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CONTENTS

LIST OF BOXES

LIST OF TABLES

LIST OF GRAPHS

EXECUTIVE SUMMARY

Fiscal sustainability against the legacy of the economic and financial crisis and the need for stabilisation

The economic and financial crisis has left a legacy of high public debt burdens in a number of EU countries, in some cases accompanied by contemporaneously high debt in the private sector, thus making deleveraging more difficult. Furthermore, the current macroeconomic context of moderate GDP growth and very low inflation (well below the ECB objective of below but close to 2%) is not easing the reduction of the public debt-to-GDP ratios in Member States. At the same time, financial conditions are currently particularly supportive: interest rates are at very low levels, even after adjusting for relatively low GDP growth, and contribute to alleviating the burden of debt servicing. In this context, the need to strengthen GDP growth, which would also improve public debt dynamics, calls for making use of all policy levers, including rebalancing fiscal policy in some Member States, and generally devoting particular attention to the quality of public finances and the implementation of structural reforms.

Ensuring sustainable public finances in the context of ageing societies

High public debt burdens need to be looked at in perspective also with regard to future projected public spending related to population ageing (pensions, healthcare and long-term care). Though latest projections of age-related costs jointly run by the Commission services (Directorate-General for Economic and Financial Affairs) and the Economic Policy Committee Working Group on Ageing Populations and Sustainability (EPC-AWG) show more favourable expected developments relative to the past ([1]), the burden on public finances is still expected to be significant. This calls for a careful scrutiny of the factors behind possible pressure on public spending from pension and healthcare systems, and the related need for reforms.

A comprehensive horizontal framework for assessing fiscal sustainability

Sustainability challenges faced by Member States (including those expected to be brought about by population ageing) are evaluated according to the comprehensive horizontal fiscal sustainability assessment framework developed in the Fiscal Sustainability Report 2015 ([2]). It brings together in a synthetic way results on debt sustainability analysis (DSA) and fiscal sustainability indicators. The framework allows gaining a horizontally consistent overview of fiscal sustainability challenges per time dimension (short, medium and long run) across countries, based on a set of transparent criteria.

This Debt Sustainability Monitor (DSM) assesses fiscal sustainability challenges for all EU countries that are not under macroeconomic adjustment programme ([3]), and is based on Autumn 2016 Commission forecasts. The projections also rely on the Economic Policy Committee (EPC) agreed long-term convergence assumptions for the interest rate-growth rate differential, and the long-term budgetary projections of age-related costs from the joint EC-EPC 2015 Ageing Report. Country-specific results are reported in the statistical country fiches annexed to the report.

([1]) European Commission (2015a).
([2]) European Commission (2016a).
([3]) Greece is therefore excluded. The latter is already monitored, with higher frequency, in the context of the specific programme reviews.

No country would be at high risk of fiscal stress in the short-term

The identification of risks to fiscal sustainability over the short term (the upcoming year) relies on the S0 indicator (as in the FSR 2015) ([4]).

Based on the latest information, S0 results confirm that no EU country (analysed in this report) would be at high risk in the short-term, as was the case in the FSR 2015 ([5]). Risks of short-term fiscal stress are significantly lower compared with the situation in 2009 (first crisis year).

High risks to fiscal sustainability for 12 countries and medium risks for another 4 over the medium-term

The assessment of medium-term sustainability challenges relies on the joint use of the debt sustainability analysis (DSA, run over a 10-year horizon) and the S1 indicator ([6]), as in the FSR 2015. The joint use of the DSA and S1 allows capturing medium-term sustainability challenges in a comprehensive way, by considering fiscal risks related both to population ageing and to other risk factors affecting future debt developments.

As many as 12 EU countries (BE, ES, FR, HR, IT, CY, HU, PL, PT, SI, FI and UK) are found to face potentially *high* sustainability challenges in the medium term. For the large majority of them (8 out of 12), risks are deemed to be high based on both the DSA and S1. Exceptions to this are only HR, HU, PL and SI, which would be at high risk for the DSA, while at medium risk for S1. In all four cases this is due to a debt ratio at the end of projections, under the baseline no-fiscal policy change scenario ([7]), above the 60% Treaty reference value, accompanied by high risks highlighted by one or more of the alternative debt projection scenarios or sensitivity test scenarios, in terms of either significantly higher debt ratio or still increasing debt ratio at the end of projections (see Tables 2 to 4 for more details about the risk classification).

Four EU countries are deemed to be at *medium* sustainability risk in the medium term (IE, LT, AT and RO). For 2 of these four countries, the medium risk assessment is aligned between the DSA and S1 (IE and AT). Among the other two medium-risk countries in the medium term (LT and RO), medium risks are highlighted by S1, while the countries would be at low risk based on their DSA. In the case of LT, the impact of the projected cost of ageing would largely drive the positive value of S1, while in the case of RO the initial budgetary position (IBP) would be the main contributor to the positive S1.

The remaining 11 EU countries (BG, CZ, DK, DE, EE, LV, LU, MT, NL, SK and SE) are deemed to be at *low* risk in the medium-term

([4]) S0 is a composite indicator aimed at evaluating the extent to which there might be a fiscal stress risk in the short term, stemming from the fiscal, as well as the macro-financial and competitiveness sides of the economy. A set of 25 fiscal and financial-competitiveness variables proven to perform well in detecting fiscal stress in the past is used to construct the indicator.

([5]) Though no overall short-term risks appear to emerge based on the overall indicator, vulnerabilities might still be highlighted by individual variables incorporated in the analysis on a country by country basis.

([6]) The medium-term sustainability indicator S1 shows the additional adjustment required, in terms of improvement in the government primary balance (in structural terms) over 5 (post-forecast) years to reach a 60% public debt-to-GDP ratio by 2031, including financing for any future additional expenditure arising from an ageing population.

([7]) The no-fiscal-policy change assumption is defined as a scenario in which the government primary balance (in structural terms) remains constant at last forecast value (2018) for the remainder of the 10-year projection horizon.

(based on both DSA and S1).

Overall, medium-term fiscal sustainability risks would not have substantially changed compared to the 2015 FSR with approximately the same proportion of countries deemed to be at high / medium / low risk respectively. In terms of composition, the level of risk is deemed to have increased in HU and PL (from medium to high), while in three other countries, it would have decreased (IE and RO, from high to medium, and NL, from medium to low) (see Table 1).

Sustainability challenges remain at the aggregate EU and EA level

Under the baseline no-fiscal policy change scenario, the debt ratio for the EU as a whole would gradually decline from a peak of more than 88% of GDP in 2014 to 80% in 2024, and thereafter rise slightly. For the EA, the same projection scenario shows a sharper decline of public debt ratio from more than 94% of GDP in 2014 to around 85% of GDP in 2027. Despite this overall downward trend, the EU (EA) debt ratio would remain in 2027 significantly higher than its 2009 pre-crisis level. Compared to the FSR 2015, the EU (EA) debt ratio at the end of the projection period would be slightly higher due to a slightly loser fiscal stance over the coming two years compared to last year's forecasts.

If the structural primary balance for the EU (EA) gradually reverted to its last 15-year historical average, the projected decrease of the debt-to-GDP ratio would halt in 2022 for the EU (in 2023 for the EA), year after which public debt over GDP would start rising again.

Adhering to the existing fiscal rules (full compliance with EDP recommendations and convergence to the MTO according to the Communication on flexibility in the Stability and Growth Pact, SGP) would bring about a significantly higher decrease in gross public debt over GDP relative to the case of unchanged fiscal policy beyond forecasts. Indeed, in this case, public debt would reach 66% of GDP in 2027 for the EU (around 69% of GDP for the EA), a level around 16 pps. of GDP lower than what is projected under the baseline no-fiscal-policy-change scenario.

Stochastic debt projections (featuring the uncertainty of macroeconomic conditions in the analysis of debt dynamics) show that the EA debt ratio in 2021 is projected to lie between roughly 80% and 91% with an 80% probability. In terms of debt dynamics, in the presence of temporary shocks to primary balance, interest rates and nominal growth, the EA's debt ratio is projected to continue rising in 2017 with a probability of less than 40%, and start decreasing afterwards with a 80% probability. The EA debt ratio in 2021 is expected to be lower than in 2016 with a probability of around 91%.

In terms of medium-term challenges at aggregate level identified by the S1 indicator, the required improvement in the structural primary balance beyond the forecast horizon to achieve a debt-to-GDP ratio of 60% by 2031 amounts to 2.3 and 2.7 pps. of GDP for the EU and the EA respectively over the period 2019–2023. If the level of the S1 indicator at the EU (EA) level could be interpreted as signalling

medium (high) medium-term risks, aggregating fiscal sustainability needs (respectively fiscal scope in countries where S1 is negative) to appropriately assess overall EU (EA) fiscal sustainability challenges is not a straightforward exercise. The report provides some alternative measures (see Box 3.2 in chapter 3).

A prolonged period of low interest rates would on the other hand enhance sustainability

There is uncertainty and a vivid debate as to when and to what extent interest rates will return to 'normal' levels. If the current environment of very low interest rates was to last during a longer time period than the one assumed in our baseline scenario (and other main alternative scenarios) ([8]), then public debt would decline more substantially: for instance, in 2027, the EU public debt ratio would be almost 5 pps. of GDP lower than in the baseline scenario (see Box 2.3 in chapter 2).

Furthermore, with a prolonged period of low interest rates, the required fiscal adjustment, to bring down the debt ratio to 60% of GDP in 2031 (measured by the fiscal sustainability indicator S1), would be reduced by more than ½ pps. of GDP at the EA aggregate level, as the gap to the debt-stabilizing primary balance would diminish, as well as, to a lower extent, the cost of delaying the fiscal adjustment.

However, this current favourable environment alone would not suffice to ensure medium-long run public debt sustainability: indeed, the secular stagnation literature also predicts a long-lasting environment of low growth, which could reduce favourable snow-ball effects; 'low for long' interest rates may also have undesirable effects on the soundness of the financial sector, eventually favouring the build-up of contingent liabilities, whereby the sustainability challenge would transform. Finally, highly indebted sovereigns remain vulnerable to possible rapid changes in financial markets' sentiments.

Gross financing needs have fallen in recent years and are expected to remain broadly stable in coming years

Although the debt to GDP ratio remains the main metric of the debt sustainability framework, the current environment of very low interest rates calls for giving due account in the analysis to another indicator capturing the 'ability' to service debt. Hence, public gross financing needs' estimations and projections are presented in this report. This is an addition compared to the 2015 FSR ([9]). The projected dynamics of gross financing needs is particularly important to be able to measure the extent to which governments might need to tap financial markets over the current and the coming years, thus enabling an assessment of rollover risks.

According to Commission services (DG ECFIN) estimations, in most countries (22), government borrowing requirements have considerably decreased compared to the level reached in 2012 (down from around 22% / 26% of GDP at the EU / EA level to around 16% / 18% of GDP at the EU / EA level in 2016). Important cross-country differences

([8]) In this alternative scenario, interest rates are assumed to convergence to their equilibrium values in 20 years (in 2036) rather than 10 years (2026), as assumed in the baseline scenario.

([9]) These estimations need to be carefully considered and compared with other international institutions' figures (e.g. IMF, ECB), as the scope of debt considered, the data sources used and the underlying assumptions can differ. In this report, both debt securities and loans are considered, consistently with our public debt projection framework, and the projections presented are based on the set of assumptions used in the baseline no-fiscal policy change.

appear in line with the heterogeneity in terms of public debt level and maturity structure, sovereign financing conditions, as well the government primary balance. For instance, in 10 countries, GFNs are below 10% of GDP in 2016 (sometimes well below this value like in LU, LT, IE, DK and LV), while 7 countries exhibit GFNs greater than 17% of GDP (IT, CY, ES, PT, BE, FR and HU).

Over our 10 year projection horizon, gross financing needs are projected to remain roughly at their current (2016) level, with a slight overall decrease up until 2022, followed by a limited increase thereafter. Several countries are projected to experience decreases of their borrowing requirements over the whole period (e.g. BG, SE, SK, MT and DE), while others should see their GFN increase by 2027 (e.g. LT, ES, HR, FR, FI, RO and PL). These trends are largely driven by the projected dynamics of the primary balance (in line with often increasing costs of ageing) and the projected increase of the interest bill (in line with the assumption of normalization of financial conditions). They would remain however well below the peak reached in 2012 in most countries.

Medium or high risks to fiscal sustainability for 14 countries over the long-term

Long-term fiscal sustainability challenges are identified based on the S2 indicator, under the baseline no-fiscal policy change scenario, as traditionally done in previous issues of the FSR ([10]).

S2 results show that only one country (SI) appears to be at *high* long-term sustainability risk, primarily due to projected cost of ageing developments (with spending on pensions accounting for most of the projected impact on public finances). 13 EU countries (BE, CZ, LT, LU, HU, MT, NL, AT, PL, RO, SK, FI and UK) appear to face *medium* risk in terms of long-term sustainability challenges. For as many as 9 of these countries (BE, CZ, LT, LU, MT, NL, AT, SK and UK), these challenges are brought about primarily (exclusively for LU, MT and AT) by projected age-related costs. For other 3 countries (HU, PL and RO), on the contrary, long-term challenges are primarily brought about by their initial budgetary position (IBP). For the last country (FI) long-term challenges are brought about by the cost of ageing and the IBP to the same extent. The remaining 13 EU countries (BG, DK, DE, EE, IE, ES, FR, HR, IT, CY, LV, PT and SE) appear to be at *low* sustainability risk in the long run, conditional on fiscal policy unchanged at the last Commission forecast year, as assumed in the baseline scenario.

If less favourable ageing cost projections were to materialise over the long term (especially due to higher healthcare spending, as assumed under the AWG risk scenario, or due to the structural primary balance returning to its historical value under the historical SPB scenario), significant changes would intervene in terms of long-term fiscal sustainability challenges. Two countries (CZ and MT) would be facing

([10]) The long-term sustainability indicator S2 shows the upfront adjustment to the current primary balance (in structural terms) required in order to stabilise the debt-to-GDP ratio over the infinite horizon, including financing for any additional expenditure arising from an ageing population. As the adjustment implied by the indicator might also lead to debt stabilising at relatively high levels, the indicator has nonetheless to be taken with caution for high-debt countries in relation to SGP requirements.

high, rather than medium, risks over the long term, while other 10 countries (BG, DK, DE, EE, IE, ES, FR, LV, PT and SE) would face medium, rather than low, risks.

Overall, long-term fiscal sustainability risks would not have changed based on the S2 indicator, with still only one EU country at high risk and 13 countries at medium risk (against 14 in the 2015 FSR). Looking at the classification country by country, the long-term classification has changed for three countries, with an improvement of risk category in two cases (BG and SE, from medium to low), and a deterioration in one other case (HU), driven by the change in the initial budgetary position.

Additional fiscal risks arising from non-performing loans on banks' balance sheets exist and require close monitoring

Finally, to complement our sustainability analysis, the report explores (like in the FSR 2015) additional potential risks or mitigating factors linked to i) the structure of public debt, in terms of maturity, holders and currency, ii) government contingent liabilities primarily linked to the banking sector, and iii) government assets.

As far as governments' contingent liability risks from the banking sector are concerned, the main vulnerability stems from the share of non-performing loans, which appears to be problematic for almost all EU countries with few exceptions (EE, LU, FI and SE), thus representing a significant source of fiscal risks at the current juncture. Non-performing loans however have been reducing across the board, except in Portugal where the share has increased. A further qualifier of bad assets, the NPL coverage ratio, shows that in most countries NPLs are provisioned for in significant proportions and that only in few cases NPLs are both relatively high as percent of total loans and provisioned for at insufficient levels (DK, LV, LT and UK).

Given the strengthening of the regulatory framework in recent years (e.g. Banking Union), the impact of a systemic banking crisis on public finances would be overall limited. Contingent liabilities, linked to the banking sector, have a potential high impact on public finances only for a very limited subset of countries and only in the short term.

