.8
Structural primary balance	-4.6	-2.9	-2.1	-0.1	-0.1	-0.2	-3.2	-0.4	-1.1
Real GDP growth	-4.3	2.9	2.2	1.4	1.2	1.2	0.3	1.1	0.9
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	69.8	71.8	72.5	68.5	62.8	58.2	71.4	67.3	68.3
Primary balance	-6.9	-4.2	-2.9	0.4	1.0	0.7	-4.6	0.0	-1.2
Structural primary balance (before CoA)	-4.6	-2.9	-2.1	1.2	1.2	1.2	-3.2	0.7	-0.3
Real GDP growth	-4.3	2.9	2.2	1.5	1.6	1.1	0.3	1.1	0.9
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	69.8	72.0	73.0	74.9	74.3	74.4	71.6	74.7	73.9
Implicit interest rate (nominal)	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	69.8	71.6	72.1	70.5	68.4	66.8	71.2	70.2	70.5
Implicit interest rate (nominal)	1.2	0.7	0.5	0.0	-0.1	-0.2	0.8	0.0	0.2
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	69.8	71.5	71.9	70.5	68.5	67.2	71.0	70.2	70.4
Real GDP growth	-4.3	3.4	2.7	1.8	1.5	1.6	0.6	1.6	1.4
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	69.8	72.1	73.2	75.0	74.2	74.0	71.7	74.7	73.9
Real GDP growth	-4.3	2.4	1.7	0.8	0.5	0.6	-0.1	0.6	0.4
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	69.8	71.8	72.5	74.0	73.4	73.4	71.4	73.7	73.1
Primary balance	-6.9	-4.2	-2.9	-1.6	-1.6	-1.9	-4.6	-1.8	-2.5
Structural primary balance (before CoA)	-4.6	-2.9	-2.1	-1.4	-1.4	-1.4	-3.2	-1.4	-1.9
Real GDP growth	-4.3	2.9	2.2	1.2	1.0	1.1	0.3	1.1	0.9
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	69.8	72.5	73.8	73.9	72.4	71.5	72.0	73.6	73.2
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	69.8	71.3	71.5	68.4	65.7	63.7	70.9	68.1	68.8
Implicit interest rate (nominal)	1.2	0.7	0.5	0.0	-0.1	-0.2	0.8	0.0	0.2
Real GDP growth	-4.3	3.4	2.7	1.8	1.5	1.6	0.6	1.6	1.4
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	69.8	71.9	72.8	75.3	74.9	75.2	71.5	75.0	74.1
Implicit interest rate (nominal)	1.2	1.1	1.0	0.9	0.9	0.9	1.1	0.9	0.9
Real GDP growth	-4.8	2.4	1.7	0.7	0.5	0.6	-0.2	0.6	0.4

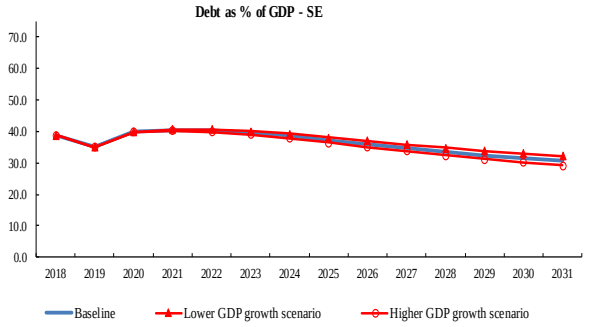
Sweden

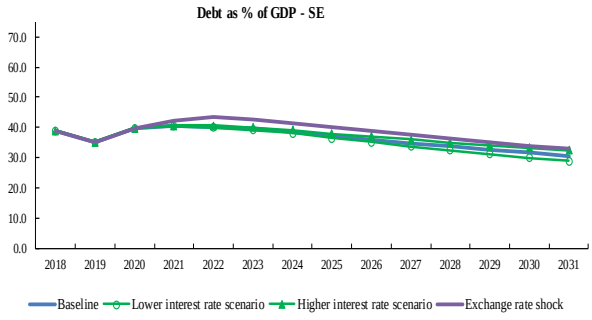
1. General Government Gross Debt projections under baseline, alternative scenarios and sensitivity tests

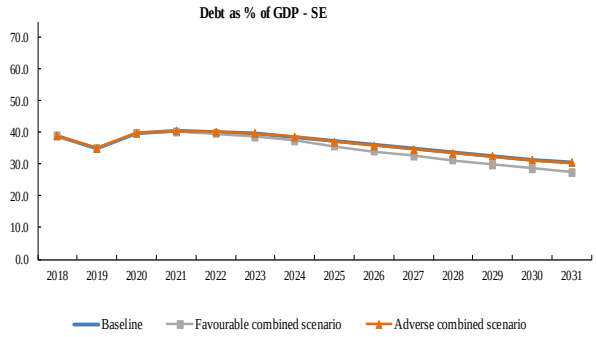
SE - Debt projections baseline scenario	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross debt ratio	**38.9**	**35.1**	**39.9**	**40.5**	**40.3**	**39.6**	**38.6**	**37.2**	**36.0**	**34.8**	**33.7**	**32.5**	**31.5**	**30.6**
Changes in the ratio (-1+2+3)	*-1.8*	*-3.8*	*4.8*	*0.6*	*-0.2*	*-0.6*	*-1.0*	*-1.4*	*-1.2*	*-1.2*	*-1.2*	*-1.1*	*-1.0*	*-0.9*
of which														
(1) Primary balance (1.1+1.2+1.3)	**1.3**	**0.9**	**-3.5**	**-2.6**	**-1.3**	**-0.9**	**-0.5**	**0.0**	**0.0**	**0.0**	**0.1**	**0.1**	**0.0**	**-0.1**
(1.1) Structural primary balance *(1.1.1-1.1.2+1.1.3)*	***0.8***	***0.8***	***-1.0***	***-1.0***	***-0.1***	***-0.1***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.1***	***0.1***	***0.0***	***-0.1***
(1.1.1) Structural primary balance (bef. CoA)	*0.8*	*0.8*	*-1.0*	*-1.0*	*-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						*0.0*	*0.1*	*0.1*	*0.1*	*0.2*	*0.2*	*0.3*	*0.3*	*0.4*
(1.1.3) Others (taxes and property incomes)						*0.1*	*0.1*	*0.2*	*0.3*	*0.3*	*0.4*	*0.5*	*0.4*	*0.4*
(1.2) Cyclical component	***0.5***	***0.1***	***-2.5***	***-1.6***	***-1.2***	***-0.8***	***-0.4***	***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)	**-1.3**	**-1.1**	**1.0**	**-1.9**	**-1.5**	**-1.5**	**-1.5**	**-1.5**	**-1.2**	**-1.1**	**-1.1**	**-1.1**	**-1.0**	**-1.0**
(2.1) Interest expenditure	*0.5*	*0.4*	*0.4*	*-0.1*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
(2.2) Growth effect	*-0.8*	*-0.5*	*1.2*	*-1.3*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.6*	*-0.6*	*-0.6*	*-0.5*	*-0.5*	*-0.5*
(2.3) Inflation effect	*-1.0*	*-1.0*	*-0.5*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-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	**0.7**	**-1.8**	**0.2**	**-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	*0.4*	*-2.4*	*0.3*	*0.2*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.3*	*0.6*	*-0.1*	*-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	0.3	0.4	-1.4	-0.9	-0.2	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0	-0.2	-0.3

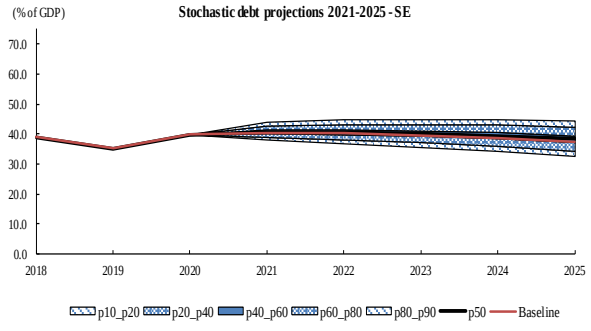












2. Risk classification and sustainability indicators summary tables

2.1. Risk classification summary table

Short term	Medium term	S1	Debt sustainability analysis (detail)							DSA	S2	Long term
				Baseline	Historical SPB	Lower GDP growth	Higher interest rate	Lower SPB scenario	Stochastic projections			
LOW (S0 = 0.3)	LOW	LOW (S1 = -3.1)	Risk category	LOW	LOW	LOW	LOW	LOW	LOW	LOW	MEDIUM (S2 = 2.9)	MEDIUM
			Debt level (2031)	30.6	20.8	32.2	32.4	31.2				
			Debt peak year	2021	2021	2021	2021	2021				
			Percentile rank	57.0%	37.0%							
			Probability debt higher						36.4%			
			Dif. between percentiles						11.7			

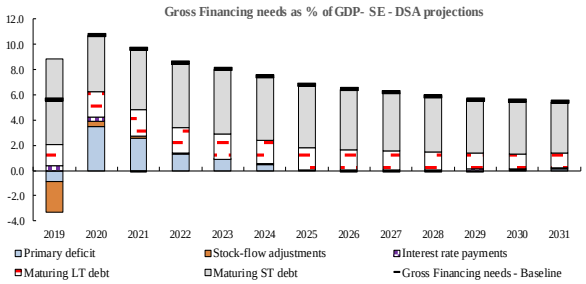
2.2. Sustainability indicators

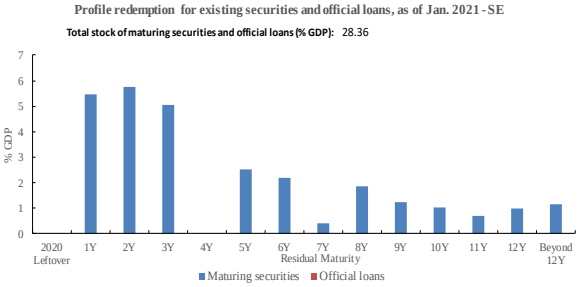
S0 indicator	2009	2020	Critical threshold
Overall index	**0.31**	**0.32**	**0.46**
Fiscal sub-index	0.15	0.18	0.36
Financial competitiveness sub-index	0.40	0.40	0.49