Table 1: **Fiscal sustainability assessment by Member State (in bracket classification in the FSR 2015, based on Commission services Autumn 2015 forecasts, whenever the risk category has changed)**

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

Source: Commission services

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

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

* If a country is classified at medium risk based on the baseline scenario, other scenarios are considered to confirm (or not) the classification (i.e. deterministic sensitivity tests, historical SPB scenario and stochastic projections).
Source: Commission services

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

	BE	BG	CZ	DK	DE	EE	IE	ES	FR	HR	IT	CY	LV	LT
Heat map for short-term risks in the EU countries														
S0 overall index	0.42	0.28	0.19	0.19	0.08	0.25	0.28	0.37	0.31	0.18	0.42	0.41	0.29	0.21
S0 Fiscal sub-index	0.57	0.08	0.00	0.00	0.00	0.00	0.19	0.57	0.43	0.08	0.47	0.08	0.00	0.00
S0 Financial competitiveness sub-index	0.35	0.39	0.28	0.29	0.12	0.37	0.32	0.27	0.25	0.23	0.40	0.57	0.45	0.33
Fiscal risks from fiscal context														
Primary balance (% of GDP)	-0.5	0.1	0.7	0.4	2.0	0.6	1.4	-1.8	-1.5	1.3	1.6	2.3	0.3	1.0
Change in gross debt (% of GDP)	1.2	3.4	-0.6	-1.5	-3.0	-0.7	-3.3	-0.3	0.2	-1.8	0.7	-0.4	3.7	-1.9
Share of short-term public debt (% of GDP)	8.1	0.3	2.2	4.0	6.2	0.2	9.0	8.9	10.6	5.8	18.8	2.3	1.3	2.3
Gross financing needs (% of GDP)	20.1	4.1	6.7	6.8	9.1		2.2	21.4	18.2	12.8	23.3	4.2	4.6	2.0
Fiscal risks from macro-financial context														
Private debt (% of GDP)*	166.3	110.5	68.6	212.8	98.9	116.6	303.4	154.0	144.3	115.0	117.0	353.7	88.8	55.0
Private credit flow (% of GDP)*	4.5	-0.3	0.9	-3.3	3.0	3.3	-6.7	-2.7	4.4	-1.3	-1.7	4.4	0.7	2.2
Net international Investment Position (% of GDP)*	61.3	-60.0	-30.7	39.0	48.7	-40.9	-208.0	-89.9	-16.4	-77.7	-23.6	-130.3	-62.5	-44.7
Change in share of non-performing loans (p.p.)	-0.3	-0.2	-1.1	-0.3	-0.7	-0.8	-4.7	-1.8	-0.2	-1.2	-0.2	-1.9	-1.7	-1.3
Fiscal risks from financial market developments														
Sovereign yield spreads(bp) - 10 year	38	230	27	10			68	116	44	289	171	376	43	95
Overall SHORT-TERM risk category	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**
Heat map for medium-term risks in the EU countries														
S1 indicator in the EU countries														
	BE	**BG**	**CZ**	**DK**	**DE**	**EE**	**IE**	**ES**	**FR**	**HR**	**IT**	**CY**	**LV**	**LT**
S1 indicator - Baseline scenario	4.3	-3.5	-1.2	-2.9	-0.4	-4.5	0.4	4.9	4.5	2.4	6.6	2.9	-2.1	1.1
of which CoA	0.4	-0.3	0.7	-0.4	1.0	0.0	1.1	-0.9	0.3	-0.3	0.0	-0.4	-0.3	1.6
Required Structural Primary balance related to S1 - Percentile rank	9%	90%	74%	84%	34%	96%	26%	13%	12%	15%	0%	13%	86%	37%
S1 indicator - AWG risk scenario	4.7	-3.1	-0.7	-2.6	0.2	-4.1	0.8	5.3	4.9	2.7	6.7	3.1	-1.6	1.7
of which CoA	0.8	0.1	1.1	-0.2	1.5	0.4	1.4	-0.6	0.6	0.0	0.1	-0.3	0.1	2.1
Required Structural Primary balance related to S1 - Percentile rank	6%	88%	69%	81%	27%	94%	22%	11%	10%	13%	0%	12%	82%	29%
S1 indicator - Historical SPB scenario	4.5	-6.2	1.0	-8.2	-0.1	-6.2	5.3	7.0	9.0	8.6	10.1	6.0	-2.2	3.7
of which CoA	0.6	-0.3	0.8	-0.4	1.3	0.0	1.4	-1.2	0.3	-0.4	0.1	-0.4	-0.3	2.2
Required Structural Primary balance related to S1 - Percentile rank	2%	100%	70%	100%	35%	100%	10%	1%	0%	1%	0%	2%	92%	19%
S1 indicator - overall risk assessment	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	HIGH	LOW	MEDIUM
Sovereign-debt sustainability risks in the EU countries														
	BE	**BG**	**CZ**	**DK**	**DE**	**EE**	**IE**	**ES**	**FR**	**HR**	**IT**	**CY**	**LV**	**LT**
Baseline no-policy change scenario	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	HIGH	LOW	LOW
Debt level (2027)	102.3	21.1	41.9	28.9	52.6	8.7	63.2	109.6	102.6	87.8	128.9	93.0	33.6	54.1
Debt peak year	2017	2016	2027	2016	2016	2017	2016	2027	2027	2027	2018	2016	2016	2027
Average Structural Primary Balance (2018-2027) Percentile rank	56%	54%	58%	48%	29%	56%	31%	74%	69%	42%	34%	42%	67%	57%
Historical SPB scenario	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	MEDIUM
Debt level (2027)	91.9	18.5	54.6	13.4	54.8	12.8	82.5	105.2	108.5	106.2	125.0	97.9	38.5	62.5
Debt peak year	2017	2016	2027	2016	2016	2027	2027	2027	2027	2027	2018	2016	2016	2027
Average Structural Primary Balance (2018-2027) Percentile rank	35%	48%	75%	24%	33%	63%	66%	70%	75%	72%	28%	52%	73%	70%
Stability and Growth Pact (SGP) institutional scenario	MEDIUM	LOW	LOW	LOW	LOW	LOW	LOW	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	LOW	LOW
Debt level (2027)	80.2	24.2	33.4	33.7	45.0	6.7	53.7	83.4	76.6	80.0	107.5	77.6	30.1	39.2
Debt peak year	2017	2016	2016	2016	2016	2017	2016	2017	2017	2016	2018	2016	2016	2017
Average Structural Primary Balance (2018-2027) Percentile rank	23%	55%	52%	44%	28%	54%	31%	24%	28%	29%	12%	18%	57%	49%
Negative shock (-0.5p.p.) on nominal GDP growth	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	LOW
Debt level (2027)	108.0	22.4	44.0	30.9	55.8	9.2	66.7	115.5	107.9	93.1	136.6	98.7	35.3	56.7
Debt peak year	2027	2016	2027	2016	2016	2017	2016	2027	2027	2027	2027	2016	2016	2027
Positive shock (+1p.p.) to the short- and long-term interest rates on newly issued and rolled over debt	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	LOW
Debt level (2027)	108.6	22.8	44.6	30.9	56.4	9.2	65.6	117.1	108.7	93.2	138.8	98.5	35.6	56.5
Debt peak year	2027	2016	2027	2016	2016	2017	2016	2027	2027	2027	2027	2016	2016	2027
Negative shock on the PB equal to 50% of the forecasted cumulative change over the two forecast years	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	LOW
Debt level (2027)	103.6	21.2	46.0	35.8	54.7	12.0	67.2	111.3	103.7	92.3	134.3	102.9	35.0	57.5
Debt peak year	2017	2016	2027	2016	2016	2027	2016	2027	2027	2027	2027	2016	2016	2027
Stochastic projections	HIGH	MEDIUM	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	HIGH	LOW	MEDIUM
Probability of debt in 2021 greater than in 2016 (%)	33%	32%	47%	16%	4%	83%	30%	69%	56%	50%	35%	30%	29%	53%
Difference of the 10th and 90th percentile in 2021 (p.p. of GDP)	25.6	40.1	25.5	15.7	14.9	3.6	32.0	15.6	11.3	45.8	19.7	42.2	25.6	30.7
Debt sustainability analysis - overall risk assessment	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	LOW
Overall MEDIUM-TERM risk category	**HIGH**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**MEDIUM**	**HIGH**	**HIGH**	**HIGH**	**HIGH**	**HIGH**	**LOW**	**MEDIUM**
Heat map for long-term risks in the EU countries														
	BE	**BG**	**CZ**	**DK**	**DE**	**EE**	**IE**	**ES**	**FR**	**HR**	**IT**	**CY**	**LV**	**LT**
S2 indicator - Baseline scenario	3.1	1.4	2.9	0.9	2.0	0.2	0.5	1.9	0.7	-1.5	0.5	-0.7	0.8	3.4
of which Pensions	1.0	0.7	0.6	-1.3	1.6	-1.2	0.8	-0.6	-1.7	-2.6	-0.8	0.2	-1.5	1.2
Health care	0.2	0.3	0.8	0.5	0.3	0.4	1.0	0.8	0.6	0.6	0.5	0.2	0.4	0.1
Long-term care	1.1	0.1	0.5	1.5	0.0	0.4	0.7	1.1	0.6	0.0	0.6	0.2	0.1	0.7
Required Structural Primary balance related to S2 - Percentile rank	16%	30%	13%	18%	11%	38%	35%	40%	55%	55%	18%	24%	48%	11%
S2 indicator - AWG risk scenario	4.4	3.4	6.6	2.0	4.4	2.4	2.6	3.6	2.7	-0.1	1.0	0.8	3.2	5.8
of which Pensions	1.2	0.9	0.6	-1.2	1.6	-1.2	0.8	-0.6	-1.7	-2.6	-0.8	0.2	-1.5	1.2
Health care	0.5	0.8	1.3	1.2	0.8	0.8	1.6	1.4	1.1	1.2	0.9	0.5	1.0	0.6
Long-term care	1.9	1.4	3.7	2.0	1.9	2.0	2.2	2.2	2.1	0.7	0.8	1.4	1.9	2.5
Required Structural Primary balance related to S2 - Percentile rank	10%	13%	0%	11%	1%	15%	15%	19%	24%	30%	14%	13%	18%	1%
S2 indicator - Historical SPB scenario	1.7	1.1	4.8	-1.2	2.5	0.8	3.2	1.3	1.6	1.0	-0.1	0.0	1.5	4.7
of which Pensions	1.0	0.8	0.6	-1.3	1.7	-1.3	0.8	-0.7	-1.8	-2.8	-0.8	0.2	-1.5	1.2
Health care	0.2	0.3	0.8	0.6	0.3	0.4	1.0	0.8	0.7	0.6	0.6	0.2	0.4	0.0
Long-term care	1.1	0.1	0.5	1.6	0.0	0.5	0.7	1.1	0.6	0.0	0.7	0.2	0.1	0.7
Required Structural Primary balance related to S2 - Percentile rank	29%	34%	3%	42%	8%	29%	11%	51%	37%	19%	22%	18%	35%	4%
Overall LONG-TERM risk category	**MEDIUM**	**LOW**	**MEDIUM**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**MEDIUM**

* = variables' values are taken with a 1-year lag, according to the definition of the variables in the S0 indicator.
Source: Commission services

Table 4: **Summary heat map on fiscal sustainability challenges**

	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK
Heat map for short-term risks in the EU countries													
S0 overall index	0.29	0.31	0.15	0.20	0.15	0.29	0.41	0.26	0.14	0.34	0.22	0.12	0.41
S0 Fiscal sub-index	0.00	0.39	0.00	0.00	0.07	0.08	0.31	0.25	0.08	0.09	0.08	0.00	0.53
S0 Financial competitiveness sub-index	0.45	0.27	0.22	0.31	0.19	0.41	0.46	0.26	0.16	0.46	0.29	0.19	0.35
Fiscal risks from fiscal context													
Primary balance (% of GDP)	1.7	1.6	1.6	0.3	0.7	-0.8	1.7	-1.3	0.4	-0.7	-1.2	0.4	-1.0
Change in gross debt (% of GDP)	1.1	-1.3	-1.9	-2.2	-2.0	2.2	1.3	1.0	-3.0	0.9	1.7	-2.4	0.2
Share of short-term public debt (% of GDP)	1.4	11.4	3.7	6.3	5.1	0.4	18.2	2.3	4.6	0.8	6.9	11.6	13.2
Gross financing needs (% of GDP)	-1.3	18.4	7.1	9.4	10.9	7.3	13.7	6.8	11.6	10.2	8.0	8.4	11.3
Fiscal risks from macro-financial context													
Private debt (% of GDP)*	343.1	83.9	139.1	228.8	126.4	78.6	181.5	59.1	87.3	81.4	155.7	188.6	157.8
Private credit flow (% of GDP)*	24.2	-3.1	5.4	-1.6	2.1	3.1	-2.3	0.2	-5.1	8.2	9.5	6.5	2.5
Net international Investment Position (% of GDP)*	35.8	-60.8	48.5	63.9	2.9	-62.8	-109.3	-51.9	-38.7	-61.0	0.6	4.1	-14.4
Change in share of non-performing loans (p.p.)	-0.4	-5.4	-0.3	-0.5	-1.2	-0.5	1.1	-7.6	-3.3	-0.2	0.0	-0.1	-0.9
Fiscal risks from financial market developments													
Sovereign yield spreads(bp) - 10 year	18	309	83	18	26	303	317	307	113	51	21	17	105
Overall SHORT-TERM risk category	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**
Heat map for medium-term risks in the EU countries													
S1 indicator in the EU countries													
	LU	**HU**	**MT**	**NL**	**AT**	**PL**	**PT**	**RO**	**SI**	**SK**	**FI**	**SE**	**UK**
S1 indicator - Baseline scenario	-3.7	0.8	-1.2	-1.1	0.8	1.8	6.1	0.7	2.4	-2.1	2.8	-2.9	3.3
of which CoA	1.0	-0.9	1.0	-0.2	0.6	0.3	-0.1	0.3	0.9	0.1	1.6	0.2	0.9
Required Structural Primary balance related to S1 - Percentile rank	88%	47%	52%	61%	25%	55%	0%	71%	19%	75%	20%	83%	14%
S1 indicator - AWG risk scenario	-3.5	1.3	-0.9	-0.9	1.1	2.1	6.4	1.0	2.8	-1.5	3.1	-2.5	3.5
of which CoA	1.2	-0.5	1.3	0.0	0.8	0.6	0.2	0.5	1.2	0.6	1.8	0.6	1.0
Required Structural Primary balance related to S1 - Percentile rank	86%	38%	45%	57%	22%	47%	0%	67%	16%	69%	19%	79%	13%
S1 indicator - Historical SPB scenario	-7.5	2.3	1.1	-1.2	2.0	3.0	14.9	1.4	6.1	1.2	0.2	-6.6	9.9
of which CoA	1.3	-1.1	1.2	-0.1	0.8	0.3	-0.1	0.3	1.2	0.1	2.0	0.3	1.1
Required Structural Primary balance related to S1 - Percentile rank	100%	31%	42%	68%	19%	34%	0%	64%	5%	69%	21%	96%	0%
S1 indicator - overall risk assessment	LOW	MEDIUM	LOW	LOW	MEDIUM	MEDIUM	HIGH	MEDIUM	MEDIUM	LOW	HIGH	LOW	HIGH
Sovereign-debt sustainability risks in the EU countries													
	LU	**HU**	**MT**	**NL**	**AT**	**PL**	**PT**	**RO**	**SI**	**SK**	**FI**	**SE**	**UK**
Baseline no-policy change scenario	LOW	MEDIUM	LOW	LOW	MEDIUM	MEDIUM	HIGH	LOW	MEDIUM	LOW	MEDIUM	LOW	MEDIUM
Debt level (2027)	17.2	70.3	45.8	47.2	67.2	69.2	124.0	55.7	76.5	40.3	79.8	28.8	89.9
Debt peak year	2018	2016	2016	2016	2016	2027	2016	2027	2016	2016	2027	2016	2027
Average Structural Primary Balance (2018-2027) Percentile rank	42%	63%	30%	40%	34%	77%	29%	77%	52%	43%	63%	44%	55%
Historical SPB scenario	LOW	MEDIUM	LOW	LOW	MEDIUM	MEDIUM	HIGH	LOW	MEDIUM	LOW	MEDIUM	LOW	HIGH
Debt level (2027)	9.5	74.3	58.8	50.0	70.2	69.6	141.2	57.2	85.2	59.7	61.0	20.2	107.6
Debt peak year	2018	2027	2016	2016	2016	2027	2027	2027	2027	2027	2019	2016	2027
Average Structural Primary Balance (2018-2027) Percentile rank	29%	68%	55%	45%	40%	78%	63%	79%	67%	75%	29%	29%	79%
Stability and Growth Pact (SGP) institutional scenario	LOW	MEDIUM	LOW	LOW	MEDIUM	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM
Debt level (2027)	11.7	62.0	37.6	48.1	61.3	47.0	100.8	36.2	53.5	38.2	57.9	29.8	71.5
Debt peak year	2018	2016	2016	2016	2016	2018	2016	2019	2016	2016	2018	2016	2016
Average Structural Primary Balance (2018-2027) Percentile rank	42%	34%	28%	37%	29%	48%	10%	53%	23%	41%	40%	46%	31%
Negative shock (-0.5p.p.) on nominal GDP growth	LOW	HIGH	LOW	LOW	MEDIUM	HIGH	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
Debt level (2027)	18.1	74.3	48.5	50.2	71.3	72.4	131.5	58.1	80.7	42.7	83.7	30.6	94.7
Debt peak year	2018	2027	2016	2016	2016	2027	2027	2027	2027	2016	2027	2016	2027
Positive shock (+1p.p.) to the short- and long-term interest rates on newly issued and rolled over debt	LOW	HIGH	LOW	LOW	MEDIUM	HIGH	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
Debt level (2027)	17.8	74.7	47.9	50.3	71.3	73.3	131.4	59.1	81.1	43.3	84.2	31.4	94.3
Debt peak year	2018	2027	2016	2016	2016	2027	2027	2027	2027	2016	2027	2016	2027
Negative shock on the PB equal to 50% of the forecasted cumulative change over the two forecast years	LOW	HIGH	LOW	LOW	MEDIUM	HIGH	HIGH	LOW	MEDIUM	LOW	HIGH	LOW	HIGH
Debt level (2027)	23.9	74.9	47.5	48.6	67.5	71.7	126.5	58.5	78.7	45.8	80.5	31.3	97.4
Debt peak year	2027	2027	2016	2016	2016	2027	2016	2027	2016	2016	2027	2016	2027
Stochastic projections	LOW	MEDIUM	MEDIUM	LOW	MEDIUM	LOW	HIGH	MEDIUM	MEDIUM	LOW	HIGH	LOW	MEDIUM
Probability of debt in 2021 greater than in 2016 (%)	39%	41%	18%	6%	18%	76%	44%	77%	31%	25%	80%	6%	36%
Difference of the 10th and 90th percentile in 2021 (p.p. of GDP)	14.8	29.8	26.5	15.8	26.3	16.6	25.5	28.6	24.5	25.0	17.7	10.4	18.7
Debt sustainability analysis - overall risk assessment	LOW	HIGH	LOW	LOW	MEDIUM	HIGH	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
Overall MEDIUM-TERM risk category	**LOW**	**HIGH**	**LOW**	**LOW**	**MEDIUM**	**HIGH**	**HIGH**	**MEDIUM**	**HIGH**	**LOW**	**HIGH**	**LOW**	**HIGH**
Heat map for long-term risks in the EU countries													
	LU	**HU**	**MT**	**NL**	**AT**	**PL**	**PT**	**RO**	**SI**	**SK**	**FI**	**SE**	**UK**
S2 indicator - Baseline scenario	4.3	2.7	4.0	3.1	2.4	3.8	1.3	3.7	6.5	2.4	3.2	1.0	3.0
of which Pensions	2.8	0.4	2.1	0.1	0.5	-0.2	-0.3	0.1	3.4	1.0	-0.5	-0.7	0.9
Health care	0.4	0.5	1.4	0.6	0.9	0.8	1.7	0.6	0.9	1.3	0.5	0.3	1.0
Long-term care	1.2	0.3	0.9	2.6	0.9	0.6	0.2	0.5	1.0	0.2	1.6	1.1	0.3
Required Structural Primary balance related to S2 - Percentile rank	1%	15%	4%	12%	12%	19%	14%	19%	0%	26%	16%	36%	29%
S2 indicator - AWG risk scenario	5.8	5.5	5.6	3.9	3.9	5.0	3.0	5.7	7.9	5.5	4.5	3.3	4.1
of which Pensions	2.8	0.4	2.1	0.1	0.5	-0.2	-0.3	0.1	3.4	1.0	-0.6	-0.7	0.9
Health care	0.7	1.0	2.1	1.0	1.4	1.4	2.4	1.0	1.4	2.1	0.9	0.8	1.5
Long-term care	2.5	2.6	1.8	2.9	2.0	1.2	1.2	2.0	1.9	2.5	2.5	2.8	0.9
Required Structural Primary balance related to S2 - Percentile rank	0%	2%	1%	8%	4%	11%	5%	7%	0%	5%	9%	14%	19%
S2 indicator - Historical SPB scenario	3.3	3.4	6.1	3.7	3.0	4.1	4.1	4.2	8.1	5.4	0.7	-0.2	5.7
of which Pensions	2.8	0.5	2.2	0.2	0.5	-0.2	-0.4	0.1	3.6	1.1	-0.6	-0.7	1.0
Health care	0.4	0.6	1.5	0.7	1.0	0.9	1.8	0.6	0.9	1.4	0.5	0.3	1.0
Long-term care	1.3	0.3	0.9	2.8	1.0	0.6	0.3	0.6	1.1	0.2	1.6	1.1	0.3
Required Structural Primary balance related to S2 - Percentile rank	3%	11%	0%	9%	10%	17%	2%	15%	0%	5%	47%	58%	9%
Overall LONG-TERM risk category	**MEDIUM**	**MEDIUM**	**MEDIUM**	**MEDIUM**	**MEDIUM**	**MEDIUM**	**LOW**	**MEDIUM**	**HIGH**	**MEDIUM**	**MEDIUM**	**LOW**	**MEDIUM**

* = variables' values are taken with a 1-year lag, according to the definition of the variables in the S0 indicator.

Source: Commission services

1. INTRODUCTION

The economic and financial crisis has left a legacy of high public debt burdens in a number of EU countries, in some cases accompanied by contemporaneously high debt in the private sector, thus making deleveraging more difficult. Furthermore, the current macroeconomic context of moderate GDP growth and very low inflation (well below the ECB objective of below but close to 2%) is not easing the reduction of the public debt-to-GDP ratios in Member States. At the same time, financial conditions are currently particularly supportive: interest rates are at very low levels and contribute to alleviating the burden of debt servicing.

Against this background, the Debt Sustainability Monitor (DSM) report aims at providing an update (based on European Commission's Autumn 2016 forecasts) on fiscal sustainability challenges faced by Member States. As an intermediate yearly update within the 3-year cycle of the Fiscal Sustainability Report (FSR) ([11]), the DSM report provides a snapshot of the situation, updating results to the latest available macroeconomic forecasts and ageing cost projections.

As in the FSR, the fiscal sustainability assessment contained in this report is based on a separate assessment of challenges over the short, medium and long run. The short run is covered by the S0 indicator, which allows for an early detection of short-term risks of fiscal stress (within the upcoming year) from the fiscal and/or the macro-financial and competitiveness sides of the economy. As from the innovation introduced in the latest FSR (2015), fiscal sustainability challenges over the medium term are now captured through the joint use of the medium-term fiscal sustainability indicator S1 ([12]) and the debt sustainability analysis (DSA). The joint use of the two allows for a proper identification of medium-term challenges deriving from ageing (mostly through the S1 indicator that is particularly suited to this purpose), while ensuring a due consideration to medium-term public debt dynamics (for which the DSA is the reference toolkit). Challenges over the long term are identified as usual through the long-run fiscal sustainability indicator S2 ([13]).

In this report as in the FSR, fiscal sustainability challenges are illustrated for the three time dimensions in a summary heat map, allowing for a quick visualisation of the underlying factors of risk. While the sustainability assessment per time dimension is based on the traditional baseline no-fiscal policy change scenario (where fiscal policy is assumed to remain constant at last forecasted structural primary balance for the remainder of the projection horizon), the summary heat map additionally presents results for alternative scenarios. For instance, the AWG risk scenario assumes less favourable developments of future healthcare costs for the S1 and S2 indicators. For the DSA, a wealth of scenarios assumes, for instance, reversion to historical average for different macro-fiscal variables, or a path in line with the respect of EDP recommendations and the convergence to the medium-term budgetary objective under the preventive arm of the Pact (see Chapter 2 for more details). These additional scenarios are meant to allow qualifying the fiscal sustainability assessment in the context of the qualitative interpretation of the results ([14]).

Results are provided for all countries that are not under macroeconomic adjustment programme (i.e. for all EU countries but Greece). Results by country are reported in the statistical annex to the report.

The remainder of the report is organised as follows. Quantitative results on debt sustainability analysis and fiscal sustainability indicators are

([11]) European Commission (2016a). The assessment of fiscal sustainability was based in the FSR 2015 on the Commission services Autumn 2015 forecasts.

([12]) The S1 indicator shows the additional fiscal adjustment effort required (in terms of improvement in the government structural primary balance) over five post-forecast years to reach the 60% debt ratio target in 2031.

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

([14]) Like in any projection exercise (especially as the projection horizon grows), the projections in this report are based on a set of assumptions, which are subject to uncertainties (discussed in the European Commission (2016a)). Recognizing these uncertainties, the framework includes a wealth of alternative scenarios and sensitivity tests (including stochastic projections). These uncertainties can be higher in specific cases: for instance, in small open economies where GDP volatility is generally high. Uncertainties are also likely to remain high in the case of the UK, as negotiations on the future relationship between the UK and EU continue (see European Commission (2016b)).

provided in Chapters 2 and 3 respectively. Chapter 4 focusses on additional factors that should be considered in the assessment of fiscal sustainability challenges (the structure of public debt financing; risks related to governments' contingent liabilities; the value of government financial assets). Chapter 5 concludes with the overall assessment.

2. QUANTITATIVE RESULTS ON DEBT SUSTAINABILITY ANALYSIS

2.1. DETERMINISTIC DEBT PROJECTION RESULTS

Deterministic public debt projections presented in this report are run under a series of alternative scenarios, including the baseline and historical scenarios (see section 2.1.1) and the Stability and Growth Pact scenario (see section 2.1.2), which are compared to the FSR 2015 (see section 2.1.3). Stability and Convergence Program and the Draft Budgetary Plan scenarios are also presented (see section 2.1.4). Deterministic debt projections, based on fiscal reaction functions, are then derived (see section 2.1.5). Moreover, sensitivity tests around the baseline scenario are carried (see section 2.2). The definition of these alternative scenarios is described in the Box 2.1.

2.1.1. Baseline and historical scenarios

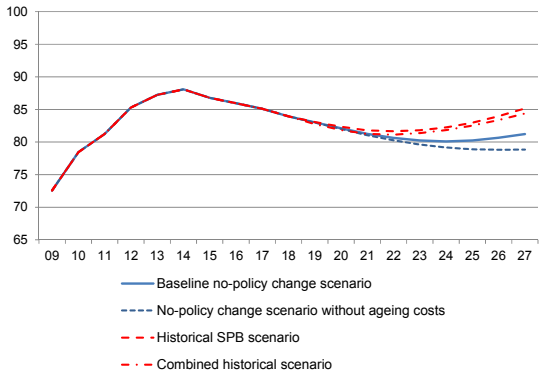
This section presents results on the evolution of gross public debt over GDP in a first set of scenarios: the baseline no-fiscal policy change scenario (which includes ageing costs); the no-fiscal policy change scenario without ageing costs and the historical scenarios.

EU and EA aggregated results

The projection evolution of the debt ratio, respectively for the EU and the EA, under the baseline scenario, is displayed in Graphs 2.1 and 2.2 (and also reported in Tables 2.1 and 2.2, together with the breakdown of projected changes in the debt ratio, which allows gauging the contribution of the main drivers (primary balance *before ageing costs*, age-related expenditure, snow-ball effect([15]) and stock-flow adjustments) ([16]).

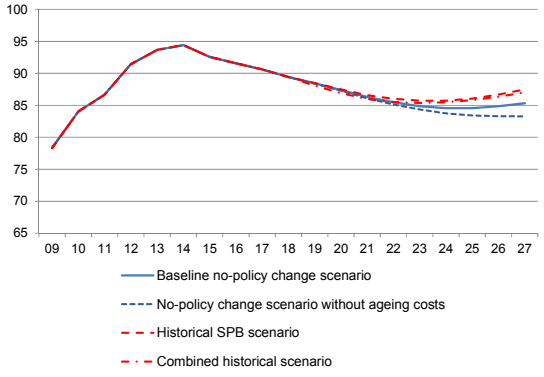
On the basis of budgetary positions from the European Commission's Autumn 2016 forecasts and under the assumption of unchanged fiscal policy beyond the forecast horizon (the baseline no-fiscal policy change scenario), the debt ratio for the EU would gradually decline from a peak of more than 88% of GDP in 2014 to 80% in 2024, and then would slightly pick up at the end of the projection horizon (see Graph 2.1 and Table 2.1). For the EA, the same projection scenario shows a sharper decline of public debt ratio from 94.4% of GDP in 2014 to 85.3% of GDP in 2027 (see Graph 2.2 and Table 2.2). Despite this overall downward trend, the debt ratio would remain in 2027 significantly higher than its 2009 pre-crisis level in both the EU and the EA.

Graph 2.1: **Gross public debt projections (% of GDP), European Union - Baseline no-fiscal policy change and historical scenarios**



Source: Commission services

Graph 2.2: **Gross public debt projections (% of GDP), Euro area - Baseline no-fiscal policy change and historical scenarios**



Source: Commission services

([15]) The so-called "snow-ball effect" is the net impact of the counter-acting effects of interest rate, inflation and GDP growth, as well as in some cases the exchange rate, on the evolution of the debt ratio.

([16]) Similar country-specific breakdowns are reported in the statistical country fiches in the Annex.

Table 2.1: **Gross public debt projections (% of GDP) and underlying macro-fiscal assumptions, European Union - Baseline no-fiscal policy change scenario**

	2016	2017	2018	2019	2020	2021	2024	2027
Gross debt ratio	**86.0**	**85.1**	**83.9**	**83.0**	**82.1**	**81.3**	**80.1**	**81.2**
of which Oustanding (non maturing) debt		*66.0*	*65.1*	*64.5*	*63.7*	*63.0*	*61.6*	*61.9*
Rolled-over short-term debt		*9.2*	*9.1*	*8.9*	*8.8*	*8.7*	*8.5*	*8.6*
Rolled-over long-term debt		*8.1*	*8.0*	*7.9*	*7.8*	*7.7*	*7.6*	*7.6*
New short-term debt		*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.3*	*0.3*
New long-term debt		*1.6*	*1.6*	*1.5*	*1.5*	*1.6*	*2.1*	*2.8*
Changes in the debt ratio (-1+2+3)	**-0.8**	**-0.9**	**-1.2**	**-0.9**	**-0.9**	**-0.9**	**-0.1**	**0.6**
of which (1) Overall primary balance (1.1+1.2-1.3)	**0.2**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.1**	**0.0**
(1.1) Structural primary balance (1.1.1-1.1.2+1.1.3)	***0.5***	***0.4***	***0.4***	***0.4***	***0.4***	***0.3***	***0.1***	***0.0***
(1.1.1) Structural primary balance (before CoA)	*0.5*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*
(1.1.2) Cost of ageing (incl. revenues pensions tax)				*0.0*	*0.0*	*0.1*	*0.3*	*0.5*
(1.1.3) Property incomes				*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.2) Cyclical component	***-0.4***	***-0.2***	***-0.1***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***-0.1***	***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)	**-0.3**	**-0.6**	**-1.0**	**-0.6**	**-0.6**	**-0.6**	**-0.1**	**0.4**
(2.1) Interest expenditure	*2.1*	*2.0*	*1.9*	*1.9*	*2.0*	*2.0*	*2.4*	*3.0*
(2.2) Growth effect (real)	*-1.6*	*-1.4*	*-1.4*	*-1.1*	*-1.1*	*-1.0*	*-1.0*	*-1.0*
(2.3) Inflation effect	*-0.8*	*-1.2*	*-1.4*	*-1.5*	*-1.5*	*-1.6*	*-1.6*	*-1.6*
(3) Stock flow adjustments	***-0.4***	***0.0***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
PM : Structural balance	***-1.6***	***-1.6***	***-1.5***	***-1.6***	***-1.7***	***-1.8***	***-2.4***	***-3.1***
Key macroeconomic assumptions								
Actual GDP growth (real)	1.8	1.6	1.8	1.3	1.3	1.3	1.2	1.3
Potential GDP growth (real)	1.3	1.4	1.5	1.3	1.3	1.3	1.2	1.3
Inflation (GDP deflator)	1.0	1.4	1.7	1.8	1.9	2.0	2.0	2.0
Implicit interest rate (nominal)	2.5	2.4	2.3	2.3	2.4	2.6	3.1	3.8

(1) Given that the drivers of EU change of public debt are calculated as GDP-weighted averages of country-specific debt projections, small differences may exist between the total change of public debt and the sum of its drivers.
Source: Commission services

Table 2.2: **Gross public debt projections (% of GDP) and underlying macro-fiscal assumptions, Euro area - Baseline no-fiscal policy change scenario**