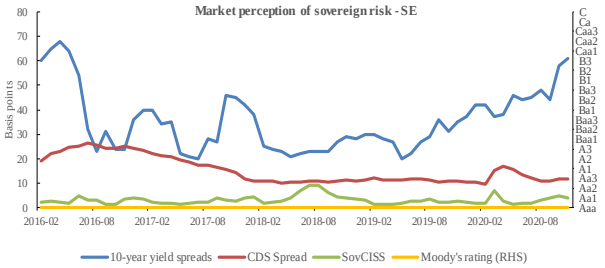
S1 indicator	2019 DSM	2020 DSM
Overall index	**-5.4**	**-3.1**
of which *Initial budgetary position*	*-3.1*	*-1.8*
Debt requirement	*-2.6*	*-1.6*
Ageing costs	*0.3*	*0.3*
Required structural primary balance related to S1	**-4.3**	**-3.3**

S2 indicator	2019 DSM	2020 DSM
Overall index	**1.2**	**2.9**
of which Initial Budgetary position	-0.6	0.7
Ageing costs	1.8	2.2
of which Pensions	*-0.3*	*-0.2*
Health care	*0.5*	*0.6*
Long-term care	*1.3*	*1.5*
Others	*0.3*	*0.4*
Required structural primary balance related to S2	**2.3**	**2.8**

3. Financing needs and financial information







Sovereign Ratings as of Jan 2021, SE	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aaa		Aaa	P-1
S&P	AAAu	A-1+u	AAAu	A-1+u
Fitch	AAA		AAA	F1+

Sovereign yield spreads (bp)* - as of November 2020	10-year	61.0

4. Risks related to the structure of public debt financing and net International Investment Position

Public debt structure - SE (2019)	Share of short-term government debt (p.p.): 20.7	Share of government debt in foreign currency (%): 21.3	Share of government debt by non-residents (%): 19.3

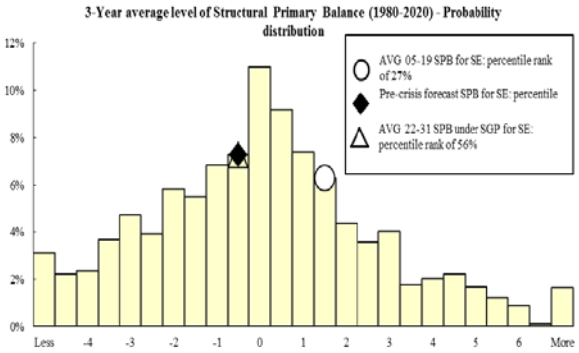
Net International Investment Position (IIP) - SE (2019)	Net IIP (% GDP): 18.2

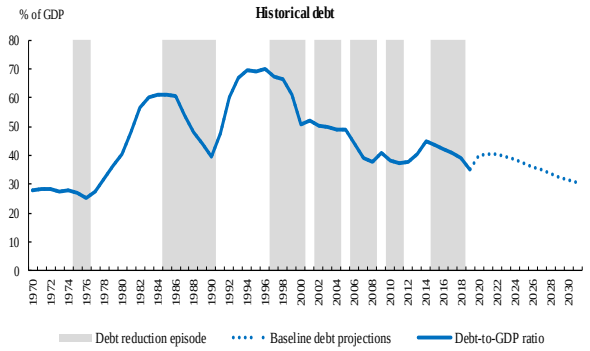
5. Risks related to government's contingent liabilities

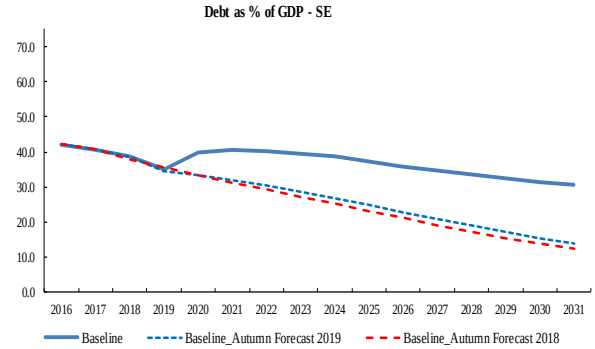
General government contingent liabilities		SE					EU
		2013	2015	2016	2017	2018	2018
State guarantees (% GDP)		11.5	11.0	10.5	9.8	10.0	6.7
of which One-off guarantees		*11.5*	*11.0*	*10.5*	*9.8*	*10.0*	*6.2*
Standardised guarantees		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.5*
Public-private partnerships (PPPs) (% GDP)		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.3*
		2013	2015	2016	2018	2019	2019
Contingent liabilities of gen. gov. related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov. under guarantee	0.2	0.0	0.0	0.0	0.0	1.1
	Securities issued under liquidity schemes	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	0.1
	Total	0.2	0.0	0.0	0.0	0.0	1.2

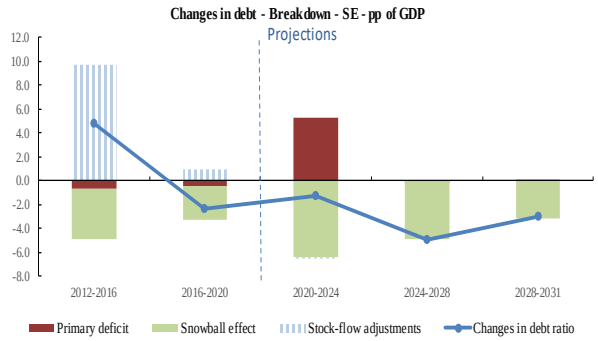
Government's contingent liability risks from banking sector - SE (2019)	Private sector credit flow (% GDP): 9.9	Change in nominal house price index: 2.5	Bank loans-to-deposits ratio (p.p.): 186.2	Share of non-performing loans (%): 0.5	Change in share of non-performing loans (p.p): 0.0	NPL coverage ratio 40.9

6. Realism of baseline assumptions









7. Underlying macro-fiscal assumptions

Macro-fiscal assumptions, Sweden	Levels						Averages		
1. Baseline scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	39.9	40.5	40.3	34.8	32.5	30.6	40.2	34.9	36.3
Primary balance	-3.5	-2.6	-1.3	0.0	0.1	-0.1	-2.5	-0.2	-0.7
Structural primary balance (before CoA)	-1.0	-1.0	-0.1	-0.1	-0.1	-0.1	-0.7	-0.1	-0.3
Real GDP growth	-3.4	3.3	2.4	1.7	1.7	1.8	0.8	1.9	1.6
Potential GDP growth	1.4	1.6	1.7	1.7	1.7	1.8	1.6	1.7	1.6
Inflation rate	1.6	1.4	1.5	1.8	1.9	2.0	1.5	1.8	1.7
Implicit interest rate (nominal)	1.0	-0.2	0.1	0.2	0.3	0.4	0.3	0.2	0.2
2. SGP scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	39.9	40.5	40.3	36.2	34.2	32.2	40.2	36.1	37.1
Primary balance	-3.5	-2.6	-1.3	-0.3	-0.2	-0.1	-2.5	-0.4	-0.9
Structural primary balance	-1.0	-1.0	-0.1	-0.1	-0.1	-0.1	-0.7	-0.1	-0.2
Real GDP growth	-3.4	3.3	2.4	1.8	1.7	1.8	0.8	1.9	1.6
3. Historical SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	39.9	40.5	40.3	31.5	25.8	20.8	40.2	30.9	33.2
Primary balance	-3.5	-2.6	-1.3	1.4	1.8	1.6	-2.5	1.0	0.2
Structural primary balance (before CoA)	-1.0	-1.0	-0.1	1.6	1.6	1.6	-0.7	1.3	0.8
Real GDP growth	-3.4	3.3	2.4	2.1	2.1	1.8	0.8	1.9	1.6
4. Higher IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	39.9	40.6	40.5	36.0	34.0	32.4	40.3	36.1	37.1
Implicit interest rate (nominal)	1.0	0.1	0.5	0.8	0.9	1.1	0.5	0.8	0.7
5. Lower IR scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	39.9	40.3	40.0	33.7	31.1	28.9	40.1	33.9	35.4
Implicit interest rate (nominal)	1.0	-0.5	-0.3	-0.4	-0.3	-0.3	0.1	-0.3	-0.2
6. Higher growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	39.9	40.3	39.9	33.8	31.2	29.1	40.0	33.9	35.4
Real GDP growth	-3.4	3.8	2.9	2.2	2.2	2.3	1.1	2.4	2.1
7. Lower growth scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	39.9	40.6	40.6	35.9	33.9	32.2	40.4	36.0	37.1
Real GDP growth	-3.4	2.8	1.9	1.2	1.2	1.3	0.5	1.4	1.2
8. Lower SPB scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	39.9	40.5	40.3	35.2	33.0	31.2	40.2	35.3	36.5
Primary balance	-3.5	-2.6	-1.4	0.0	0.0	-0.2	-2.5	-0.2	-0.8
Structural primary balance (before CoA)	-1.0	-1.0	-0.2	-0.2	-0.2	-0.2	-0.7	-0.2	-0.3
Real GDP growth	-3.4	3.3	2.5	1.7	1.7	1.8	0.8	1.9	1.6
9. Exchange rate depreciation scenario	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	39.9	42.1	43.4	37.5	35.0	32.9	41.8	37.6	38.6
Exchange rate depreciation	0.0%	6.5%	6.5%	0.0%	0.0%	0.0%	4.3%	0.0%	1.1%
10. Favourable combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	39.9	40.2	39.7	32.7	29.9	27.5	39.9	32.9	34.6
Implicit interest rate (nominal)	1.0	-0.5	-0.3	-0.4	-0.3	-0.3	0.1	-0.3	-0.2
Real GDP growth	-3.4	3.8	2.9	2.2	2.2	2.3	1.1	2.4	2.1
11. Adverse combined scenario (GDP & IR)	**2020**	**2021**	**2022**	**2027**	**2029**	**2031**	**2020-22**	**2023-31**	**2020-31**
Gross public debt	39.9	40.4	40.2	34.7	32.4	30.4	40.2	34.8	36.2
Implicit interest rate (nominal)	1.0	0.0	0.3	0.5	0.6	0.7	0.4	0.5	0.5
Real GDP growth	-3.9	2.8	1.9	1.2	1.2	1.3	0.3	1.4	1.1

ANNEX A3
Data sources and information

DATA SOURCES AND INFORMATION

The projections presented in this report are based on Autumn 2020 Commission forecast and on Council / Commission Ageing Report 2018. The cut-off date for the preparation of the report was 5 November 2020 (i.e. the date of publication of the Commission Autumn forecast 2020). Therefore, it does not integrate developments that may have occurred since this date.