	2016	2017	2018	2019	2020	2021	2024	2027
Gross debt ratio	**91.6**	**90.6**	**89.4**	**88.4**	**87.4**	**86.3**	**84.5**	**85.3**
of which Oustanding (non maturing) debt		*70.0*	*69.0*	*68.4*	*67.5*	*66.6*	*64.7*	*64.6*
Rolled-over short-term debt		*9.5*	*9.3*	*9.2*	*9.1*	*9.0*	*8.8*	*8.8*
Rolled-over long-term debt		*9.5*	*9.3*	*9.2*	*9.1*	*9.0*	*8.8*	*8.8*
New short-term debt		*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.3*	*0.3*
New long-term debt		*1.5*	*1.6*	*1.4*	*1.4*	*1.5*	*2.0*	*2.7*
Changes in the debt ratio (-1+2+3)	**-1.0**	**-1.0**	**-1.2**	**-1.0**	**-1.1**	**-1.1**	**-0.3**	**0.5**
of which (1) Overall primary balance (1.1+1.2-1.3)	**0.4**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.4**	**0.2**
(1.1) Structural primary balance (1.1.1-1.1.2+1.1.3)	***1.0***	***0.8***	***0.6***	***0.6***	***0.6***	***0.5***	***0.4***	***0.2***
(1.1.1) Structural primary balance (before CoA)	*1.0*	*0.8*	*0.6*	*0.6*	*0.6*	*0.6*	*0.6*	*0.6*
(1.1.2) Cost of ageing (incl. revenues pensions tax)				*0.0*	*0.1*	*0.1*	*0.3*	*0.5*
(1.1.3) Property incomes				*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.2) Cyclical component	***-0.5***	***-0.4***	***-0.1***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***-0.1***	***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)	**-0.3**	**-0.5**	**-1.0**	**-0.6**	**-0.6**	**-0.7**	**0.0**	**0.6**
(2.1) Interest expenditure	*2.1*	*2.0*	*1.9*	*1.9*	*2.0*	*2.0*	*2.5*	*3.1*
(2.2) Growth effect (real)	*-1.5*	*-1.4*	*-1.5*	*-1.0*	*-1.0*	*-1.0*	*-0.9*	*-0.9*
(2.3) Inflation effect	*-0.9*	*-1.1*	*-1.3*	*-1.4*	*-1.6*	*-1.7*	*-1.6*	*-1.6*
(3) Stock flow adjustments	***-0.3***	***0.1***	***0.3***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
PM : Structural balance	***-1.2***	***-1.3***	***-1.3***	***-1.4***	***-1.5***	***-1.6***	***-2.2***	***-3.0***
Key macroeconomic assumptions								
Actual GDP growth (real)	1.7	1.6	1.7	1.2	1.2	1.2	1.1	1.1
Potential GDP growth (real)	1.1	1.2	1.3	1.1	1.1	1.1	1.1	1.1
Inflation (GDP deflator)	1.0	1.2	1.5	1.7	1.8	2.0	2.0	2.0
Implicit interest rate (nominal)	2.3	2.2	2.1	2.2	2.3	2.4	3.0	3.8

(1) Given that the drivers of EA change of public debt are calculated as GDP-weighted averages of country-specific debt projections, small differences may exist between the total change of public debt and the sum of its drivers.
Source: Commission services

Box 2.1: **Debt projection scenarios: main assumptions**

The **debt projection scenarios** included in the Commission DSA are the following:

1. ***Baseline no-fiscal policy change scenario*** (European Commission forecasts for the 2 forecast years; assumption of unchanged fiscal policy after forecasts; EPC-agreed long-run convergence assumptions of underlying macroeconomic variables – long-term interest rate converging to 3% in real terms; inflation rate converging to 2%; OGWG- agreed GDP growth path).

2. ***No-fiscal policy change scenario without age-related costs*** (same as scenario (1) without ageing costs).

3. ***Historical scenarios*** (European Commission forecasts for the 2 forecast years; assumption of gradual 4-year convergence of SPB, implicit interest rate, real GDP growth – one at a time and then all together – to historical average(s) after forecasts).

4. ***Fiscal reaction function (FRF) scenario*** (European Commission forecasts for the 2 forecast years; primary balance determined from estimated FRF after forecasts).

5. ***Stability and Growth Pact (SGP) scenario*** (European Commission forecasts for first projection year; thereafter assumption of full compliance with EDP recommendations and convergence to the MTO, according to the matrix of required fiscal adjustment from Commission Communication on flexibility in fiscal rules). ([1])

6. ***Stability and Convergence Programme (SCP) scenario*** (SCP assumptions for main macro-fiscal variables; assumption of unchanged fiscal policy after programme horizon).

7. ***Draft Budgetary Plan (DBP) scenario*** (DBP assumptions for main macro-fiscal variables; assumption of unchanged fiscal policy after plan horizon).

Sensitivity test scenarios run around the baseline no-fiscal policy change scenario are the following:

1. ***"Standard" 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, 2017-27).

2. ***"Enhanced" sensitivity tests on short- and long-term interest rates*** (-1p.p./+2p.p. on short- and long-term interest rates on new and rolled over debt for first 3 projection years, followed by -1p.p./+1p.p. over remaining of projection period until 2027).

3. ***"Standard" sensitivity tests on real GDP growth*** (-0.5/+0.5 p.p. on real GDP growth over whole projection period, 2017-27).

4. ***"Enhanced" sensitivity tests on real GDP growth*** (-1 standard deviation/+1 standard deviation on real GDP growth for first 2 projection years, followed by -0.5/+0.5 p.p. over remaining of projection period till 2027).

([1]) European Commission (2015c), COM(2015) 12 final, 13/01/2015, and the commonly agreed position on flexibility, as confirmed by the ECOFIN Council of 12 February 2016. (Council document number 14345/15).

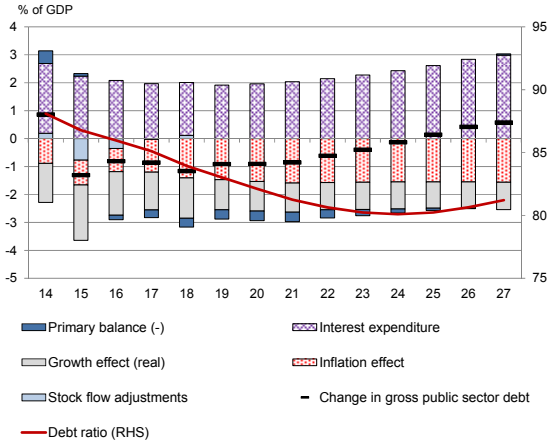
(Continued on the next page)

Box (continued)

6. ***Sensitivity test on structural primary balance*** (negative shock to structural primary balance equal to 50% of forecasted cumulative change over the 2 forecast year; primary balance kept constant at lower last forecast year level over remainder of projection period until 2027).

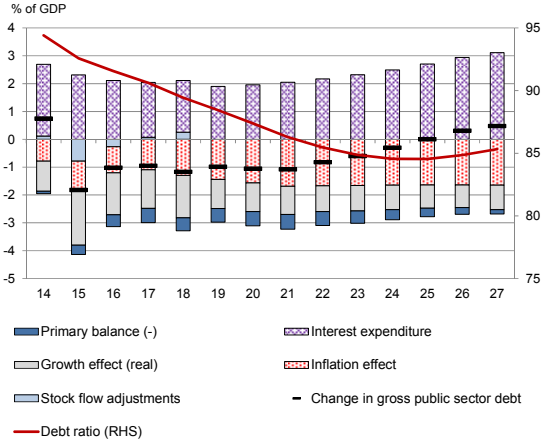
7. ***Sensitivity test on nominal exchange rate*** (shock equal to maximum annual change in the exchange rate, observed over the last 10 years, applied for first 2 projection years).

Graph 2.3: **Determinants of changes in gross public debt (% of GDP), European Union - Baseline no-fiscal policy change scenario**



(1) The different components are shown as contributions to the change in gross public debt ratio. For example, a positive primary balance will contribute to a reduction of the debt ratio.
Source: Commission services

Graph 2.4: **Determinants of changes in gross public debt (% of GDP), Euro area - Baseline no-fiscal policy change scenario**



(1) The different components are shown as contributions to the change in gross public debt ratio. For example, a positive primary balance will contribute to a reduction of the debt ratio.
Source: Commission services

The structural primary balance *before ageing costs* (assumed to remain constant at 0.4% of GDP in the EU and 0.6% of GDP in the EA over the projection period) is an important driver of the overall downward-sloping path of the debt ratio (see also Graphs 2.3 and 2.4). The snow-ball effect is also projected to substantially contribute to the reduction of the debt ratio, although its negative effect would progressively fade out (in line with the interest rate convergence assumption – in particular, the real long-term market interest rate is assumed to reach 3% by the end of the 10-year projection horizon). On the contrary, implicit liabilities related to ageing tend to slightly increase public debt over GDP towards the end of the projection period.

This growing impact of ageing costs can be seen in Graphs 2.1 and 2.2 when comparing the no-fiscal policy change scenario with and without ageing costs.

If the SPB (*before ageing costs*) was gradually (in 4 years) reverting to its historical average beyond the forecast horizon (an average structural primary *deficit* of 0.1% of GDP over the period 2002-16 for the EU, and an average structural primary *surplus* of 0.3% of GDP over the same period for the EA (see Table 2.4), the evolution of public debt over GDP would differ significantly from the baseline (see historical SPB scenarios in Graphs 2.1 and 2.2). In this case, the projected decrease of the debt ratio would halt in 2022 in the EU (respectively 2023 in the EA), year after which public debt to GDP would start rising again. Overall, with a fiscal stance close to historical behaviour, the EU debt ratio would increase again after 2022 and revert

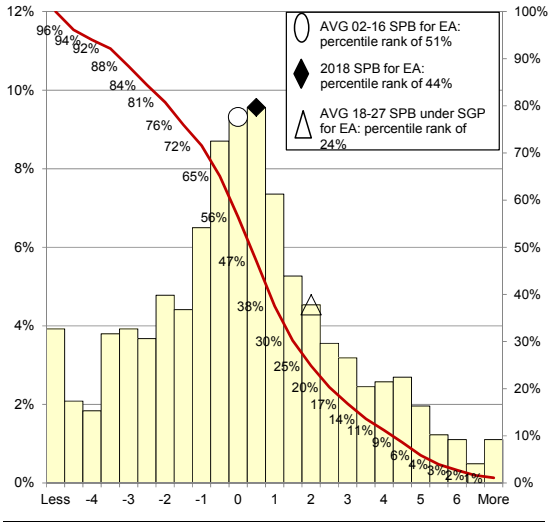
back to a level close to its 2017 value (at around 85% of GDP) in 2027, while it would only moderately decrease at the EA level.

This tendency would be slightly mitigated if the real interest rate and the real GDP growth were in addition reverting to their historical averages ([17]) given a more favourable interest rate – growth rate differential (compared to the baseline). However, public debt ratio would still show a significant gap with the end-projection level reached under the baseline scenario both in the EU and the EA (difference around 2-3 pps. of GDP; see Table 2.3).

Given the significant differences in debt projection results between the baseline no-fiscal policy change scenario and the historical SPB scenario, it is of particular importance to assess the likelihood of a country sustaining, over the medium term, the level of structural primary balance achieved at the last forecasted year. This assessment can be made by analysing the percentile rank of the last forecast-year SPB against the distribution of SPBs over all EU countries and over a long time-period (1980-2016) ([18]).

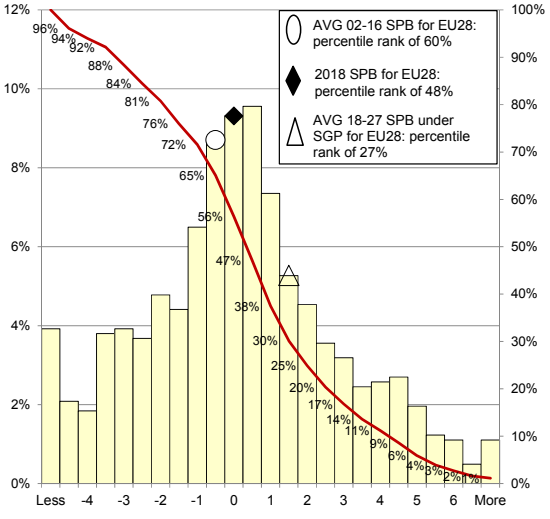
For the EA for instance, the 0.6% of GDP structural primary surplus forecasted for 2018 is located relatively close to the middle of the SPB distribution, (a percentile rank of 44%; see Graph 2.5). Thus, the last forecasted value for the EA SPB can be considered plausible based on European historical track-record. For the EU, the percentile rank associated to the last forecasted value of the SPB (0.4% of GDP) is slightly higher (at 48%; see Graph 2.6), also pointing to reasonable fiscal assumptions in the baseline scenario based on European historical standards.

Graph 2.5: **3-year average level of structural primary balance - EA percentile rank against the probability distribution over EU countries for the period 1980 - 2016**



Source: Commission services

Graph 2.6: **3-year average level of structural primary balance - EU percentile rank against the probability distribution over EU countries for the period 1980 - 2016**



Source: Commission services

([17]) The real GDP growth is assumed to converge to the last 15-year historical average of potential GDP growth. The real interest rate is assumed to converge to its last 15-year historical average.

([18]) The percentile rank is an indication as to where a country-specific fiscal effort for the last forecast year (kept constant until the end of the projection period in the baseline scenario) lies in the overall distribution of fiscal efforts (SPBs). This is a particularly useful piece of information in that it provides a broad idea of how strong the no-fiscal policy change assumption is likely to be in a certain country-specific context. However, an important caveat of this measure needs to be kept in mind: while here the individual country's fiscal effort is analysed against the background of the overall distribution of fiscal efforts across all EU countries, history may also prove that a certain country is more / less able to sustain stronger fiscal efforts than others.

Table 2.3: **Gross public debt projections (% of GDP) under baseline no-fiscal policy change and historical scenarios, by country**

	Debt in 2018	(A) Debt in 2027 - Baseline no-policy change scenario	(B) Debt in 2027 - Historical last 15 years average (02-16) on				(B - A)			
			SPB	IIR	Potential GDP growth	Combined	SPB	IIR	Potential GDP growth	Combined
BE	106.4	102.3	91.9	103.8	102.3	93.2	-10.5	1.4	-0.1	-9.2
BG	25.9	21.1	18.5	20.3	18.7	15.6	-2.6	-0.9	-2.4	-5.5
CZ	38.5	41.9	54.6	42.3	39.0	51.8	12.7	0.4	-2.9	9.9
DK	38.2	28.9	13.4	29.7	28.6	13.7	-15.4	0.9	-0.3	-15.1
DE	63.1	52.6	54.8	53.4	51.0	54.0	2.2	0.8	-1.5	1.5
EE	9.4	8.7	12.8	8.0	7.8	10.7	4.0	-0.7	-0.9	2.0
IE	71.9	63.2	82.5	63.8	53.1	72.0	19.4	0.7	-10.0	8.8
EL	:	:	:	:	:	:	:	:	:	:
ES	100.0	109.6	105.2	110.0	101.2	97.3	-4.4	0.4	-8.4	-12.3
FR	97.1	102.6	108.5	103.2	101.3	107.9	5.9	0.7	-1.2	5.4
HR	82.8	87.8	106.2	87.9	80.0	98.2	18.4	0.1	-7.8	10.4
IT	133.1	128.9	125.0	131.1	134.5	132.8	-4.0	2.2	5.6	3.8
CY	100.6	93.0	97.9	92.8	86.0	90.8	4.9	-0.2	-7.0	-2.2
LV	36.0	33.6	38.5	31.9	32.9	35.8	4.9	-1.7	-0.7	2.3
LT	40.2	54.1	62.5	54.1	43.6	51.2	8.4	0.0	-10.4	-2.9
LU	23.5	17.2	9.5	16.8	17.2	9.5	-7.7	-0.4	0.0	-7.7
HU	71.8	70.3	74.3	70.3	68.4	72.6	4.0	0.1	-1.8	2.3
MT	57.2	45.8	58.8	46.2	44.8	58.3	13.1	0.4	-1.0	12.6
NL	59.3	47.2	50.0	47.7	45.4	48.8	2.9	0.6	-1.8	1.6
AT	79.2	67.2	70.2	68.0	68.3	72.1	3.0	0.8	1.0	4.8
PL	55.5	69.2	69.6	70.6	63.2	64.8	0.4	1.4	-6.1	-4.4
PT	127.8	124.0	141.2	124.2	127.9	145.6	17.2	0.1	3.9	21.5
RO	41.5	55.7	57.2	47.9	53.3	47.3	1.6	-7.7	-2.3	-8.4
SI	76.6	76.5	85.2	78.3	75.6	86.2	8.7	1.8	-1.0	9.7
SK	51.5	40.3	59.7	41.5	35.9	56.0	19.4	1.2	-4.3	15.7
FI	68.1	79.8	61.0	79.5	77.8	59.1	-18.8	-0.3	-2.0	-20.7
SE	38.2	28.8	20.2	28.7	27.7	19.2	-8.6	-0.1	-1.1	-9.6
UK	87.5	89.9	107.6	90.6	89.1	107.5	17.7	0.7	-0.8	17.6
EU	83.9	81.2	85.1	81.8	79.9	84.4	3.9	0.6	-1.3	3.2
EA	89.4	85.3	87.5	86.1	84.2	87.0	2.2	0.8	-1.2	1.7

Source: Commission services

Cross-country main results([19])

In Table 2.3, debt projection results under the baseline no-fiscal policy change scenario and the historical scenarios are reported individually for all Member States ([20]) and the EU/EA aggregates. Beyond the historical SPB and the combined historical scenarios discussed so far, the table also displays debt projection results under two additional historical scenarios, respectively based on post-forecast convergence of the interest rate and real GDP growth rate to historical averages.

In the baseline scenario, 18 countries (NL, AT, MT, SK, DE, DK, SE, IE, CY, LU, BG, IT, BE, PT, LV, HU, EE and SI) would see a *decline* of their public debt ratio (by 2018, see Graph 2.7), ranging from a minimum of less than 1 pp. of GDP in Slovenia and Estonia to a maximum of around 12 pps. of GDP in the Netherlands and Austria. On the other hand, debt ratio would be on an upward path in 9 countries (RO, LT, PL, FI, ES, FR, HR, CZ and UK), with particularly important increases projected in Romania, Lithuania and Poland (around +14 pps. of GDP between 2018 and 2027). When analysing debt trajectories as from the last

([19]) Detailed results by country are provided in the statistical country fiches of the Annex.

([20]) Results are nevertheless not shown for Greece as it is currently subject to specific surveillance, being under Economic Adjustment Programme.

Table 2.4: **Summary of underlying macro-fiscal assumptions used in the baseline and historical scenarios, by country**

	Baseline no-policy change scenario						Historical last 15 years average (02-16)			*Percentile rank of 2018 SPB*	*Percentile rank of AVG 02-16 SPB*
	2018			Average 2018-27							
	SPB	IIR	Real GDP growth	SPB	IIR	Real GDP growth	SPB	IIR	Potential GDP growth		
BE	0.0	2.1	1.5	0.0	2.7	1.5	1.5	2.4	1.5	*56%*	*29%*
BG	0.1	3.0	2.8	0.1	3.5	2.2	0.5	1.1	3.4	*54%*	*47%*
CZ	-0.1	2.4	2.7	-0.1	2.9	1.9	-1.9	2.2	2.6	*58%*	*79%*
DK	0.5	2.9	1.8	0.5	3.1	1.2	2.5	2.8	1.0	*48%*	*20%*
DE	1.5	1.7	1.7	1.5	2.5	1.1	1.2	2.3	1.3	*29%*	*34%*
EE	0.0	0.8	2.6	0.0	1.9	1.9	-0.5	-1.3	3.1	*56%*	*65%*
IE	1.4	2.9	3.5	1.4	3.2	2.4	-1.3	2.8	4.2	*31%*	*74%*
EL	:	:	:	:	:	:	:	:	:	*:*	*:*
ES	-1.3	2.5	2.1	-1.3	3.2	1.1	-0.7	2.2	1.7	*74%*	*67%*
FR	-0.8	1.9	1.7	-0.8	2.6	1.3	-1.6	2.1	1.3	*69%*	*77%*
HR	0.8	4.0	2.3	0.8	4.2	0.8	-1.8	2.6	1.3	*42%*	*78%*
IT	1.2	2.8	1.0	1.2	3.3	0.8	1.8	2.5	0.2	*34%*	*26%*
CY	0.8	2.5	2.3	0.8	3.4	1.2	0.1	2.7	1.6	*42%*	*55%*
LV	-0.6	2.7	3.0	-0.6	3.1	3.0	-1.3	0.2	3.3	*67%*	*74%*
LT	-0.1	3.4	2.8	-0.1	3.6	1.0	-1.2	2.2	3.5	*57%*	*73%*
LU	0.8	1.7	3.6	0.8	2.1	3.4	1.8	0.4	3.3	*42%*	*26%*
HU	-0.3	4.0	2.8	-0.3	4.2	1.9	-0.9	2.5	1.8	*63%*	*70%*
MT	1.5	3.5	3.7	1.5	3.6	2.9	-0.4	2.6	2.8	*30%*	*64%*
NL	0.9	1.5	1.8	0.9	2.3	1.1	0.5	2.2	1.2	*40%*	*47%*
AT	1.2	2.7	1.6	1.2	3.0	1.6	0.8	2.3	1.5	*34%*	*42%*
PL	-1.7	3.1	3.2	-1.7	3.6	2.5	-1.7	3.1	3.6	*77%*	*78%*
PT	1.5	3.4	1.4	1.5	3.7	0.9	-1.0	2.3	0.3	*29%*	*71%*
RO	-1.7	4.4	3.6	-1.7	4.4	3.1	-1.9	-2.0	3.5	*77%*	*80%*
SI	0.2	3.3	2.2	0.2	3.5	1.9	-1.0	3.0	1.9	*52%*	*71%*
SK	0.7	2.7	3.8	0.7	3.1	2.8	-2.1	2.8	3.9	*43%*	*81%*
FI	-0.4	1.6	1.1	-0.4	2.4	0.9	2.2	1.8	1.2	*63%*	*23%*
SE	0.6	1.3	2.1	0.6	2.4	1.9	1.8	1.5	2.2	*44%*	*26%*
UK	0.1	2.8	1.2	0.1	3.2	1.4	-2.5	2.4	1.7	*55%*	*84%*
EU	0.4	2.3	1.8	0.4	2.9	1.3	-0.1	2.3	1.5	*44%*	*51%*
EA	0.6	2.1	1.7	0.6	2.8	1.2	0.3	2.3	1.3	*48%*	*60%*

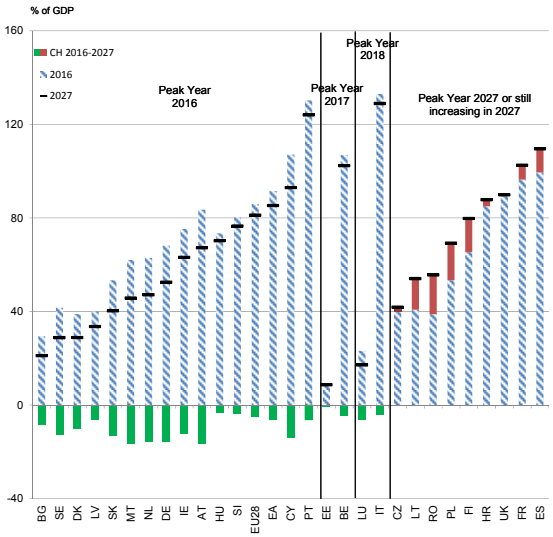
(1) Percentile ranks are calculated on the distribution of 3-year average SPB level over all EU countries over the period 1980-2016.
(2) In the historical (GDP growth / combined) scenarios, actual real GDP growth is assumed to converge to the historical average potential real GDP growth.
Source: Commission services

outturn year (2016), the same group of countries would still be on an upward path at the end of projections (2027), sometimes starting from a high level (e. g. France and Spain; see Graph 2.7 below).

If SPB was converging to its historical average after 2018, public debt to GDP ratio would be higher in 2027 than in the baseline scenario in most countries (19), as recent structural primary balance is often higher than what is observed over the last 15 years. The highest gap with the baseline scenario is observed in SK, IE, HR, UK and PT, in line with the important differences of SPB level between the baseline and the historical SPB scenarios (see Table 2.4). In the combined historical scenario, a higher debt ratio, compared to the baseline, is projected in 16 countries in 2027, with particularly important differences observed in PT, UK, SK and MT. In the case of Portugal, the much lower level of GDP growth in this historical scenario (see also Table 2.4) contributes substantially to the higher end-projection value of debt ratio.

Given the size of the differences in debt projections' results reported in Table 2.3, and as it was done for the EU/EA aggregates, the plausibility of fiscal assumptions in the baseline versus the historical SPB scenario is assessed by percentile rank analysis (see last two columns of Table 2.4).

Graph 2.7: **Gross public debt projections (% of GDP) under the baseline no-fiscal policy change scenario, by country**



Source: Commission services

In the baseline no-fiscal policy change scenario, the two extreme cases are provided by Germany, Portugal and Malta on one hand, and Romania and Poland on the other hand, as for the former three countries, only around 29-30% of the distribution displays a structural primary *surplus* greater than the level of 1.5% of GDP assumed in the baseline scenario. In the case of Germany however, the baseline level of SPB is relatively close to its historical 15-year average (at 1.2% of GDP, associated to a percentile rank of 34%), pointing that this country may be able to sustain stronger fiscal effort over a protracted period than other EU countries. In the case of Romania and Poland, on the other hand, 77% of the distribution is above the value of -1.7% of GDP of structural primary *deficit* assumed in the baseline scenario. In both cases however, this value is close to national historical averages ([21]).

Ireland, Italy and Austria are three other countries for which a relatively low level of percentile rank is found (at around 1/3%). In the case of Italy however, the value of 1.2% of GDP assumed in the baseline scenario is in line (in fact lower) with its historical SPB.

For other countries (e. g. Denmark, Sweden and Belgium), the baseline no-fiscal policy change scenario can appear more plausible than a reversal to past fiscal behaviour. For example, in the case of Denmark, reverting to an SPB of 2.5% of GDP (corresponding to its historical average) may seem ambitious (percentile rank of 20%), compared to keeping it constant at its last forecasted value of 0.5% of GDP (percentile rank of 48%).

2.1.2. The Stability and Growth Pact (SGP) scenario

This section presents results for the SGP scenario, in which a significantly different perspective is taken relative to the baseline and historical scenarios. Indeed, in the SGP scenario, fiscal policy is projected, during and beyond the forecast horizon, according to full compliance with respectively the EDP (Excessive Deficit Procedure) recommendations (for countries under the corrective arm of the SGP) and the adjustment path towards the Medium Term Objective (MTO), as implied by the matrix of requirements of the preventive arm defined in the European Commission 2015 Communication and in the "Commonly agreed position on Flexibility" endorsed by ECOFIN([22]), ([23]) (see Annex A.3 for more details).

Moreover, as done in the FSR 2015, this scenario is run by taking into account a feedback effect of fiscal consolidation on GDP growth (a 1 pp. of

([21]) Clearly, the more the percentile rank of the last forecast year SPB of a given country is located towards any of the tails of the distribution, the more relevant the SPB historical scenario can become for a country as a stress test for the baseline no-fiscal policy change scenario.

([22]) See at the following link: http://ec.europa.eu/economy_finance/economic_governance/sgp/pdf/2015-01-13_communication_sgp_flexibility_guidelines_en.pdf. See also the "Commonly agreed position on Flexibility" 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).

([23]) The SGP scenario does not take into account the possible further granting of flexibility (on top of the one 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. The scenario only mirrors compliance with the adjustment path towards the MTO and does not incorporate the debt rule (in this sense, 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 imply the respect of the debt rule).

Table 2.5: **Gross public debt projections and underlying structural fiscal efforts (% of GDP) under baseline no-fiscal policy change and SGP scenarios, by country**

	End forecast			Baseline (no-policy change) Debt			Consolidation effort: SGP scenario					
	Structural balance	Structural primary balance	Debt	2018	2020	2027	Debt 2027	AVG 18-27 SPB	AVG 18-27 SPB percentile rank	Structural balance 2016	MTO	MTO reached in
BE	-2.2	0.0	106.4	106.4	103.9	102.3	80.2	2.2	23%	-2.7	0.0	2021
BG	-0.6	0.1	25.9	25.9	24.7	21.1	24.2	0.1	55%	-0.8	-1.0	2017
CZ	-1.0	-0.1	38.5	38.5	37.9	41.9	33.4	0.2	52%	-0.2	-1.0	2017
DK	-0.6	0.5	38.2	38.2	37.1	28.9	33.7	0.6	44%	0.6	-0.5	2018
DE	0.5	1.5	63.1	63.1	58.8	52.6	45.0	1.8	28%	0.6	-0.5	2017
EE	0.0	0.0	9.4	9.4	8.9	8.7	6.7	0.1	54%	0.6	0.0	2018
IE	-0.6	1.4	71.9	71.9	66.8	63.2	53.7	1.4	31%	-1.7	-0.5	2018
EL	:	:	:	:	:	:	:	:	:	:	:	:
ES	-3.8	-1.3	100.0	100.0	103.0	109.6	83.4	2.1	24%	-3.8	0.0	2023
FR	-2.6	-0.8	97.1	97.1	97.3	102.6	76.6	1.7	28%	-2.5	-0.4	2019
HR	-2.5	0.8	82.8	82.8	83.7	87.8	80.0	1.6	29%	-1.8	-1.75	2018
IT	-2.4	1.2	133.1	133.1	132.0	128.9	107.5	3.6	12%	-1.6	0.0	2021
CY	-1.8	0.8	100.6	100.6	99.8	93.0	77.6	2.8	18%	0.2	0.0	2022
LV	-1.6	-0.6	36.0	36.0	34.6	33.6	30.1	-0.1	57%	-1.5	-1.0	2019
LT	-1.5	-0.1	40.2	40.2	39.9	54.1	39.2	0.4	49%	-0.9	-1.0	2018
LU	0.4	0.8	23.5	23.5	20.8	17.2	11.7	0.7	42%	1.9	-0.5	2017
HU	-3.1	-0.3	71.8	71.8	71.7	70.3	62.0	1.2	34%	-2.6	-1.5	2019
MT	-0.5	1.5	57.2	57.2	53.3	45.8	37.6	1.6	28%	-1.1	0.0	2019
NL	0.0	0.9	59.3	59.3	56.2	47.2	48.1	1.0	37%	-0.5	-0.5	2017
AT	-1.0	1.2	79.2	79.2	75.8	67.2	61.3	1.6	29%	-1.0	-0.5	2018
PL	-3.3	-1.7	55.5	55.5	57.4	69.2	47.0	0.4	48%	-2.8	-1.0	2022
PT	-2.7	1.5	127.8	127.8	127.3	124.0	100.8	4.0	10%	-2.4	0.25	2022
RO	-3.3	-1.7	41.5	41.5	43.8	55.7	36.2	0.2	53%	-2.6	-1.0	2022
SI	-2.2	0.2	76.6	76.6	75.8	76.5	53.5	2.2	23%	-2.1	0.25	2021
SK	-0.7	0.7	51.5	51.5	48.1	40.3	38.2	0.8	41%	-2.0	-0.5	2019
FI	-1.4	-0.4	68.1	68.1	69.2	79.8	57.9	0.8	40%	-1.3	-0.5	2019
SE	0.1	0.6	38.2	38.2	35.2	28.8	29.8	0.5	46%	-0.3	-1.0	2017
UK	-2.3	0.1	87.5	87.5	86.2	89.9	71.5	1.4	31%	-3.8	-0.75	2021
EU	-1.5	0.4	83.9	83.9	82.1	81.2	65.7	1.8	27%	-1.6	:	:
EA	-1.3	0.6	89.4	89.4	87.4	85.3	69.2	2.1	24%	-1.2	:	:

(1) For SI, the MTO value of 0.25 (updated minimum MTO recommended by the Commission to respect the requirements of the Stability and Growth Pact) is used in the scenario (even though SI has not revised its MTO from 0.0 in its 2016 SCP).
(2) Percentile ranks calculated on distribution of 3-year average SPB over all EU countries over 1980-2016.
Source: Commission services

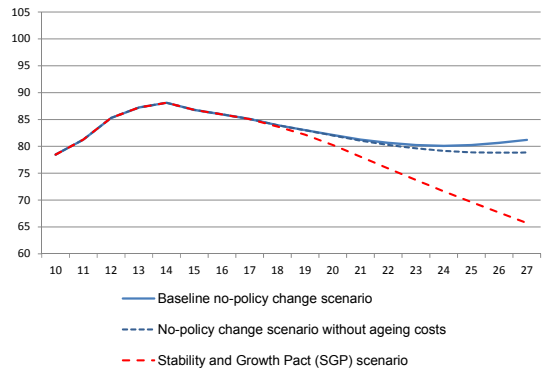
GDP consolidation effort impacting negatively on baseline GDP growth by 0.75 pps. in the same year.