The data sources for Greece generally come from ECFIN Country desk and national authorities.

SECTION 3

Financing needs and financial information

Profile redemption for existing securities and official loans

Maturing securities – Bloomberg, Active sovereign securities, Yearly outstanding amounts, as % of GDP, Extracted on January 2021. In some cases, the scheduled redemption profile may not take into account possible buybacks not reported by Bloomberg.

Official Loans – ECFIN Country Desks (Cyprus, Ireland, Portugal), Programme Loans Repayment Schedule, Yearly, as % of GDP.

Note: Actual nominal GDP for 2020 (European Commission 2020 Autumn Forecast) is used to compute the total stock of maturing securities and official loans as share of GDP, throughout the scheduled redemption period.

Gross Financing Needs as % of GDP – DSA Projections

Sources – See Box 2.4 of the Debt Sustainability Monitor 2016, European Commission

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.

5-year Credit Default Swap (CDS) spread – Capital IQ database, provided by S&P Global, Daily close, Basis points, Extracted on January 2021, Available for all countries except LU and MT.

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, PT).

Moody's sovereign credit rating – Bloomberg, Local currency long-term sovereign credit rating, Moody's, Extracted on January 2021.

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, 2019 data, General government consolidated gross debt, Original maturity of less than 1 year, as % of total, Available for all countries except the NL.

Share of short-term government debt (for the NL) – Eurostat, 2019 data, 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.

Share of government debt in foreign currency – Eurostat, 2019 data, Debt by currency of issue, General Government, Foreign Currency, % of total, Available for all countries except DK, EL, FI, and SE.

Share of government debt in foreign currency (for DK, FI, EL, and SE) – ECB, 2019 data, 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.

Share of government debt held by non-residents – Eurostat, 2019 data, General government consolidated gross debt, Rest of the world, Total-

all maturities, % of total, Available for all countries except EL.

Net International Investment Position (IIP) – Eurostat, 2019 data, % of GDP.

SECTION 5

Risks related to government's contingent liabilities

Risks related to government's contingent liabilities

State guarantees – Eurostat, 2018 data, % of GDP.

One-off guarantees – Eurostat, 2018 data, % of GDP.

Standardised guarantees – Eurostat, 2018 data, % of GDP.

Public-private partnerships (PPPs) – Eurostat, 2018 data, % of GDP.

Contingent liabilities of general government related to support to financial institutions – Eurostat, 2019 data, % of GDP.

Government's contingent liability risks from the banking sector

Private sector credit flow – Eurostat (MIP scoreboard), 2019 data, % of GDP.

Change in nominal house price index – European Commission, DG ECFIN, Unit B1 House Price Database, 2019 data, y-o-y % change (2015=100).

Bank loan-to-deposit ratio – European Banking Authority (EBA), Risk indicator, Loan-to-deposit ratio for households and non-financial corporations, June 2020 data.

Share of non-performing loans – European Banking Authority (EBA), Risk indicator, Ratio of non-performing loans and advances (NPL ratio), June 2020 data.

Non-Performing Loans (NPL) coverage ratio – European Banking Authority (EBA), Risk indicator, Coverage ratio of non-performing loans and advances, June 2020 data.

ANNEX A4

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

A4.1. 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 A4.1: **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 such as 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): ([119])

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

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

$i = 1,.., n$

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; ([120]) *n* = total number of variables used.

It is straightforward to see from (1) that in the minimisation problem False Negative signals are weighted more than False Positive signals as:

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

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). ([121]) 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

([119]) 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.

([120]) 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.

([121]) See, for instance, Reinhart, Goldstein and Kaminsky (2000); Hemming, Kell and Schimmelpfennig (2003).

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. ([122]) In this case the optimal threshold for variable i (t_i^*) is obtained as:

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

$i = 1,\ldots,n$

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.

A4.2. 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). ([123]) 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 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. ([124]) The variables are therefore assigned higher weight in the composite indicator, the higher their past forecasting accuracy. ([125])

([122]) See, for instance, Reinhart, Goldstein and Kaminsky (2000); Hemming, Kell and Schimmelpfennig (2003).

([123]) 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).

([124]) 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).

([125]) 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 A5

The medium- and long-term fiscal sustainability indicators (S1, S2)

A5.1. NOTATION

t: time index. Each period is one year

t_F: last year before the long-term projection (i.e. last year forecasted in the European Commission Autumn Forecast 2020, 2022).

t_0: last year before the start of the fiscal adjustment (country-specific).

$t_0 + 1$: first year of the long-term projection period (i.e. start of the fiscal adjustment).

t_1: end of the fiscal adjustment (relevant for S1)

t_2: target year for the debt ratio (country-specific, relevant for S1).

t_3: final year of the long-term projection period (e.g. 2070).

Notice that $t_0 < t_1 < t_2 < t_3$.

D_t: debt-to-GDP ratio (at the end of year t).

PB_t: ratio of structural primary balance to GDP

$\Delta\mathrm{PB}_t \equiv \mathrm{PB}_t - \mathrm{PB}_{t_0}$: change in the structural primary balance relative to the base year t_0. In the absence of fiscal adjustment, it equals the change in age related expenditure (ΔA_t) for $t > t_0$.

$\Delta A_t \equiv A_t - A_{t_0}$: change in age-related costs relative to the base year t_0.

c: the annual increase in the primary structural balance during fiscal adjustment (i.e. between $t_0 + 1$ and t_1) (relevant for S1).

$S_1 \equiv c(t_1 - t_0)$: the value of the S1 indicator, i.e. the total fiscal adjustment.

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:

$$D_t = (1 + r_t)D_{t-1} - \mathrm{PB}_t. \qquad (1)$$

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:

$$D_T = D_{t-1}\alpha_{t-1;T} - \sum_{i=t}^{T}(\mathrm{PB}_i\alpha_{i;T}). \qquad (2)$$

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.

Important warning

It should be noted that the actual calculation of the S1 and S2 indicators also accounts for property income and tax revenue on pensions, although they are not explicitly included in the derivations in order to simplify them and to facilitate the interpretation of results. Their inclusion would be trivial, implying "adding" terms to the formulas similar to that for "ageing costs" ΔA_t.

A5.3. DERIVATION OF THE S1 INDICATOR

The S1 indicator is defined as the constant annual improvement in the ratio of structural primary balance to GDP, from year $t_0 + 1$ up to year t_1, that is required to bring the debt ratio to a given

level by year t_2. ([126]) 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.

During the S1 adjustment, the primary balance (as a percentage of GDP) increases by a constant annual amount $c > 0$ each year starting from $t_0 + 1$ through t_1. The adjustment is assumed to be permanent. Under the assumed consolidation schedule, the change in the primary balance is thus given by

$$\mathrm{PB}_i = \mathrm{SPB}_{t_0} + c(i - t_0) - \Delta A_i + \Delta PI_i + CC_i \qquad \text{(3i)}$$

$$\text{for } t_0 < i \leq t_1$$

$$\mathrm{PB}_i = \mathrm{SPB}_{t_0} + \underbrace{c(t_1 - t_0)}_{= S_1} - \Delta A_i + \Delta PI_i + CC_i \qquad \text{(3ii)}$$

$$\text{for } t_2 \geq i > t_1$$

Using (2), the debt ratio target D_{t_2} can then be written as:

$$D_{t_2} = D_{t_0}\alpha_{t_0;t_2} - \sum_{i=t_0+1}^{t_2} \left(\mathrm{PB}_i \alpha_{i;t_2}\right) \qquad (4)$$

Replacing (3i)-(3ii) into (4) yields:

$$\begin{aligned} D_{t_2} = D_{t_0}\alpha_{t_0;t_2} &- \sum_{i=t_0+1}^{t_1} \left(\mathrm{SPB}_{t_0} + c(i - t_0)\right)\alpha_{i;t_2} \\ &- \sum_{i=t_1+1}^{t_2} \left(\mathrm{SPB}_{t_0} + \underbrace{c(t_1 - t_0)}_{= S_1}\right)\alpha_{i;t_2} \qquad (5) \\ &+ \sum_{i=t_0+1}^{t_2} \left((\Delta A_i - \Delta PI_i - CC_i)\, \alpha_{i;t_2}\right) \end{aligned}$$

After some straightforward manipulations, ([127]) we can decompose the S1 into the following main components:

$$\begin{aligned} S_1 \equiv \underbrace{c(t_1 - t_0)}_{T} = \\ = \underbrace{\frac{D_{t_0}(\alpha_{t_0;t_2} - 1)}{\sum_{i=t_0+1}^{t_2}(\alpha_{i;t_2})} - \mathrm{SPB}_{t_0} - \frac{\sum_{i=t_0+1}^{t_2}(\Delta PI_i \alpha_{i;t_2})}{\sum_{i=t_0+1}^{t_2}(\alpha_{i;t_2})} - \frac{\sum_{i=t_0+1}^{t_2}(CC_i \alpha_{i;t_2})}{\sum_{i=t_0+1}^{t_2}(\alpha_{i;t_2})}}_{A} \\ + \underbrace{c\frac{\sum_{i=t_0+1}^{t_1}\left((t_1 - i)\alpha_{i;t_2}\right)}{\sum_{i=t_0+1}^{t_2}(\alpha_{i;t_2})}}_{B} + \underbrace{\frac{D_{t_0} - D_{t_2}}{\sum_{i=t_0+1}^{t_2}(\alpha_{i;t_2})}}_{C} \\ + \underbrace{\frac{\sum_{i=t_0+1}^{t_2}(\Delta A_i \alpha_{i;t_2})}{\sum_{i=t_0+1}^{t_2}(\alpha_{i;t_2})}}_{D} \end{aligned} \qquad (6)$$

where (T) is the total adjustment (the S1 indicator by definition); (A) the strict initial budgetary position (i.e. the gap to the debt-stabilising primary balance); (B) the cost of delaying the adjustment; (C) the required additional adjustment due to the debt target (DR); and (D) the additional required adjustment due to the costs of ageing (LTC). The total initial budgetary position (IBP) is the sum of A and B i.e. includes the cost of delaying the adjustment.

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. ([128])

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:

([126]) This is in contrast to the S2 indicator, which is defined as an immediate, one-off adjustment.