As can be seen from Table 2.5 and Graphs 2.8 and 2.9, adhering to the existing fiscal rules would bring about a significantly higher decrease in gross public debt over GDP relative to the case of unchanged fiscal policy beyond forecasts (as in the baseline scenario). Indeed, in this case, the debt ratio would reach less than 66% of GDP in 2027 in the EU (respectively 69.2% of GDP in the EA), a level around 16 pps. of GDP lower than what is projected under the baseline scenario.

This reduced debt ratio level would be achieved only through a substantial and protracted fiscal consolidation, with a structural primary surplus of 1.8% of GDP on average in the EU (respectively 2.1% of GDP in the EA) during the period 2018-27 (against 0.4% and 0.6% of GDP for the EU and the EA in the baseline scenario). Such a fiscal consolidation scenario, although not unprecedented, appears relatively ambitious compared to European historical standards as shown by the percentile rank values (27% and 24% respectively for the EU and the EA, see Table 2.5). This is particularly the case of PT, IT, CY, BE, SI and ES, with average SPB percentile ranks ranging from 10% to 24% under this scenario.

In the vast majority of countries, full compliance with the SGP provisions would lead to a lower debt ratio in 2027 compared to the baseline scenario (see Table 2.5). The only notable exceptions are Bulgaria, Denmark and the Netherlands in line with decreasing ageing costs over the projection period ([24]).

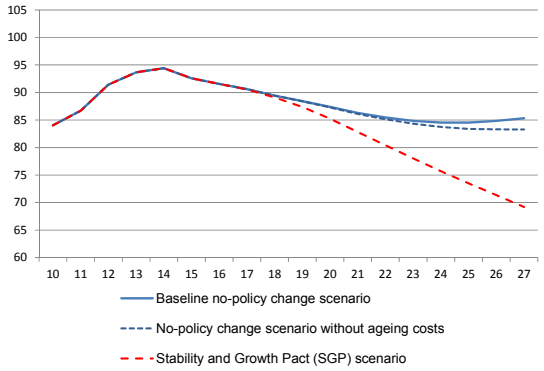
Graph 2.8: **Gross public debt projections (% of GDP), baseline no-fiscal policy change and SGP scenarios, European Union**



Source: Commission services

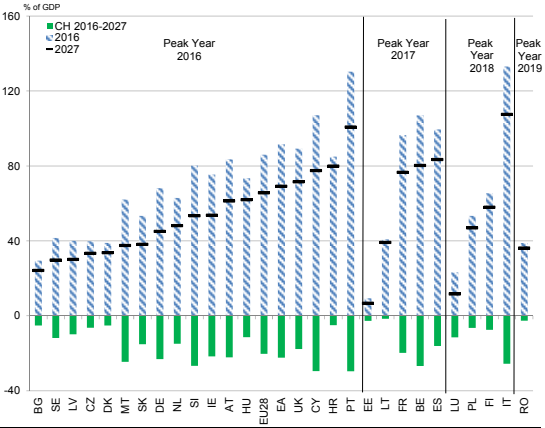
Moreover, under the SGP scenario, public debt to GDP ratio would be on a downward path and lower than its 2016 value for all countries by 2019 (see Graph 2.10). The most substantial decreases would be registered in PT, CY, BE, SI, and IT (with a decline ranging from -30 pps. of GDP to -26 pps. of GDP between 2016 and 2027). Smaller reductions are projected for LT, RO and EE (ranging from -1.6 pps. of GDP to -2.6 pps. of GDP), in line with more moderate levels of public debt and the size of required fiscal consolidation under the SGP scenario is observed ([25]).

Graph 2.9: **Gross public debt projections (% of GDP), baseline no-fiscal policy change and SGP scenarios, Euro area**



Source: Commission services

Graph 2.10: **Gross public debt projections (% of GDP) under the SGP scenario, by country**



Source: Commission services

([24]) In the baseline no-fiscal policy change scenario, the structural balance is projected by assuming constant SPB (before costs of ageing) at the last forecasted value, integrating successively expected ageing costs and the interest rate bill. In this scenario, expected increases (or decreases) of ageing costs are not supposed to be compensated through expenditure re-allocation. On the contrary, in the SGP scenario, future changes in the ageing costs are compensated and the computation of the structural balance is derived from the full application of SGP rules. In particular, under the preventive arm of the SGP, the structural balance is assumed to converge to its MTO value, as set by Member States to ensure sustainability, taking into account future ageing-related liabilities and debt level (see European Commission, 2016d).

([25]) Although, the correlation is not perfect as other factors are taken into account when defining the required fiscal adjustment (such as cyclical conditions in the definition of the MTO path or future ageing costs in the definition of the MTO level).

Table 2.6: **Comparison with the 2015 Fiscal Sustainability Report (based on Autumn 2015 forecasts), gross public debt projections and underlying fiscal efforts (% of GDP) under the baseline scenario and the SGP scenario, by country (all variables in differences DSM 2016 - FSR 2015)**

	End forecast (t+2)			Baseline no-policy change Debt			Consolidation effort: SGP scenario					
	Structural balance	Structural primary balance	Debt	t+3	t+5	End projection	Debt end projection	AVG SPB	AVG SPB percentile rank	Structural balance last outturn year	MTO	MTO reached in
BE	0.0	-0.5	0.3	0.0	0.1	3.4	3.8	-0.7	5%	-0.2	-0.8	-1
BG	1.8	1.5	-7.8	-9.7	-12.6	-20.9	-9.0	0.0	0%	1.8	0.0	-3
CZ	0.4	0.2	-2.0	-2.4	-3.1	-5.1	-3.4	0.0	0%	1.7	0.0	-1
DK	0.3	0.2	0.0	-0.3	-0.3	1.5	1.1	0.0	1%	2.9	0.0	-1
DE	-0.1	-0.4	-2.5	-2.1	-1.5	2.0	0.8	-0.3	4%	-0.3	0.0	0
EE	0.2	0.1	0.3	0.2	-0.5	-3.3	2.1	-0.2	5%	0.3	0.0	1
IE	1.0	0.1	-21.8	-21.5	-20.9	-21.8	-9.7	-1.1	11%	1.3	-0.5	-3
EL	:	:	:	:	:	:	:	:	:	:	:	:
ES	-1.2	-1.5	-0.4	0.8	4.9	17.7	8.5	-0.5	5%	-1.3	0.0	3
FR	0.0	-0.3	-0.3	-0.5	-0.1	1.5	-0.3	-0.2	1%	0.3	0.0	0
HR	1.4	0.9	-10.1	-11.4	-12.1	-17.5	-4.0	-0.6	6%	1.7	-0.3	-2
IT	-1.0	-1.3	3.1	4.6	7.5	18.9	6.9	-0.1	1%	-0.6	0.0	1
CY	:	:	:	:	:	:	:	:	:	:	:	:
LV	0.1	0.0	-1.6	-1.5	-1.1	0.2	-0.9	0.1	-2%	0.6	0.0	0
LT	-0.6	-0.7	-2.3	-1.6	-0.4	3.9	-0.9	-0.4	7%	0.3	0.0	0
LU	-0.5	-0.5	0.0	0.2	0.9	3.5	3.3	-0.5	8%	1.2	-1.0	0
HU	-0.9	-1.2	-0.8	0.2	2.8	10.2	-1.1	0.0	-1%	-0.2	0.2	0
MT	1.0	0.6	-3.8	-4.2	-5.7	-9.2	-3.2	-0.2	1%	0.9	0.0	-2
NL	1.5	1.2	-7.6	-8.6	-10.8	-15.5	-6.8	0.1	-3%	0.6	0.0	-2
AT	0.2	0.1	-5.1	-5.3	-5.6	-5.3	-4.0	-0.1	0%	-0.4	-0.1	0
PL	-0.4	-0.4	2.0	2.4	3.5	6.7	1.9	0.1	0%	0.2	0.0	1
PT	-0.3	-0.4	6.4	6.7	7.8	12.2	3.7	0.6	-3%	-0.5	0.8	2
RO	0.5	0.6	-1.4	-1.8	-2.6	-5.5	1.1	-0.1	2%	-1.8	0.0	1
SI	0.6	0.5	-1.7	-2.3	-3.9	-4.7	-3.9	0.1	-1%	0.6	0.3	0
SK	1.3	1.1	-0.7	-2.3	-4.6	-11.2	-0.9	0.0	0%	0.1	0.0	-1
FI	0.1	0.0	2.4	2.6	3.1	4.3	2.5	-0.1	1%	0.4	0.0	0
SE	1.1	1.0	-5.1	-6.3	-8.4	-13.9	-8.8	0.5	-10%	0.7	0.0	0
UK	0.1	0.1	0.6	0.4	-0.2	0.2	-4.5	0.6	-10%	0.6	0.5	0
EU	0.0	-0.2	-1.6	-1.5	-1.1	1.7	-0.9	0.0	0%	0.1	:	:
EA	-0.1	-0.4	-1.9	-1.6	-0.8	3.4	0.6	-0.2	2%	-0.2	:	:

Source: Commission services

2.1.3. Comparing the baseline and the SGP scenarios' results with the FSR 2015

A comparison with debt projections results for the baseline no-fiscal policy change scenario and the SGP scenario reported in the 2015 Fiscal Sustainability Report (based on Autumn 2015 Commission forecasts) is provided in Table 2.6.

The Table shows that the projected structural primary balance at the end of the forecast horizon (i.e. the initial budgetary position in the baseline scenario,) for both the EU and the EA, is expected to be lower (by -0.2 pps. and -0.4 pps. of GDP respectively) according to Autumn 2016 Commission forecasts compared to the Autumn 2015 forecasts (used in the 2015 FSR). This slightly looser fiscal stance (that would be observed in 10 countries) would be particularly important in ES, IT and HU (-1.5 pps. to -1.2 pps. of GDP), LT, LU and BE (-0.7 pps. to -0.5 pps. of GDP). On the other hand, BG, NL, SK, SE and HR are expected to substantially tighten their fiscal policy compared to expectations in Autumn 2016 (by at least around 1.0 pps. of GDP). As a consequence, the debt to GDP ratio is projected to be higher at the end of the projection horizon (+1.7 / +3.4 pps. of GDP for the EU / EA) in the baseline scenario.

Public debt is on the other hand projected to reach a relatively similar value under the SGP scenario compared to the FSR 2015 (less than 1 pps. of GDP difference for the EU / EA) in line with a similar projected average structural primary balance. However, looking country by country, some important differences would be observed: the debt level is projected to be much higher under this scenario than in the FSR 2015 in Spain and Italy, driven by an upward revision of the starting point value of the debt ratio in the case of Italy, and the downward revision of the projected SPB in the case of Spain. On the other hand, in other countries (such as IE, BG and SE), the debt level is projected to be much lower than the value projected in the FSR 2015 at the end of the projection horizon (by around -9 pps. of GDP or more), given much lower starting values ([26]).

([26]) In the case of IE, in particular, a spectacular revision of the GDP growth rate is observed for the year 2015 (from 6%

A revision of MTO values is also observed in 9 countries, which contributes to revised projected structural (primary) balance values. For instance, the most important downward revision is seen in Luxembourg and Belgium (-1 pps. and -0.8 pps. of GDP), contributing to a higher debt ratio at the end of the projection horizon. On the other hand, the most important upward revision can be seen in Portugal (+0.8 pps. of GDP), moderating the positive difference compared to the FSR 2015 linked to the revision of the starting point.

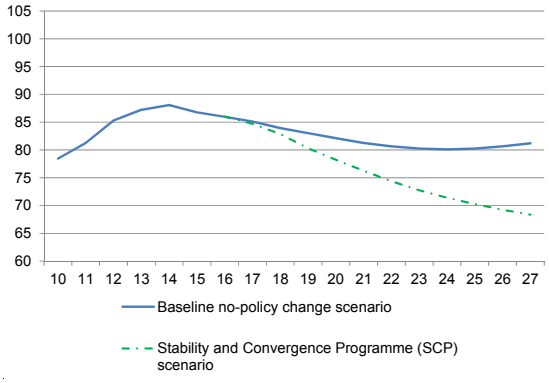
2.1.4. The Stability and Convergence Programme (SCP) and Draft Budgetary Plan (DBP) scenarios

As part of economic governance rules in the Stability and Growth Pact, Member States are required to lay out their fiscal plans for the next *three years* in the so-called Stability and Convergence Programmes (SCPs). These programmes are updated once a year and submitted to the Commission and the Council (ECOFIN) in spring. Moreover, Member States sharing the euro as their currency are additionally required by European economic governance rules to submit their draft budgetary plans (DBPs) for the *following year* to the Commission by October 15 ([27]).

In this section, debt projection results, based on Member States 2016 round of Stability and Convergence Programmes are presented. Debt projection results, based on the October 2016 DBPs, are also presented. In the SCP and the DBP scenarios, the baseline no-fiscal policy change assumptions prevail beyond the programme / plan horizon.

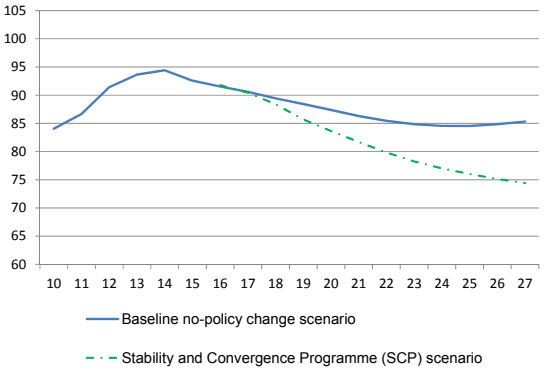
According to the SCPs submitted in April 2016 by Member States, and applying after the programme horizon the no-fiscal policy change assumption, the public debt to GDP ratio would substantially decline by 2027 in both the EU and the EA (by more than 17 pps. of GDP between 2016 and 2027; see Graphs 2.11 and 2.12). In 2027, the debt ratio would reach around 74% of GDP in the EA, a level significantly lower than under the baseline scenario (by -13 / -11 pps. of GDP respectively). On the other hand, the projected public debt to GDP value appears closer (yet higher) than the one projected in the SGP scenario (see section 2.1.2) at the EU / EA aggregate level in 2027. Thus, overall, the consolidation plans embedded in the SCPs appear relatively ambitious, yet leading to a higher aggregate debt ratio level than when assuming compliance to SGP rules.

Graph 2.11: **Gross public debt ratio (% of GDP), European Union - baseline no-fiscal policy change and SCP scenario**



(1) The SCP scenario is based, beyond the programme horizon, on Commission Spring 2016 assumptions.
Source: Commission services

Graph 2.12: **Gross public debt ratio (% of GDP), Euro area - baseline no-fiscal policy change and SCP scenario**



(1) The SCP scenario is based, beyond the programme horizon, on Commission Spring 2016 assumptions.
Source: Commission services

estimated in the FSR 2015 to more than 26% in real terms in this report).

([27]) An exception is EL, being under economic adjustment programmes.

Table 2.7: **Gross public debt projections (% of GDP), baseline no-fiscal policy change and Draft Budgetary Plans scenarios, by country**

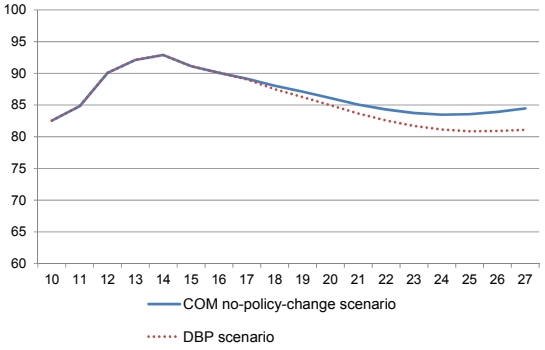
	Baseline scenario - Structural primary balance		DBP scenario - Structural primary balance		Baseline scenario - Debt		DBP scenario - Debt	
	2017	2018	2017	2018	2017	2027	2017	2027
BE	0.4	0.0	0.9	0.9	107.1	102.3	106.5	92.6
DE	1.7	1.5	1.8	1.8	65.7	52.6	66.0	50.4
EE	-0.1	0.0	-0.1	-0.1	9.5	8.7	10.3	12.5
IE	1.2	1.4	1.0	1.0	73.6	63.2	74.3	70.3
ES	-1.2	-1.3	-1.1	-1.1	99.9	109.6	99.7	105.1
FR	-0.5	-0.8	-0.2	-0.2	96.8	102.6	96.0	95.8
IT	1.6	1.2	1.6	1.6	133.1	128.9	132.6	122.4
CY	1.2	0.8	0.6	0.6	103.7	93.0	105.3	94.9
LV	-0.6	-0.6	-0.8	-0.8	37.2	33.6	39.1	37.4
LT	0.1	-0.1	0.4	0.4	43.3	54.1	42.9	49.7
LU	0.8	0.8	0.9	0.9	23.3	17.2	23.6	16.7
MT	1.4	1.5	1.8	1.8	59.9	45.8	61.9	43.5
NL	0.8	0.9	0.4	0.4	61.3	47.2	62.1	52.3
AT	1.3	1.2	1.1	1.1	81.1	67.2	80.9	66.6
PT	2.0	1.5	2.4	2.4	129.5	124.0	128.3	115.8
SI	0.4	0.2	0.9	0.9	78.3	76.5	78.2	68.9
SK	0.0	0.7	-0.1	-0.1	52.7	40.3	52.7	45.9
FI	-0.5	-0.4	-0.8	-0.8	67.1	79.8	66.7	84.6
EA-18	**0.7**	**0.5**	**0.8**	**0.8**	**89.1**	**84.5**	**89.0**	**81.1**

(1) In the DBP scenario, the no-fiscal policy change assumption is applied as from 2017, while it is applied as from 2018 in the baseline scenario.
Source: Commission services

Draft Budgetary Plans show that the level of public debt ratio at the EA aggregate level would be slightly lower by 2027 than under the baseline scenario (around 81% of GDP against 84% of GDP respectively for the EA-18, see Graph 2.13 and Table 2.7). This difference is mainly driven by a higher structural primary balance assumed in the DBPs (0.8% in 2017 maintained constant over the projection period, *before ageing costs*, versus 0.5% in 2018 in the baseline scenario).