([127]) Add and subtract D_{t_0} on the LHS of (5). In the second term on the LHS, rewrite $c(i - t_0) = S_1 - c(t_1 - i)$, then exchange $-S_1 \cdot \sum_{i=t_0+1}^{t_2}(\alpha_{i;t_2})$ on the LHS for D_{t_2} on the RHS. Finally, divide by $\sum_{i=t_0+1}^{t_2}(\alpha_{i;t_2})$, simplify, and group the terms as in (6).

([128]) 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.

$$D_t = D_{t_0}\alpha_{t_0;t} - \sum_{i=t_0+1}^{t}\left(\mathrm{PB}_i\alpha_{i;t}\right). \qquad (7)$$

Rearranging the above and discounting both sides to their time t_0 values, we obtain the debt ratio on the initial period:

$$D_{t_0} = \left(\frac{D_t}{\alpha_{t_0;t}}\right) + \sum_{i=t_0+1}^{t}\left(\frac{\mathrm{PB}_i}{\alpha_{t_0;i}}\right). \qquad (8i)$$

Assuming an infinite time horizon ($t \to \infty$) we get:

$$\begin{aligned} D_{t_0} &= \lim_{t\to\infty}\left(\frac{D_t}{\alpha_{t_0;t}}\right) + \lim_{t\to\infty}\sum_{i=t_0+1}^{t}\left(\frac{\mathrm{PB}_i}{\alpha_{t_0;i}}\right) \\ &= \lim_{t\to\infty}\left(\frac{D_t}{\alpha_{t_0;t}}\right) + \sum_{i=t_0+1}^{\infty}\left(\frac{\mathrm{PB}_i}{\alpha_{t_0;i}}\right) \end{aligned} \qquad (8ii)$$

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:

$$\lim_{t\to\infty}\left(\frac{D_t}{\alpha_{t_0;t}}\right) = 0 \qquad (9i)$$

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.

$$D_{t_0} = \sum_{i=t_0+1}^{\infty}\left(\frac{\mathrm{PB}_i}{\alpha_{t_0;i}}\right) \qquad (9ii)$$

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:

$$\mathrm{PB}_i = \mathrm{SPB}_{t_0} + S_2 - \Delta A_i + \Delta PI_i + CC_i \quad \text{for} \quad i > t_0. \qquad (10)$$

Then the intertemporal budget constraint (9ii) becomes

$$D_{t_0} = \sum_{i=t_0+1}^{\infty}\left(\frac{\mathrm{PB}_{t_0} + S_2 - \Delta A_i + \Delta PI_i + CC_i}{\alpha_{t_0;i}}\right). \qquad (9iii)$$

Here the ratio of structural 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, 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 ([129]). The latter is equivalent to the modified golden rule, stating that the nominal interest rate exceeds the real growth rate (i.e. $\lim_{t\to\infty} r_t > 0$). ([130])

After some rearranging, ([131]) we can decompose the S2 into the following two components:

$$S_2 = \underbrace{\frac{D_{t_0}}{\sum_{i=t_0+1}^{\infty}\left(\frac{1}{\alpha_{t_0;i}}\right)} - \mathrm{SPB}_{t_0} - \frac{\sum_{i=t_0+1}^{\infty}\left(\frac{\Delta PI_i + CC_i}{\alpha_{t_0;i}}\right)}{\sum_{i=t_0+1}^{\infty}\left(\frac{1}{\alpha_{t_0;i}}\right)}}_{A} + \underbrace{\frac{\sum_{i=t_0+1}^{\infty}\left(\frac{\Delta A_i}{\alpha_{t_0;i}}\right)}{\sum_{i=t_0+1}^{\infty}\left(\frac{1}{\alpha_{t_0;i}}\right)}}_{B} \qquad (11)$$

where (A) is the initial budgetary position i.e. the gap to the debt stabilising primary balance ([132]);

([129]) The latter is an application of the ratio test for convergence.
([130]) See Escolano (2010) for further details on the relationships among the stability of the debt ratio, the IBC and the no-Ponzi game condition.
([131]) In addition, constant multiplicative terms are systematically taken out of summation signs.
([132]) In practical calculations, the present value of property income is also accounted for in the initial budgetary

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:

$$\sum_{i=t_0+1}^{\infty}\left(\frac{1}{\alpha_{t_0;i}}\right) = \sum_{i=t_0+1}^{\infty}\left(\frac{1}{(1+r)^{i-t_0}}\right) = \frac{1}{r} \qquad (12)$$

Thus, for a constant discounting factor, (11) can be rewritten as:

$$S_2 = \underbrace{rD_{t_0} - \mathrm{SPB}_{t_0} - r\sum_{i=t_0+1}^{\infty}\left(\frac{\Delta PI_i + CC_i}{\alpha_{t_0;i}}\right)}_{A} + \underbrace{r\sum_{i=t_0+1}^{\infty}\left(\frac{\Delta A_i}{\alpha_{t_0;i}}\right)}_{B} \qquad (13i)$$

If the interest-growth rate differential and the structural primary balance are constant after a certain date (here $t_3 = 2070$), equation (11) can be rewritten as:

$$S_2 = \frac{D_{t_0}}{\sum_{i=t_0+1}^{2069}\left(\frac{1}{\alpha_{t_0;i}}\right) + \frac{1}{r\alpha_{t_0;2069}}} - \mathrm{SPB}_{t_0} - \frac{\sum_{i=t_0+1}^{2069}\left(\frac{\Delta PI_i + CC_i}{\alpha_{t_0;i}}\right) + \frac{\Delta PI_{2070} + CC_{2070}}{r\,\alpha_{t_0;2069}}}{\sum_{i=t_0+1}^{2069}\left(\frac{1}{\alpha_{t_0;i}}\right) + \frac{1}{r\,\alpha_{t_0;2069}}} + \frac{\sum_{i=t_0+1}^{2069}\left(\frac{\Delta A_i}{\alpha_{t_0;i}}\right) + \frac{\Delta A_{2070}}{r\,\alpha_{t_0;2069}}}{\sum_{i=t_0+1}^{2069}\left(\frac{1}{\alpha_{t_0;i}}\right) + \frac{1}{r\,\alpha_{t_0;2069}}} \qquad (13ii)$$

where $r_t = r$ and $\Delta A_t = \Delta A_{2070}$ for $t \geq t_3 = 2070$.

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 $t_3 = 2070$).

To see this, rewrite (9ii) as:

$$D_{t_0} = \sum_{i=t_0+1}^{\infty}\left(\frac{\mathrm{PB}_i}{\alpha_{t_0;i}}\right) = \sum_{i=t_0+1}^{t_3}\left(\frac{\mathrm{PB}_i}{\alpha_{t_0;i}}\right) + \sum_{i=t_3+1}^{\infty}\left(\frac{\mathrm{PB}_i}{\alpha_{t_0;i}}\right) \qquad (14i)$$

Using (7) and the fact that for $t \geq t_3$ the primary balance and interest-growth rate differential stay constant at $\mathrm{PB}_t = \mathrm{PB}_{t_3}$ we can rearrange (14i) to obtain the debt ratio at t_3:

$$D_{t_3} = D_{t_0}\alpha_{t_0;t_3} - \sum_{i=t_0+1}^{t_3}(\mathrm{PB}_i\alpha_{i;t_3}) = \sum_{i=t_3+1}^{\infty}\left(\frac{\mathrm{PB}_i}{\alpha_{t_3;i}}\right) = \sum_{i=1}^{\infty}\left(\frac{\mathrm{PB}_{t_3}}{(1+r_{t_3})^i}\right) = \frac{\mathrm{PB}_{t_3}}{r_{t_3}} \qquad (14ii)$$

We can generalising the above to each $t \geq t_3$ by using (7) with the initial year changed to t_3 instead of t_0, we see that for each year after t_3, the debt ratio remains unchanged at this value:

$$\begin{aligned} D_t &= D_{t_3}\alpha_{t_3;t} - \sum_{i=t_3+1}^{t}(\mathrm{PB}_i\alpha_{i;t}) \\ &= \frac{\mathrm{PB}_{t_3}}{r_{t_3}}(1+r_{t_3})^{t-t_3} - \mathrm{PB}_{t_3}\sum_{i=t_3+1}^{t}(1+r_{t_3})^{t-i} \\ &= \underbrace{\left[(1+r_{t_3})^{t-t_3} - r_{t_3}\left(\frac{1-(1+r_{t_3})^{t-t_3}}{1-(1+r_{t_3})}\right)\right]}_{=1}\frac{\mathrm{PB}_{t_3}}{r_{t_3}} \\ &= \frac{\mathrm{PB}_{t_3}}{r_{t_3}} \equiv \bar{\bar{D}} \quad \text{for} \quad t \geq t_3 \end{aligned} \qquad (15)$$

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:

$$\mathrm{PB}_{t_3} = \mathrm{SPB}_{t_0} + \Delta PI_{t_3} + CC_{t_3} + S_2 - \Delta A_{t_3} \qquad (16)$$

Replacing (16) into (15), the constant (steady-state) debt ratio ($\bar{\bar{D}}$) is given by:

$$\bar{\bar{D}} = \frac{\mathrm{PB}_{t_3}}{r_{t_3}} = \frac{\mathrm{SPB}_{t_0} + \Delta PI_{t_3} + CC_{t_3} + S_2 - \Delta A_{t_3}}{r_{t_3}} \quad \text{for} \quad t \geq t_3 \qquad (17)$$

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.

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 primary balance amounting to S2 (equation 5), 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). ([133])

([133]) 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

Decomposing debt dynamics, projecting the interest rate on government debt and projecting potential growth

A6.1. 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:

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

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 ([134])

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:

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

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

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

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

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

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

- (-) 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. ([135])

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).

([135]) 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.

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. ([136]) 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).

([136]) 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).

A6.2. 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 ([137])

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). ([138])

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), ([139]) maturing debt (i.e. existing

([137]) This corresponds to i_t in the previous section.

([138]) Hence, as indicated by the *t* index, these shares may vary through time depending on the debt dynamic.

([139]) This amount also corresponds to the yearly budgetary deficit.

debt that is maturing within the year ([140]) 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:

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

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

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.

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

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

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.

([140]) Another way to describe it is that this existing debt has a *residual* maturity of less than one year.

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:

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

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

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

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

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} is supposed to converge linearly to 4% in nominal terms ([141]) (2% in real terms) for all countries by the T+10 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+10 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

([141]) 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.

government debt), ([142]) whenever government debt is projected to increase; ([143])

- 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; ([144])

- 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. ([145]) 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. ([146])

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.

A6.3. 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.

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

([142]) More precisely, we use the average shares over the last 3 years available.

([143]) 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.

([144]) 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).

([145]) See previous footnote.

([146]) More precisely, the starting point (currently 2020) is calculated based on the 2019 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 (2020) 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.

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.

ANNEX A7

Stochastic debt projections based on a historical variance-covariance matrix

This Annex provides a description of the methodology used for stochastic debt projections based on the historical variance-covariance matrix approach and the data used to implement it. ([147])

A7.1. THE METHOD TO OBTAIN (ANNUAL) STOCHASTIC SHOCKS TO MACROECONOMIC VARIABLES

Stochastic shocks are simulated for five macroeconomic variables entering the debt evolution equation: the government primary balance, nominal short-term interest rate, nominal long-term interest rate, nominal growth rate and exchange rate. First, the methodology requires transforming the time series of quarterly data for each macroeconomic variable x into series of historical quarterly shocks δ_q^x as follows:

$$\delta_q^x = x_q - x_{q-1}$$

A Monte Carlo simulation is then run by extracting random vectors of quarterly shocks over the projection period (2021-25) from a joint normal distribution with zero mean and variance-covariance matrix identical to that of historical (quarterly) shocks. The quarterly shocks (ε_q) obtained in this way are aggregated into annual shocks to primary balance, nominal short-term interest rate, nominal long-term interest rate, nominal growth, and exchange rate for non-EA countries, as follows:

– the shock to the primary balance b in year t is given by the sum of the quarterly shocks to the primary balance:

$$\varepsilon_t^b = \sum_{q=1}^{4} \varepsilon_q^b$$

– the shock to nominal growth g in year t is given by the sum of the quarterly shocks to growth:

$$\varepsilon_t^g = \sum_{q=1}^{4} \varepsilon_q^g$$

– the shock in year t to the nominal exchange rate e is given by the sum of the quarterly shocks to the exchange rate:

$$\varepsilon_t^e = \sum_{q=1}^{4} \varepsilon_q^e$$

– the shock in year t to the nominal *short-term* interest rate i^S is given by the sum of the quarterly shocks to the short-term interest rate:

$$\varepsilon_t^{i^S} = \sum_{q=1}^{4} \varepsilon_q^{i^S}$$

The calculation of the shock to the nominal short-term interest rate in annual terms is justified based on the fact that the short-term interest rate is defined here as the interest rate on government bonds with maturity below the year. With the equation above, we rule out persistence of short-term interest rate shocks over time, exactly as done in standard deterministic projections. In other words, unlike the case of the long-term interest rate (see below), a shock to the short-term interest rate occurring in any of the quarters of year t is not carried over beyond year t.

– the aggregation of the quarterly shocks to the nominal *long-term* interest rate i^L into annual shocks takes account of the persistence of these shocks over time. This is due to the fact that long-term debt issued/rolled over at the moment where the shock takes place will remain in the debt stock, for all years to maturity, at the interest rate conditions holding in the market at the time of issuance ([148]). A shock to the long-term interest rate in year t is therefore carried over to the following years in proportion to the share of maturing debt that is progressively rolled over (ECB data on weighted average maturity is used to implement this). For countries where average weighted maturity of debt T is equal or greater than the number of projection years (5 years, from 2021 to 2025), the annual shock to long-term interest rate in year t is defined as:

([147]) For more details see Berti (2013).

([148]) The implicit assumption is made here that long-term government bonds are issued at fixed interest rates only.

$$\varepsilon_t^{i^L} = \frac{1}{T}\sum_{q=1}^{4} \varepsilon_q^{i^L} \ \ if\ t = 2021$$

$$\varepsilon_t^{i^L} = \frac{2}{T}\sum_{q=-4}^{4} \varepsilon_q^{i^L} \ \ if\ t = 2022$$

$$\varepsilon_t^{i^L} = \frac{3}{T}\sum_{q=-8}^{4} \varepsilon_q^{i^L} \ \ if\ t = 2023$$

$$\varepsilon_t^{i^L} = \frac{4}{T}\sum_{q=-12}^{4} \varepsilon_q^{i^L} \ \ if\ t = 2024$$

$$\varepsilon_t^{i^L} = \frac{5}{T}\sum_{q=-16}^{4} \varepsilon_q^{i^L} \ \ if\ t = 2025$$

where q = -4, -8, -12, -16 respectively indicate the first quarter of years *t*-1, *t*-2, *t*-3 and *t*-4. The set of equations above clearly allows for shocks to the long-term interest rate in a certain year to carry over to the following years, till when, on average, debt issued at those interest rate conditions will remain part of the stock.

For countries where the average weighted maturity of debt is smaller than the number of projection years, the equations above are adjusted accordingly to reflect a shorter carryover of past shocks. For instance, countries with average weighted maturity T = 3 years will have the annual shock to the long-term interest rate defined as follows ([149]):

$$\varepsilon_t^{i^L} = \frac{1}{3}\sum_{q=1}^{4} \varepsilon_q^{i^L} \ \ if\ t = 2021$$

$$\varepsilon_t^{i^L} = \frac{2}{3}\sum_{q=-4}^{4} \varepsilon_q^{i^L} \ \ if\ t = 2022$$

$$\varepsilon_t^{i^L} = \sum_{q=-8}^{4} \varepsilon_q^{i^L} \ \ if\ t \geq 2023$$

([149]) Annual shocks to the long-term interest rate for countries with weighted average maturities of 2 and 4 years will be defined in a fully analogous way.

Finally, the weighted average of annual shocks to short-term and long-term interest rates (with weights given by the shares of short-term debt, α^S, and long-term debt, α^L, over total) gives us the annual shock to the implicit interest rate *i*:

$$\varepsilon_t^{i} = \alpha^S \varepsilon^{i^S} + \alpha^L \varepsilon^{i^L}$$

A7.2. APPLYING STOCHASTIC SHOCKS TO THE CENTRAL SCENARIO

All results from stochastic projections presented in this report refer to a scenario in which shocks are assumed to be temporary. In this case, annual shocks ε are applied to the baseline value of the variables (primary balance *b*, implicit interest rate *i*, nominal growth rate g and exchange rate *e*) each year 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 $\bar{e}_t$ = nominal exchange rate as in DG ECFIN forecasts if *t* within forecast horizon; nominal exchange rate identical to last forecasted value if *t* beyond forecast horizon.

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.

A7.3. THE DEBT EVOLUTION EQUATION

Through the steps described above we obtain series, over the whole projection period, of simulated government primary balance, nominal growth rate, implicit interest rate and nominal exchange rate that can be used in the debt evolution equation to calculate debt ratios over a 5-year horizon, starting from the last historical value.

The debt evolution equation takes the following form:

$$d_t = \alpha^n d_{t-1} \frac{1+i_t}{1+g_t} + \alpha^f d_{t-1} \frac{1+i_t}{1+g_t} \frac{e_t}{e_{t-1}} - b_t + c_t + f_t$$

where d_t = debt-to-GDP ratio in year *t*

α^n = share of total debt denominated in national currency ([150])

α^f = share of total debt denominated in foreign currency

b_t = primary balance over GDP in year *t*

c_t = change in age-related costs over GDP in year *t* relative to starting year ([151])

f_t = stock-flow adjustment over GDP in year *t*

All the steps above (extraction of random vectors of quarterly shocks over the projection horizon; aggregation of quarterly shocks into annual shocks; calculation of the corresponding simulated series of primary balance, implicit interest rate, nominal growth rate and exchange rate; calculation of the corresponding path for the debt ratio) are repeated 2000 times. This allows us to obtain yearly distributions of the debt-to-GDP ratio over 2021-25, from which we extract the percentiles to construct the fan charts.

In the construction of the asymmetric fan charts, a restriction is placed on the upside primary balance shocks. This allows to exclude the primary balance shocks that are higher than a one half standard deviation of the primary balance sample.

([150]) Shares of public debt denominated in national and foreign currency are kept constant over the projection period at the latest ESTAT data (ECB data are used for those countries, for which ESTAT data were not available).

([151]) Figures on age-related costs from the European Commission's 2018 Ageing Report were used.

A7.4. THE DATA USED

For the calculation of the historical variance-covariance matrix, quarterly data on government primary balance are taken from ESTAT; nominal short-term and long-term interest rates are taken from IMF-IFS and OECD; quarterly data on nominal growth rate come from ESTAT and IMF-IFS; quarterly data on nominal exchange rate for non-EA countries come from ESTAT.

Results using the methodology described above were derived for all EU countries by using both short-term and long-term interest rates, whenever possible based on data availability, to keep in line with standard deterministic projections. This was indeed possible for the vast majority of EU countries, the only exceptions being Bulgaria, Croatia and Estonia. ([152]) Shocks to the primary balance were simulated for all countries but two (Croatia and Estonia), based on availability of sufficiently long time series of quarterly primary balances.

In general, data starting from the late 90s - early 2000s until the second quarter of 2020 were used to calculate the historical variance-covariance matrix.

([152]) For Estonia and Croatia we only used the short-term interest rate as quarterly data on the long-term rate were not available; for Bulgaria we used the long-term interest rate only as data on the short-term rate were not available for most recent years.

ANNEX A8

The Stability and Growth Pact scenario

The SGP scenario assumes that Member States implement the provisions of the Stability and Growth Pact (SGP) as from 2023. The main features of this scenario are summarised in Table A8.1, and detailed below. For all countries, the structural (and headline) balance for 2021 and 2022 is that of the Commission 2020 autumn forecast.

Table A8.1: **SGP scenario: main features**

Date	Countries under EDP or with excessive deficit*	Countries not under EDP whose SB < MTO in 2022	Countries not under EDP whose SB >= MTO in 2022
2021-22	SB = forecast value		
From 2023 until the year of correction of the exessive deficit (if any)	Fiscal consolidation (in terms of SB) fixed by Council recommandation or (as a rule) by 0.5 pp. of GDP per year	Fiscal consolidation (in terms of SB) determined by the matrix (for cyclical conditions), investment and structural reforms' clauses (flexibility communication)	SB constant (>= MTO)
After the correction of excessive deficit (if any) until the year the MTO is reached	Fiscal consolidation (in terms of SB) determined by the matrix (for cyclical conditions), investment and structural reforms' clauses (flexibility communication)		
After the MTO is reached until 2031	SB constant (= MTO)	SB constant (= MTO)	

* Refers to a deficit breaching the 3% of GDP threshold.
Source: Commission services

For countries breaching the 3% of GDP deficit threshold in 2022, a structural fiscal adjustment is assumed, as from 2023, until the headline deficit is brought below 3% of GDP ([153]). Thereafter, a structural consolidation effort is maintained until the Medium Term budgetary Objective (MTO) is reached, in line with the requirements of the preventive arm of the Pact, detailed below ([154]).