A cross-country comparison shows that by 2027, the debt ratio, under the DBP scenario, would be particularly lower than the baseline in BE, PT, SI, FR and IT (with differences ranging from around -10 pps. of GDP to -7 pps. of GDP), in line with more optimistic forecasts for the SPB than the Commission ones. On the other hand, IE, SK, NL and FI would register a substantially higher debt ratio by 2027 (by around + 5 to 7 pps. of GDP), in line with more pessimistic fiscal forecasts than the Commission's (see Table 2.7).

Graph 2.13: **Gross public debt ratio (% of GDP), baseline no-fiscal policy change scenario and Draft Budgetary Plans, Euro area-18**



Source: Commission services

Table 2.8: **Gross public debt ratio (% of GDP), Fiscal reaction function scenario versus baseline no-fiscal policy change and historical SPB scenarios, by country**

	Debt 2018	Baseline no-policy change scenario		SPB historical scenario		Fiscal reaction function scenario			
		PB (average 2019-27)	Debt 2027	PB (average 2019-27)	Debt 2027	PB (average 2019-27)	Debt 2027	*Debt (difference with Baseline no-policy change scenario)*	*Debt (difference with SPB historical scenario)*
BE	106.4	-0.2	102.3	0.9	91.9	0.7	94.4	-8.0	2.5
BG	25.9	0.4	21.1	0.6	18.5	-2.1	45.1	23.9	26.6
CZ	38.5	-0.6	41.9	-1.8	54.6	-1.3	49.1	7.2	-5.5
DK	38.2	1.1	28.9	2.4	13.4	0.2	35.7	6.9	22.3
DE	63.1	0.9	52.6	0.8	54.8	1.6	46.6	-5.9	-8.2
EE	9.4	-0.1	8.7	-0.5	12.8	:	:	:	:
IE	71.9	0.4	63.2	-1.3	82.5	-2.3	90.7	27.6	8.2
EL	:	:	:	:	:	:	:	:	:
ES	100.0	-0.6	109.6	-0.2	105.2	-1.5	118.1	8.5	12.9
FR	97.1	-1.1	102.6	-1.7	108.5	-1.7	108.5	5.9	0.0
HR	82.8	0.9	87.8	-0.8	106.2	2.0	77.9	-10.0	-28.3
IT	133.1	1.3	128.9	1.7	125.0	2.6	116.5	-12.4	-8.5
CY	100.6	1.4	93.0	1.1	97.9	:	:	:	:
LV	36.0	-0.4	33.6	-0.8	38.5	-1.6	45.4	11.9	6.9
LT	40.2	-1.1	54.1	-1.5	62.5	-1.0	55.5	1.4	-7.0
LU	23.5	0.1	17.2	1.0	9.5	:	:	:	:
HU	71.8	0.5	70.3	0.1	74.3	0.9	66.1	-4.2	-8.2
MT	57.2	0.7	45.8	-0.5	58.8	-0.1	54.4	8.7	-4.4
NL	59.3	1.1	47.2	0.8	50.0	-1.1	68.3	21.1	18.3
AT	79.2	0.9	67.2	0.7	70.2	-0.3	78.9	11.6	8.7
PL	55.5	-1.9	69.2	-1.8	69.6	-0.5	56.4	-12.9	-13.3
PT	127.8	1.6	124.0	-0.2	141.2	1.9	121.7	-2.4	-19.6
RO	41.5	-1.8	55.7	-1.9	57.2	-1.3	50.9	-4.7	-6.3
SI	76.6	-0.2	76.5	-0.8	85.2	1.2	65.6	-10.9	-19.5
SK	51.5	0.6	40.3	-1.4	59.7	-0.6	51.4	11.1	-8.3
FI	68.1	-1.5	79.8	0.5	61.0	1.2	54.1	-25.7	-6.9
SE	38.2	0.6	28.8	1.5	20.2	0.8	27.5	-1.3	7.3
UK	87.5	-0.6	89.9	-2.3	107.6	-1.0	94.7	4.8	-12.9
EU	83.9	0.1	81.2	-0.2	85.1	0.1	81.9	0.7	-3.3
EA	89.4	0.4	85.3	0.2	87.5	0.4	85.7	0.3	-1.8

(1) The methodology used to derive debt projections under the FRF scenario, equations is explained in the FSR 2015 and in Berti et al. (2016).
Source: Commission services

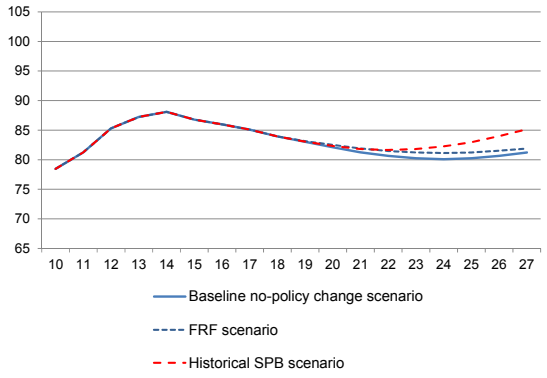
2.1.5. Debt projections based on estimated fiscal reaction functions

Given unprecedented high levels of public debt both at EU and OECD levels since WWII, a growing literature has emerged about governments' responsiveness to raising public debt. For instance, Bohn (1998) seminal paper, revisited more recently by Gosh *et al* (2011), proposed to estimate fiscal reaction functions (henceforth FRFs) as a prerequisite for assessing fiscal sustainability. In this section, a fiscal reaction function scenario is presented, as an alternative scenario to the standard baseline no-fiscal policy change scenario. Under this FRF scenario, fiscal policy is supposed to react, over the projection period, to the debt ratio in the previous period and to macroeconomic conditions (i.e. output gap, real interest rate, inflation). The behavioural equations used in this scenario and additional information can be found in the FSR 2015 and in Berti *et al* (2016).

Taking into account primary balance reaction to changes in public debt (and macroeconomic variables) would lead to a similar (yet slightly higher) public debt ratio at the EU / EA aggregate level in 2027 compared to the baseline no-fiscal policy change scenario (by respectively + 0.7 / 0.3

pps. of GDP, see Graphs 2.14 and 2.15 and Table 2.8). Indeed, projected primary balance under this scenario, based on historical fiscal behaviour, would only be slightly lower (by -0.1 pps. of GDP on average over the period 2019-27) than under the no-fiscal policy change scenario. On the other hand, public debt to GDP level in 2027 would be lower than under the historical (15-year average) SPB scenario in the EU / EA (by -3.3/ -1.8 pps. of GDP), suggesting overall increased fiscal responsiveness over the last few years (see below).

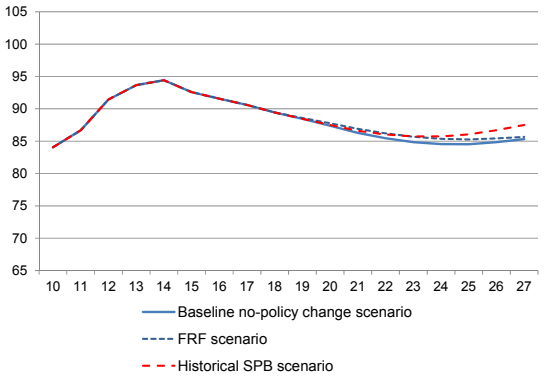
Graph 2.14: **Gross public debt ratio (% of GDP), Fiscal reaction function scenario compared to the baseline and the historical SPB scenarios, European union**



Source: Commission services

Looking at country-specific results (see Table 2.8), debt ratio would be *lower* in 2027 under the fiscal reaction function scenario than both under the baseline and the historical SPB scenarios in 9 countries (FI, PL, IT, SI, HR, DE, RO, HU and PT). A relatively high or increased FRF debt coefficient since the 2009 financial crisis can explain in some cases this result (e. g. FI, IT, DE and PT). In other cases, fiscal assumptions, under both the baseline and the historical SPB scenario, seem, to some extent, over-pessimistic based on European fiscal standards (e. g. PL, RO and HU) ([28]).

Graph 2.15: **Gross public debt ratio (% of GDP), Fiscal reaction function scenario compared to the baseline and the historical SPB scenarios, Euro area**

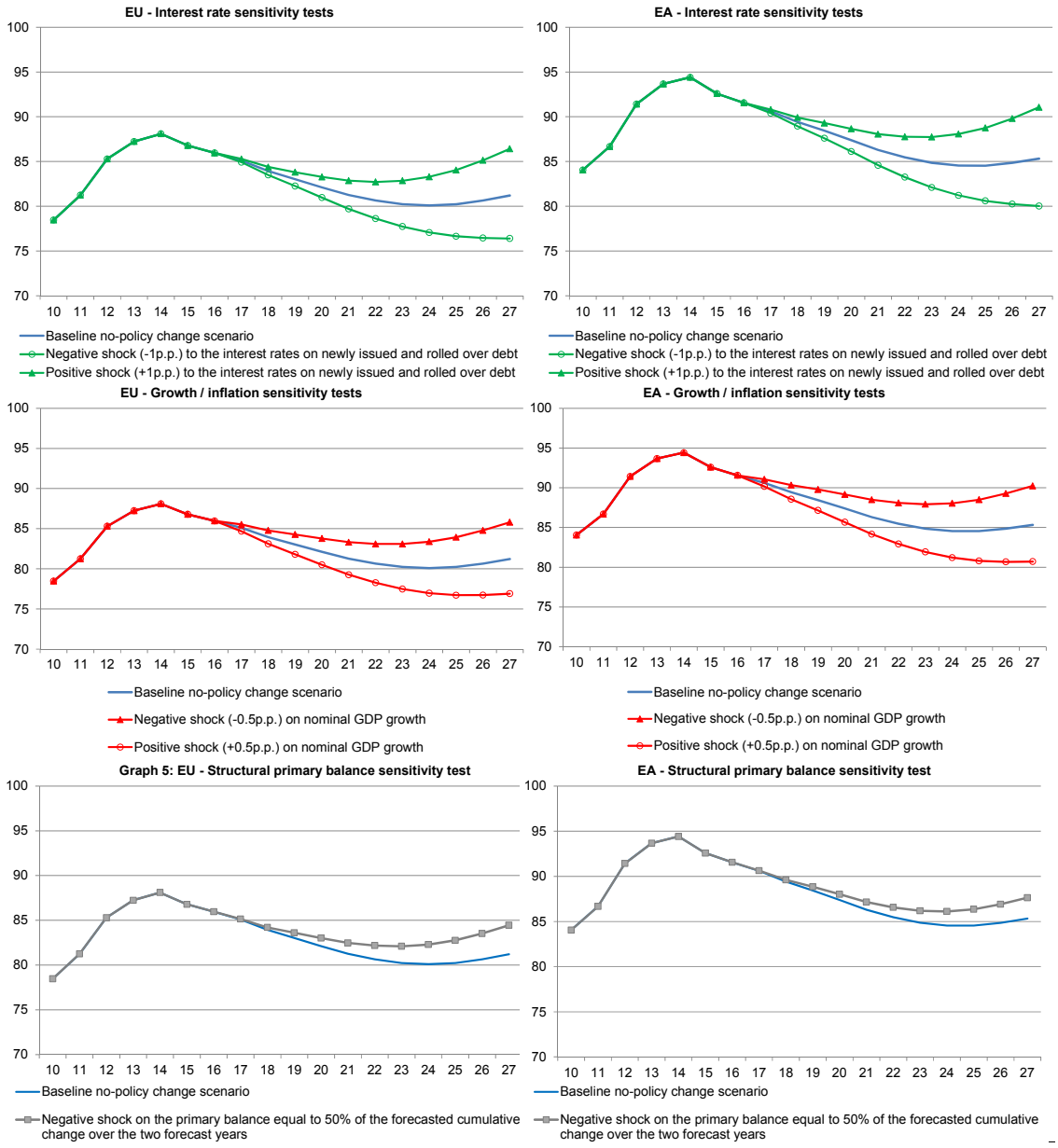


Source: Commission services

Public debt ratio would lie by 2027 in between (above) the baseline and (below or close to) the historical SPB scenarios in 6 countries (LT, UK, FR, CZ, MT and SK). This result seems to be driven by relatively pessimistic fiscal assumptions in the historical SPB scenario (e. g. LT, CZ and SK) and, in some cases, by a relatively high or an increase in fiscal responsiveness since the 2009 financial crisis (UK and FR). Integrating a FRF would drive public debt to GDP ratio to a *higher* value at the end of the projection period than under both the baseline and the historical SPB scenarios in DK, ES, AT, LV, NL, BG and IE, pointing in these cases to (slightly) over-optimistic fiscal assumptions in the baseline and / or the historical SPB scenarios (e. g. DK and IE), to a weak FRF debt coefficient or to some *fiscal fatigue* (e. g. AT and NL).

([28]) The degree of optimism / pessimism of fiscal assumptions is appreciated by the percentile ranks' values seen before.

Graph 2.16: **Sensitivity tests around the baseline on interest rates, nominal GDP growth and SPB, EU and EA (% of GDP)**



Source: Commission services

2.2. SENSITIVITY ANALYSIS ON DETERMINISTIC DEBT PROJECTIONS

Results of standard sensitivity tests around the baseline no-fiscal policy change scenario (as defined in chapter 1 of the report) are reported in Graphs 2.16 and Tables 2.9 to 2.11). A standard permanent shock on interest rates (-1 / +1 pp.) on newly / rolled-over debt has a sizeable impact on public debt dynamics, leading to a difference between the most favourable and the least favourable scenarios of around 10 - 11 pps. of GDP in 2027 in the EU / EA (see Table 2.9).