For countries under the preventive arm, the structural balance is assumed to converge, as from 2023, to the MTO. Each Member State sets an MTO at a level that ensures debt sustainability, taking into account the debt level and future ageing-related liabilities (see European Commission, 2019). Thereafter, Member States are assumed to keep their structural balance constant at the MTO ([155]). Therefore, future changes in ageing costs are assumed to be compensated through expenditure re-allocation or additional revenues. More details are available in Table A8.1.

For countries under the preventive arm that have not reached their MTO, the annual fiscal adjustment is determined according to the matrix, as specified in the Commission Communication on flexibility (see Table A8.2.). This matrix determines the required fiscal adjustment on the basis of the Member State's cyclical position, the debt ratio (below or above 60% of GDP) and the presence of sustainability risks ([156]).

Table A8.2: **Matrix specifying the fiscal adjustment towards the MTO in terms of the change in the structural balance (preventive arm of the SGP)**

	Condition	Required annual fiscal adjustment	
		Debt below 60% of GDP and no sustainability risk	**Debt above 60% of GDP or sustainability risk**
Exceptionnaly bad times	Real growth < 0% or output gap < -4	no adjustment needed	
Very bad times	-4 <= output gap < -3	0	0.25
Bad times	-3 <= output gap < -1.5	0 if growth below potential, 0.25 if growth above potential	0.25 if growth below potential, 0.5 if growth above potential
Normal times	-1.5 <= output gap < 1.5	0.5	> 0.5
Good times	output gap >= 1.5	> 0.5 if growth below potential, >= 0.75 if growth above potential	>= 0.75 if growth below potential, >= 1 if growth above potential

Source: Commission services

Moreover, to reflect the feedback effect of fiscal consolidation on the economy, the SGP scenario assumes that a 1 pp. of GDP consolidation effort has a negative impact on baseline GDP growth of 0.75 pp. in the same year ([157]).

([153]) Only one Member State (Romania) is currently under the corrective arm of the SGP (EDP). However, in the SGP scenario, as a rule, it is assumed that, beyond the forecast horizon (2022), when the deficit is greater than 3% of GDP, countries adjust by 0.5 pp. of GDP per year until the excessive deficit is corrected (in line with Article 3.4 of Regulation 1467/97).

([154]) The annual fiscal adjustment required to reach the MTO is determined according to Regulation 1466/97, as clarified by the Commission Communication regarding SGP flexibility ('Commission Communication on flexibility hereafter) of 13 January 2015 (COM (2015)12 final). See also the commonly agreed position on flexibility within the SGP as endorsed by the ECOFIN Council of 12 February 2016 (Council document number 14345/15).

([155]) In this scenario, MTOs remain constant, while in the EU framework the minimum MTOs are revised every 3 years (e.g. a reduction in debt or a revision in ageing costs would normally allow for a change in MTO). If a Member State already exceeded its MTO in 2022, it is assumed that it keeps its structural balance at that higher level thereafter.

([156]) In practice however, the annual fiscal adjustment is capped to 0.6 pp. of GDP, reflecting the past implementation of the preventive arm.

([157]) Carnot and de Castro (2015).

Table A8.3 shows the fiscal effort required as of 2023 that is incorporated in the debt projections. In 2023, the required adjustment ranges from 0 pps. of GDP for the few Member States that would have already (over-) achieved their MTOs in 2022 (DK, LT, LU and SE) to 0.5 - 0.6 pp. of GDP for almost all other Member States. By 2031, most Member States would have reached their MTOs in this scenario, with the exception of BE, ES, RO, SI and SK.

Table A8.3: **Fiscal adjustment required under the SGP scenario (change in structural balance, pps. of GDP)**

	2023	2024	2025	2026	2027	2028	2029	2030	2031	MTO reached in
BE	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	2032
BG	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2023
CZ	0.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	2027
DK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2022
DE	0.6	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	2025
EE	0.5	0.5	0.5	0.3	0.5	0.5	0.3	0.0	0.0	2029
IE	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2024
ES	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2036
FR	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.1	2031
HR	0.5	0.6	0.6	0.5	0.0	0.0	0.0	0.0	0.0	2026
IT	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.5	2031
CY	0.6	0.6	0.6	0.6	0.1	0.0	0.0	0.0	0.0	2027
LV	0.5	0.5	0.5	0.5	0.1	0.0	0.0	0.0	0.0	2027
LT	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	2025
LU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2022
HU	0.5	0.5	0.5	0.6	0.6	0.3	0.0	0.0	0.0	2028
MT	0.5	0.5	0.2	0.5	0.5	0.4	0.0	0.0	0.0	2028
NL	0.5	0.5	0.6	0.6	0.0	0.0	0.0	0.0	0.0	2026
AT	0.5	0.5	0.6	0.6	0.6	0.1	0.0	0.0	0.0	2028
PL	0.5	0.5	0.5	0.3	0.0	0.0	0.0	0.0	0.0	2026
PT	0.6	0.6	0.6	0.6	0.2	0.0	0.0	0.0	0.0	2027
RO	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2042
SI	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	2032
SK	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	2033
FI	0.5	0.6	0.6	0.5	0.0	0.0	0.0	0.0	0.0	2026
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2022

Source: Commission services

Some important elements should be kept in mind when interpreting the results.

– First, the 2021-2022 fiscal forecast reflects the activation of the general escape clause of the SGP in March 2020, which allows Member States to depart from the fiscal requirements that would normally apply ([158]). The Commission has confirmed that the general escape clause will remain active in 2021, while no decision has been taken for its application in 2022. In spring 2021, the Commission will reassess the situation, taking into account updated macroeconomic projections, and take stock of the application of the general escape clause. The SGP scenario assumes compliance with the normal EU fiscal rules as from 2023.

– Second, the SGP scenario only reflects the reduction of the headline deficit below 3% of GDP and subsequent compliance with the adjustment path towards the MTO. It does not explicitly incorporate the debt reduction benchmark. Nevertheless, under normal economic circumstances, the convergence to the MTO tends to ensure compliance with the debt reduction benchmark as well.

– Lastly, Member States are assumed to comply with the required change in the structural balance and not explicitly with the expenditure benchmark ([159]). However, while the annual fiscal effort measured by the expenditure benchmark can differ from the fiscal effort measured by the change in the structural balance ([160]), both measures tend to broadly concur over a medium-term horizon.

([158]) See https://www.consilium.europa.eu/en/press/press-releases/2020/03/23/statement-of-eu-ministers-of-finance-on-the-stability-and-growth-pact-in-light-of-the-covid-19-crisis/ and https://ec.europa.eu/info/sites/info/files/economy-finance/2_en_act_part1_v3-adopted_text.pdf.

([159]) The required fiscal effort is also translated into an expenditure benchmark (a cap on primary expenditure growth net of discretionary revenue measures). Member States' progress towards their MTOs is assessed based on both the change in the structural balance as well as respect of the expenditure benchmark.

([160]) The fiscal effort measured by the expenditure benchmark can differ, for example due to changes in interest expenditure, which improve the structural balance but are excluded from the expenditure benchmark. Moreover, the expenditure benchmark is set based on a 10-year average potential growth, while the structural balance is calculated based on the point estimate of potential growth.

ANNEX A9

Assessment of fiscal sustainability challenges: criteria used and decision trees

A9.1. THE OVERALL APPROACH FOLLOWED IN FISCAL SUSTAINABILITY RISK ASSESSMENT

The approach followed in fiscal sustainability risk assessment is the one used in the Debt Sustainability Monitor 2019. An overview of the overall approach and the elements that feature in it is provided in Graph A9.1.

In the remainder of this annex, the approach to reach an overall assessment of medium-term and long-term fiscal sustainability risks is described in more details. A summary overview of the thresholds used in fiscal sustainability risk assessment (and in particular in the summary heat map in Chapter 6) is provided in Section A9.4.

A9.2. THE APPROACH USED IN THE ASSESSMENT OF MEDIUM-TERM FISCAL SUSTAINABILITY RISKS

The assessment of medium-term fiscal sustainability risks is based on an overall conclusion on the country's DSA *and* on S1 (under the baseline scenario). A country is assessed to be at potential high (medium) risk if either the baseline S1 indicator *or* the DSA or both are highlighted in red (yellow) (see Graph A9.2).

The overall risk category of the country's DSA is reached by looking at debt projection results under two different scenarios (baseline scenario; historical SPB scenario) and a series of negative sensitivity tests (on nominal growth, interest rates and primary balance) around the baseline projections. ([161]) Synthetic stochastic debt projection results are also taken into account to reach the overall risk assessment on DSA.

The decision tree that is followed in this respect can be visualised in Graph A9.3. Practically, a country's DSA is deemed to highlight potential high risks if the baseline debt projections are assessed to entail high risks, or if they are deemed to entail medium risks, but high risks are still highlighted by alternative scenarios (the historical SPB scenario or at least one of the sensitivity tests on macro-fiscal assumptions) or by stochastic projections. The high-risk assessment based on the latter criterion is meant to prudentially capture significant upward risks around a baseline that is already considered at medium risk. ([162])

Finally, at the lowest level of granularity, the risk assessment for each debt projection scenario/sensitivity test and for stochastic projections, on which the overall DSA assessment relies, follows an economic rationale that is explained in Graph A9.4. The variables used to summarise deterministic debt projection results are the following:

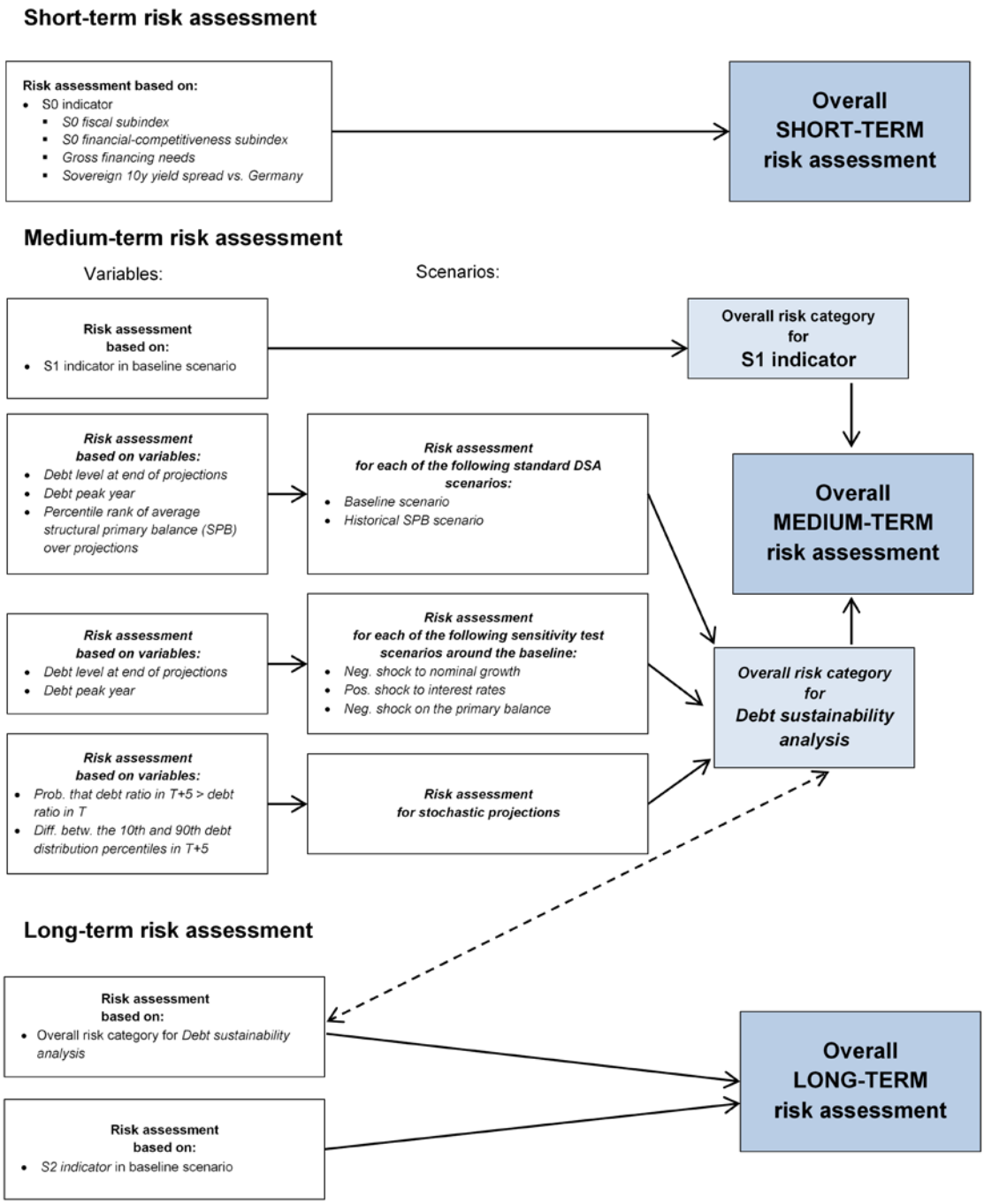
- The level of the debt ratio at the end of projections (2031);
- The year in which the debt ratio peaks over the 10-year projection horizon (providing a synthetic indication of debt dynamics);
- The percentile rank of the average SPB assumed over the projection horizon in the specific scenario (giving a sense of how common/uncommon the fiscal stance assumed in the projections is, relative to the SPB distribution for all EU countries over 1980-2020). ([163])

([161]) Positive sensitivity tests are neglected in the overall assessment as the idea is rather to stress test baseline debt projections against upward risks.

([162]) A prudential approach is what guides this choice. In particular, adopting a high level of prudence has been considered as particularly important in the case of countries being already considered at medium risk under the baseline scenario. In this case, an historical SPB scenario (where fiscal policy is assumed to revert to historical behaviour) in red would be sufficient to lead to a high risk assessment, as indicated in Graph A9.3. This high level of prudence has not been deemed necessary for a country that is, on the contrary, deemed to be at low risk (thus far from vulnerable) under the baseline scenario (in this case a medium or high risk assessment under the historical SPB scenario does not lead in itself to a medium risk assessment).

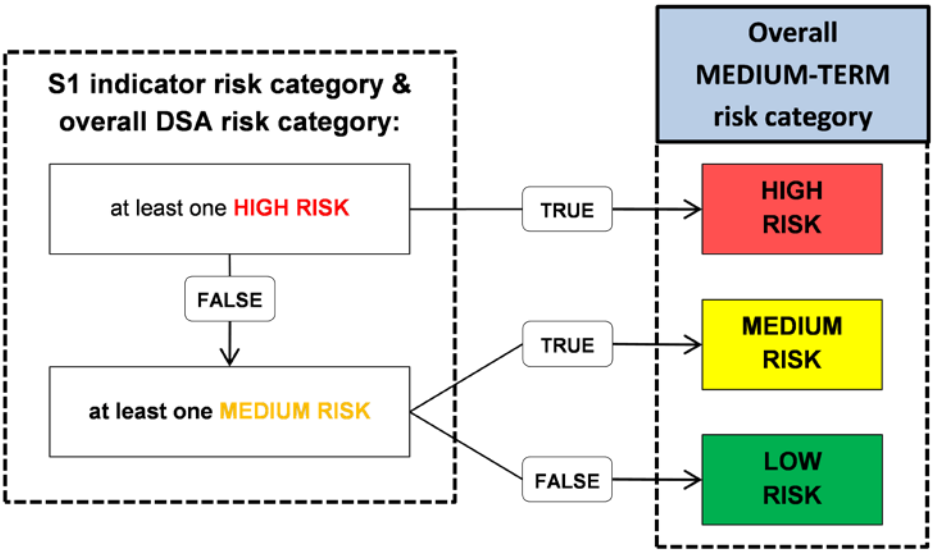
([163]) For the individual sensitivity test scenarios, the percentile rank of the average SPB over the projection horizon is not used for the scenarios' risk assessment. The reason is that these sensitivity tests are all run around the baseline scenario, for which the variable percentile rank of the average SPB is already used in the assessment.

Graph A9.1: **Decision tree for the multi-dimensional approach to the assessment of fiscal sustainability risks**



Source: Commission services.

Graph A9.2: **Decision tree for the assessment of medium-term fiscal sustainability risks**



Source: Commission services.

Stochastic debt projections are summarised using the following two indicators (as indicated in Chapter 3):

- The probability of a debt ratio at the end of the 5-year stochastic projection horizon (2025) greater than the initial (2019) debt ratio (capturing the probability of a higher debt ratio due to the joint effects of macroeconomic and fiscal shocks);

- The difference between the 10th and the 90th debt distribution percentiles (measuring the width of the stochastic projection cone, i.e. the estimated degree of uncertainty surrounding baseline projections).

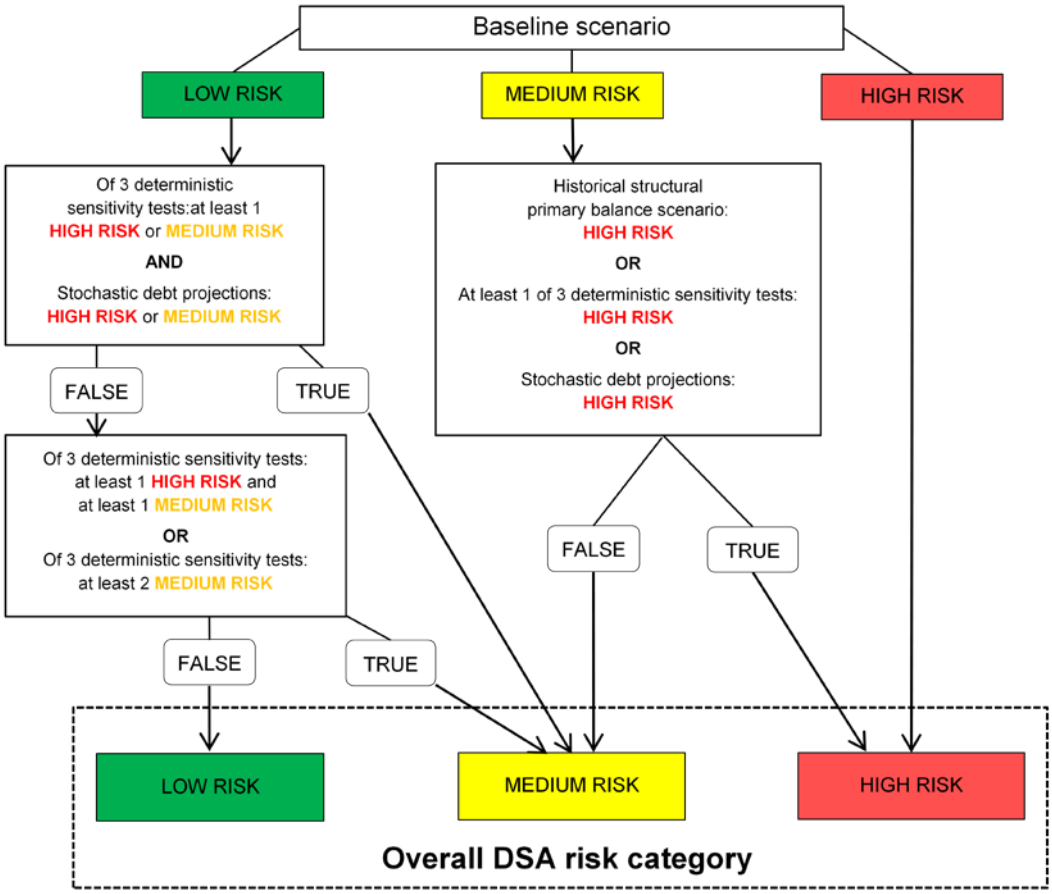
As indicated in Graph A9.4, a DSA scenario is highlighted as high risk in case the debt ratio at the end of projections is considered at high risk (above 90% of GDP – see Table A9.1 for thresholds on all DSA variables) or if the debt peak year and the SPB percentile rank are both assessed as high risk, which means that the debt ratio is on a longer (at least up to T+7) increasing path, even with projections that are based on a relatively ambitious SPB (see again Table A9.1 for precise thresholds). ([164])

A sensitivity test (on growth, interest rate or the primary balance) is highlighted as high risk if it leads to a debt ratio at the end of projections above 90% (red), or if the end-of-projection debt ratio is between 70% and 90% (thus already significantly above the 60% Treaty reference value) and the debt peak year is highlighted in red, thereby indicating that the debt ratio is still on an increasing path towards the end of projections (up to T+7 at least).

Finally stochastic debt projections are summarised in red if the probability of a debt ratio at the end of the 5 years of projections greater than the initial debt level is assessed as high risk (with different thresholds being set in this case for different groups of countries with different initial debt ratios – see Table A9.1). On the contrary, the fact of having a high level of estimated uncertainty around baseline projections is in itself considered

([164]) As indicated in Table A9.1, the SPB percentile ranks used as upper and lower thresholds are 15% and 30%. The 15% percentile rank corresponds to the 85th distribution percentile in the SPB distribution (over all EU countries for 1980-20), which corresponds to an SPB of 3.0% of GDP, while the 30% percentile rank corresponds to the 70th distribution percentile, which is an SPB of 1.4% of GDP.

Graph A9.3: **Decision tree for country risk assessment based on debt sustainability analysis**



Source: Commission services.

as a sufficient condition for a high-risk assessment but leads to a medium-risk assessment (this high volatility can be associated with very low or relatively low debt levels, in which case it cannot be meaningfully considered as high risk).

As already explained, the overall assessment reached for the country's DSA is then integrated with the assessment reached using the traditional S1 indicator (under the baseline scenario) as indicated in Graph A9.2.

A9.3. THE APPROACH USED IN THE ASSESSMENT OF LONG-TERM FISCAL SUSTAINABILITY RISKS

The assessment of overall long-term fiscal sustainability risks is based on the results of the S2 sustainability gap indicator and the overall conclusion on the country's DSA. A country is assessed to be at potential high risk if (i) the S2 indicator flags high risk irrespective of the risk type implied by the overall results of the DSA or (ii) the S2 indicator is at medium risk, but the overall results of DSA point to either medium or high risk. Furthermore, a country is assessed at medium risk instead of low risk if the long-term sustainability S2 is assessed at low risk and the overall DSA flags either medium or high risk (see Table A9.2). The inclusion of the overall DSA results in the long-term risk assessment framework aims at prudently capturing risks linked to high debt levels. More explanations can be found in Box 4.1 of the FSR 2018.

Graph A9.4: **Assessment criteria used for debt projections, sensitivity tests and stochastic debt projections**

DSA scenarios (Baseline, HSPB)

Debt ratio at end of projections (t+11)	Debt peak year and structural primary balance percentile rank	RISK CATEGORY
HIGH RISK	ANY	HIGH RISK
ANY	Both HIGH RISK	
MEDIUM RISK	ANY but both HIGH RISK	MEDIUM RISK
LOW RISK or MEDIUM RISK	one HIGH RISK, one MEDIUM RISK	
	Both MEDIUM RISK	
LOW RISK	one HIGH RISK, one LOW RISK	LOW RISK
	one MEDIUM RISK, one LOW RISK	
	Both LOW RISK	

Deterministic sensitivity tests

Debt ratio at end of projections (t+11)	Debt peak year	RISK CATEGORY
HIGH RISK	ANY	HIGH RISK
MEDIUM RISK & ≥ 70%	HIGH RISK	
MEDIUM RISK & < 70%	HIGH RISK	MEDIUM RISK
MEDIUM RISK	MEDIUM RISK	
	LOW RISK	
LOW RISK	ANY	LOW RISK

Stochastic debt projections

Prob. of debt ratio at T+5 greater than at T	Debt distribution: Diff. b/w 10th and 90th percentiles	RISK CATEGORY
HIGH RISK	ANY	HIGH RISK
MEDIUM RISK	HIGH RISK	MEDIUM RISK
	MEDIUM RISK	
LOW RISK	HIGH RISK	
MEDIUM RISK	LOW RISK	LOW RISK
LOW RISK	MEDIUM RISK	
	LOW RISK	

Source: Commission services

Table A9.1: **Thresholds used for DSA variables**

Variable	*Threshold*	
Debt ratio at the end of projections (2031)	***Red:*** above 90% ***Yellow:*** between 60% and 90% ***Green:*** below 60%	
Debt peak year	***Red:*** peak year btw. T+7 and end projections (2027-31), or still increasing at end projections ***Yellow:*** peak year between end of forecasts (T+3) and T+6 (2023-26) ***Green:*** peak year within forecast horizon (2020-22)	
Percentile rank of average SPB over projection period (2022-31)	***Red:*** if smaller than (or equal to) 15% ***Yellow:*** between 15% and 30% ***Green:*** greater than 30%	
Probability of debt ratio at the end of 5-year stochastic projection horizon (2025) greater than initial (2020) debt ratio	Initial (2019) debt ratio at or above 90%:	***Red:*** if probability above 30% ***Yellow:*** if probability strictly positive and at or below 30% ***Green:*** if zero probability
	Initial (2019) debt ratio at or above 60% and below 90%:	***Red:*** if probability above 60% ***Yellow:*** if probability between 30% and 60% ***Green:*** if probability below 30%
	Initial (2019) debt ratio below 60%:	***Yellow:*** if probability above 70% ***Green:*** if probability at or below 70%
Difference between 10th and 90th debt distribution percentiles from stochastic projections	***Red:*** the third of the countries with highest dispersion ***Yellow:*** the third of the countries with intermediate dispersion ***Green:*** the third of the countries with lowest dispersion	

Source: Commission services.

Table A9.2: **Assessment approach based on the S2 indicator and the overall results of the DSA**

S2 indicator - baseline scenario	Debt Sustainability Analysis (DSA) - overall risk	RISK CATEGORY
HIGH RISK	HIGH RISK	HIGH RISK
	MEDIUM RISK	
	LOW RISK	
MEDIUM RISK	HIGH RISK	HIGH RISK
	MEDIUM RISK	MEDIUM RISK
	LOW RISK	
LOW RISK	HIGH RISK	MEDIUM RISK
	MEDIUM RISK	
	LOW RISK	LOW RISK

Source: Commission services.

A9.4. A SUMMARY OVERVIEW OF THRESHOLDS USED IN FISCAL SUSTAINABILITY RISK ASSESSEMENT

In this section we provide a summary overview of thresholds used to identify fiscal sustainability risks (with the only exception of thresholds used for DSA variables that have already been discussed and reported in the previous section – see Table A9.1).

For the indicators / variables discussed in this section, the thresholds themselves, as well as the methodologies used to derive them, have already been described in more detail in other sections of the report (Chapters 2 - 5, Annexes A4 – A5). Here the purpose is to provide a quick reference for the identification of fiscal sustainability challenges reported in the different heat maps presented in this report (see also Annexes A1 – A2).

As explained in Chapter 2, the thresholds of risk for S0 and the two S0 sub-indexes (fiscal and financial-competitiveness) have been calculated using the signals' approach (see Annex A4 for details), and are reported in Table A9.3.

For all other variables used to identify short-term risks (see Chapters 2, 5), the upper thresholds of risk (above which values are highlighted in red) have also been derived using the signals' approach (see Chapter 5 and Annex A4), while lower thresholds of risk (above which values are highlighted in yellow, till when they remain below the upper threshold of risk) have been set at around 80% of the original signals' approach thresholds, for prudential reasons (see Table A9.3). ([165])

For the S1-S2 indicators and respective ageing sub-components (used in the assessment of medium- and long-term sustainability challenges respectively), upper and lower thresholds are also reported in Table A9.3.

For S1 and S2 ageing sub-components (cost of ageing sub-component for S1; pensions, healthcare and long-term care sub-components for S2), thresholds (above which values are highlighted in red) correspond to the EU average (see Table A9.3). Finally, for the percentile rank of the required structural primary balance (RSPB) associated with S1 and S2 respectively, the same upper and lower thresholds are used as for the percentile rank of the average structural primary balance in DSA scenarios (see Table A9.1).

([165]) Variables common to the scoreboard used in the Macroeconomic Imbalances Procedure (MIP) have here different thresholds than under the MIP because the methodologies used to calculate these thresholds are different.

Table A9.3: **All thresholds used in fiscal sustainability assessment (except for DSA variables)**

	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 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 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			
S1 indicator	<	2.5	0.0
Cost of ageing sub-component	<	0.5	:
RSPB related to S1 - Percentile rank	>	15%	30%
DSA variables		see Table A9.1	
LONG-TERM RISKS			
S2 indicator	<	6.0	2.0
Pensions sub-component	<	0.4	:
Health care sub-component	<	0.7	:
Long-term care sub-component	<	0.7	:
RSPB related to S2 - Percentile rank	>	15%	30%
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 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

Source: Commission services.

ANNEX A10

Signalling approach for the analysis of government debt structure, sovereign yield spreads and banking sector vulnerabilities

Table A10.1: **Thresholds, signalling power, type I and type II errors obtained by applying the signals' approach**

Variables	safety	threshold	signaling power	type I error	type II error
Government debt structure variables					
Government debt held by non-residents, share of total, %	<	49.01	0.30	0.36	0.33
Government debt issued in foreign currency, share of total, %	<	31.58	0.08	0.21	0.71
Government short-term debt, share of total, %	<	6.57	0.21	0.69	0.10
Government bond yield spread					
Govt bond yield spreads relative to Germany/US, 10-year benchmark, basis points	<	231.00	0.37	0.10	0.52
Variables of banking sector vulnerabilities					
Bank loan to deposit ratio	<	133.37	0.24	0.23	0.53
Non-performing loans to total gross loans, %	<	2.30	0.21	0.69	0.10
Change in non-performing loans to total gross loans, %	<	0.30	0.38	0.25	0.37
Change in nominal house price index, YoY growth	<	13.21	0.19	0.17	0.65

Source: Commission services.

Table A10.1 reports results on optimal thresholds, signalling power, type I and type II errors obtained by applying the signals' approach (as explained in Annex A1) to individual variables describing the structure of public debt financing, sovereign yield spreads and variables capturing banking sector vulnerabilities. In all these cases, *optimal thresholds of fiscal stress* are determined (by relating the historical behaviour of the variables to the time series of fiscal stress events, as explained in Annex A4). These variables are notably used in the heat maps on government debt structure and government contingent liability risks (see Chapter 5 and Annexes A1-A2) and in the table with financial market information reported in the country statistical fiches (see Annex A2).

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