The impact of a standard permanent shock on nominal GDP growth (whether on the real GDP growth as reported in Table 2.10 or on the inflation rate) is found to have a similar impact, with a gap

Table 2.9: **Sensitivity tests on interest rates (+1/-1 pp. on short- and long-term interest rates on newly issued / rolled-over debt) around baseline no-fiscal policy change scenario**

	End forecast (2018)			2027							
				Baseline no-policy change scenario		Standardized (permanent) positive shock (+1p.p.) to the short- and long-term interest rates on newly issued and rolled over debt			Standardized (permanent) negative shock (-1p.p.) to the short- and long-term interest rates on newly issued and rolled over debt		
	SPB	Implicit interest rate on debt	Debt	Implicit interest rate on debt	Debt	Implicit interest rate on debt	Debt	*Debt (difference with Baseline no-policy change scenario)*	Implicit interest rate on debt	Debt	*Debt (difference with Baseline no-policy change scenario)*
BE	0.0	2.1	106.4	3.6	102.3	4.4	108.6	6.2	2.8	96.6	-5.7
BG	0.1	3.0	25.9	4.2	21.1	5.1	22.8	1.7	3.3	19.6	-1.6
CZ	-0.1	2.4	38.5	3.9	41.9	4.8	44.6	2.7	3.0	39.4	-2.5
DK	0.5	2.9	38.2	3.7	28.9	4.6	30.9	2.0	3.0	27.0	-1.9
DE	1.5	1.7	63.1	3.7	52.6	4.6	56.4	3.8	2.8	49.0	-3.5
EE	0.0	0.8	9.4	3.1	8.7	3.9	9.2	0.5	2.3	8.3	-0.4
IE	1.4	2.9	71.9	3.7	63.2	4.2	65.6	2.4	3.2	60.9	-2.2
EL	:	:	:	:	:	:	:	:	:	:	:
ES	-1.3	2.5	100.0	4.1	109.6	5.0	117.1	7.5	3.2	102.6	-7.0
FR	-0.8	1.9	97.1	3.6	102.6	4.4	108.7	6.1	2.8	96.9	-5.7
HR	0.8	4.0	82.8	4.5	87.8	5.3	93.2	5.4	3.7	82.8	-5.0
IT	1.2	2.8	133.1	4.1	128.9	5.0	138.8	9.8	3.2	119.9	-9.1
CY	0.8	2.5	100.6	4.2	93.0	5.0	98.5	5.5	3.4	87.9	-5.1
LV	-0.6	2.7	36.0	3.8	33.6	4.6	35.6	2.0	2.9	31.7	-1.8
LT	-0.1	3.4	40.2	4.2	54.1	5.0	56.5	2.5	3.4	51.8	-2.3
LU	0.8	1.7	23.5	3.0	17.2	3.6	17.8	0.7	2.4	16.5	-0.6
HU	-0.3	4.0	71.8	4.5	70.3	5.3	74.7	4.4	3.7	66.2	-4.1
MT	1.5	3.5	57.2	4.0	45.8	4.6	47.9	2.1	3.3	43.8	-2.0
NL	0.9	1.5	59.3	3.3	47.2	4.2	50.3	3.2	2.5	44.3	-2.9
AT	1.2	2.7	79.2	3.7	67.2	4.5	71.3	4.0	2.9	63.5	-3.7
PL	-1.7	3.1	55.5	4.3	69.2	5.2	73.3	4.0	3.4	65.5	-3.8
PT	1.5	3.4	127.8	4.2	124.0	5.0	131.4	7.4	3.5	117.2	-6.8
RO	-1.7	4.4	41.5	4.7	55.7	5.6	59.1	3.5	3.8	52.4	-3.2
SI	0.2	3.3	76.6	4.1	76.5	4.9	81.1	4.6	3.3	72.3	-4.2
SK	0.7	2.7	51.5	3.9	40.3	4.8	43.3	3.0	3.0	37.5	-2.8
FI	-0.4	1.6	68.1	3.5	79.8	4.3	84.2	4.4	2.6	75.7	-4.1
SE	0.6	1.3	38.2	3.8	28.8	4.7	31.4	2.6	2.8	26.5	-2.3
UK	0.1	2.8	87.5	3.8	89.9	4.5	94.3	4.4	3.1	85.8	-4.1
EU	0.4	2.3	83.9	3.8	81.2	4.7	86.4	5.2	3.0	76.4	-4.8
EA	0.6	2.1	89.4	3.8	85.3	4.6	91.1	5.7	2.9	80.0	-5.3

Source: Commission services

between the two extreme standard scenarios of 9 - 10 pps. of GDP in the EU / EA.

Finally, a mild fiscal fatigue scenario (with SPB reduced by 50% of the SPB forecasted cumulated change) would lead to a debt ratio higher by around 3 pps. of GDP in the EU and by around 2 pps. of GDP in the EA in 2027 (see Table 2.11). In this case, the negative effect on public debt of a loosening of the fiscal stance compared to the baseline scenario would be to some extent counter-acted by some positive feedback effects on growth.

In line with high public debt levels, the impact of shocks on the interest rates would be particularly large in IT, ES, PT, BE, FR, CY and HR (see Table 2.9). For instance, 1 pp. permanently *higher* (respectively lower) market interest rates would lead to more than 9 pps. *higher* (respectively lower) 2027 debt ratios in Italy, and around more than 7 pps. *higher* (respectively lower) in Spain and Portugal, compared to the baseline scenario.

In some countries, the effect of market interest rate shocks on public debt is amplified by the relatively low maturity of debt (e. g. in Sweden or Romania), implying rapid transmission on the *implicit* interest rate (see Graph 2.17). Other countries, like the UK for example, where the average maturity of public debt is particularly high, seem less exposed to market interest rates' shocks (despite high public debt).

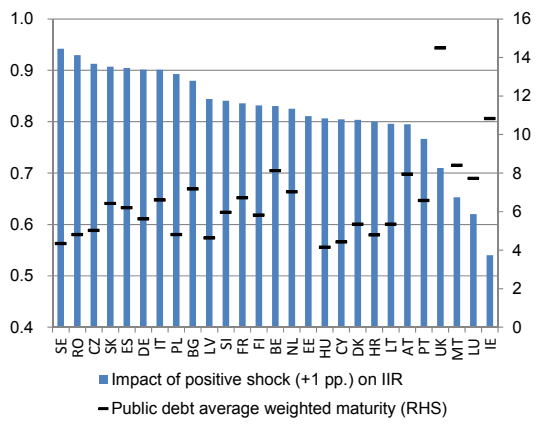
Table 2.10: **Sensitivity tests on the nominal GDP growth rate (+0.5/-0.5 pp.) around baseline no-fiscal policy change scenario**

	End forecast (2018)			Baseline no-policy change scenario		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	Actual GDP growth (average 2017-27)	Debt 2027	Actual GDP growth (average 2017-27)	Debt 2027	*Debt (difference with Baseline no-policy change scenario)*	Actual GDP growth (average 2017-27)	Debt 2027	*Debt (difference with Baseline no-policy change scenario)*
BE	0.0	1.5	106.4	1.5	102.3	2.0	97.1	-5.3	1.0	108.0	5.6
BG	0.1	2.8	25.9	2.2	21.1	2.7	19.9	-1.2	1.7	22.4	1.3
CZ	-0.1	2.7	38.5	1.9	41.9	2.4	39.9	-2.0	1.4	44.0	2.1
DK	0.5	1.8	38.2	1.2	28.9	1.7	27.0	-1.9	0.7	30.9	2.0
DE	1.5	1.7	63.1	1.1	52.6	1.6	49.5	-3.0	0.6	55.8	3.2
EE	0.0	2.6	9.4	1.9	8.7	2.4	8.3	-0.4	1.4	9.2	0.5
IE	1.4	3.5	71.9	2.4	63.2	2.9	59.8	-3.4	1.9	66.7	3.6
EL	:	:	:	:	:	:	:	:	:	:	:
ES	-1.3	2.1	100.0	1.1	109.6	1.6	103.9	-5.6	0.6	115.5	6.0
FR	-0.8	1.7	97.1	1.3	102.6	1.8	97.5	-5.1	0.8	107.9	5.4
HR	0.8	2.3	82.8	0.8	87.8	1.3	82.9	-5.0	0.3	93.1	5.3
IT	1.2	1.0	133.1	0.8	128.9	1.3	121.7	-7.2	0.3	136.6	7.7
CY	0.8	2.3	100.6	1.2	93.0	1.7	87.6	-5.4	0.7	98.7	5.7
LV	-0.6	3.0	36.0	3.0	33.6	3.5	31.9	-1.6	2.5	35.3	1.7
LT	-0.1	2.8	40.2	1.0	54.1	1.5	51.7	-2.4	0.5	56.7	2.6
LU	0.8	3.6	23.5	3.4	17.2	3.9	16.3	-0.9	2.9	18.1	0.9
HU	-0.3	2.8	71.8	1.9	70.3	2.4	66.4	-3.8	1.4	74.3	4.1
MT	1.5	3.7	57.2	2.9	45.8	3.4	43.2	-2.6	2.4	48.5	2.7
NL	0.9	1.8	59.3	1.1	47.2	1.6	44.3	-2.8	0.6	50.2	3.0
AT	1.2	1.6	79.2	1.6	67.2	2.1	63.4	-3.8	1.1	71.3	4.0
PL	-1.7	3.2	55.5	2.5	69.2	3.0	66.2	-3.0	2.0	72.4	3.2
PT	1.5	1.4	127.8	0.9	124.0	1.4	117.0	-7.1	0.4	131.5	7.5
RO	-1.7	3.6	41.5	3.1	55.7	3.6	53.3	-2.3	2.6	58.1	2.4
SI	0.2	2.2	76.6	1.9	76.5	2.4	72.6	-3.9	1.4	80.7	4.2
SK	0.7	3.8	51.5	2.8	40.3	3.3	38.0	-2.2	2.3	42.7	2.4
FI	-0.4	1.1	68.1	0.9	79.8	1.4	76.1	-3.7	0.4	83.7	3.9
SE	0.6	2.1	38.2	1.9	28.8	2.4	27.1	-1.7	1.4	30.6	1.8
UK	0.1	1.2	87.5	1.4	89.9	1.9	85.4	-4.5	0.9	94.7	4.8
EU	0.4	1.8	83.9	1.3	81.2	1.8	76.9	-4.3	0.8	85.8	4.6
EA	0.6	1.7	89.4	1.2	85.3	1.7	80.7	-4.6	0.7	90.2	4.9

(1) The results presented are similar whether one simulates a shock on real GDP growth rate (+0.5 / -0.5 pp.) or on inflation rate (+0.5 / -0.5).
Source: Commission services

For example, in the UK, a 1 pp. permanently *higher* market interest rates would lead to a moderate increase of public debt ratio by 2027 compared to the baseline (+4.4 pps. of GDP), despite a high level of public debt ([29]).

Graph 2.17: **Impact of a market interest rate positive shock on the implicit interest rate and public debt average weighted maturity, by country**



Source: ECB, Commission services

([29]) The (negative) correlation between the average maturity of public debt and the effect of shocks on implicit interest rate, even though relatively high, is not perfect, as it also depends on the underlying dynamic of public debt (and in particular, on the extent to which new public debt needs to be issued or maturing debt needs to be rolled-over).

Table 2.11: **Sensitivity test on the SPB around baseline no-fiscal policy change scenario (negative shock equivalent to an SPB reduced by 50% of the forecasted SPB cumulated change)**

	End forecast (2018)		2027				
			Baseline no-policy change scenario		Standardized negative (permanent) shock on SPB (reduced by 50% of the forecasted cumulated SPB change)		
	SPB	Debt	SPB	Debt	SPB	Debt	*Debt (difference with Baseline no-policy change scenario)*
BE	0.0	106.4	0.0	102.3	-0.1	103.6	1.2
BG	0.1	25.9	0.1	21.1	0.1	21.2	0.1
CZ	-0.1	38.5	-0.1	41.9	-0.6	46.0	4.2
DK	0.5	38.2	0.5	28.9	-0.3	35.8	6.9
DE	1.5	63.1	1.5	52.6	1.3	54.7	2.2
EE	0.0	9.4	0.0	8.7	-0.3	12.0	3.3
IE	1.4	71.9	1.4	63.2	1.0	67.2	4.0
EL	:	:	:	:	:	:	:
ES	-1.3	100.0	-1.3	109.6	-1.5	111.3	1.8
FR	-0.8	97.1	-0.8	102.6	-0.9	103.7	1.1
HR	0.8	82.8	0.8	87.8	0.3	92.3	4.5
IT	1.2	133.1	1.2	128.9	0.7	134.3	5.4
CY	0.8	100.6	0.8	93.0	-0.3	102.9	9.9
LV	-0.6	36.0	-0.6	33.6	-0.8	35.0	1.4
LT	-0.1	40.2	-0.1	54.1	-0.4	57.5	3.4
LU	0.8	23.5	0.8	17.2	0.0	23.9	6.8
HU	-0.3	71.8	-0.3	70.3	-0.8	74.9	4.6
MT	1.5	57.2	1.5	45.8	1.3	47.5	1.7
NL	0.9	59.3	0.9	47.2	0.7	48.6	1.4
AT	1.2	79.2	1.2	67.2	1.2	67.5	0.3
PL	-1.7	55.5	-1.7	69.2	-1.9	71.7	2.5
PT	1.5	127.8	1.5	124.0	1.3	126.5	2.5
RO	-1.7	41.5	-1.7	55.7	-2.0	58.5	2.8
SI	0.2	76.6	0.2	76.5	0.0	78.7	2.2
SK	0.7	51.5	0.7	40.3	0.1	45.8	5.5
FI	-0.4	68.1	-0.4	79.8	-0.5	80.5	0.7
SE	0.6	38.2	0.6	28.8	0.4	31.3	2.4
UK	0.1	87.5	0.1	89.9	-0.7	97.4	7.4
EU	0.4	83.9	0.4	81.2	0.1	84.4	3.2
EA	0.6	89.4	0.6	85.3	0.4	87.6	2.3

(1) In this scenario, a feedback effect on growth is included.
Source: Commission services

The impact of shocks to nominal GDP growth on end-of-projection debt ratios would be particularly large in IT, PT, ES, CY, BE, FR and HR, again in line with high public debt levels (see Table 2.10). For instance, a 0.5 pps. permanently *lower* (respectively higher) GDP growth rate would lead to close to 8 pps. *higher* (respectively lower) 2027 debt ratios in Italy and Portugal, compared to the baseline scenario.

A standard SPB negative shock (calibrated as a reduction by 50% of the SPB forecasted cumulated change) would lead to a particularly larger public debt to GDP ratio in 2027 compared to the baseline in CY, UK, DK and LU (ranging from close to +10 pps. of GDP compared to the baseline scenario to +7 pps. of GDP relative to the baseline, see Table 2.11). Indeed, in these 4 countries, a high variation of SPB is projected by the Commission over the period 2016-18 (e. g. fiscal *deconsolidation* around 1.5 - 2 pps. of GDP in the case of CY, LU and DK, fiscal *consolidation* of 1.5 pps. of GDP in the case of UK).

Finally, as several EU countries issue a non-negligible share of their public debt in a foreign currency, some fiscal risks may appear due to exchange rate fluctuations (at least 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 cases (see Box 2.2 below).

Box 2.2: The role of foreign exchange rate effects on public debt dynamics in selected EU countries

As most of EU countries share the common euro currency, or have a currency pegged to the euro, fiscal risks linked to exchange rate fluctuations are traditionally not deemed important in the EU, compared to other sources of uncertainties. In 2016, out of the 9 EU countries that had not yet adopted the euro, 3 countries had an exchange rate pegged to the euro (BG, DK and HR, see Table 1). Moreover, BG and HR stood out with around 80% of their public debt issued in foreign currency (largely in euro) in 2015. Hence, even if the exchange rate volatility is logically limited in these countries, a currency risk cannot be ruled out.

On the other hand, 6 countries had a floating exchange rate regime (CZ, HU, PL, RO, SE and UK), although CZ intervenes, since 2013, on the foreign exchange market to limit koruna appreciations *vis-à-vis* the euro ("stabilized arrangement" according to IMF classification). ([1]) Consequently, the historical volatility of the exchange rate is found to be higher in this last group of countries, while in most cases, the share of their public debt held in foreign currency is not negligible (ranging from 15% in CZ to 53% in RO). One notable exception is the UK, which issues almost all its public debt in sterling.

Most of *euro area* countries issue all (or the vast majority) of their public debt in euros. However, in a few cases (i.e. LV, LT, FI, PT and SK), the share of non-euro denominated public debt can be significant (between 7% in SK to around one third in LV and LT in 2015 according to ESTAT / ECB data). ([2])

From a public debt sustainability analysis point of view, exchange rate fluctuations can affect the debt motion via three channels: i) debt valuation effects affecting the stock of debt, ii) interest payments (in both cases, for the share of public debt issued in foreign currency) and iii) GDP-deflator effects (due to changes in prices in the tradable sector stemming from exchange rate fluctuations). ([3]) From a public accounting point of view, debt valuation effects due to exchange rate fluctuations (K11) are a sub-component of stock-flow adjustments, ([4]) while interest expenditures (D41) include interest payments on foreign currency denominated debt (hence exchange rate effects). Over the period 2002-15, some significant changes in the public debt to GDP ratio due to exchange rate appreciation/depreciation have been recorded in several non-EA countries (e.g. HU, PL, RO and SE, see Table 2).

Table 1:
Exchange rate characteristics in selected non-EA countries

Country	Exchange rate regime	Exchange rate volatility (since 2001)	Share of public debt in FX (2015)
BG	currency board (with euro)	0.1%	79%
CZ	floating (1)	5.0% (3.4% since 2013)	15%
DK	conventional peg (with euro), part of ERM II	0.1%	6%
HR	tightly managed floating	1.3%	79%
HU	floating	4.2%	29%
PL	floating	8.6%	32%
RO	floating	11.0%	53%
SE	floating	5.1%	29%
UK	floating	7.3%	0%

(1) In the case of CZ, a currency floor has been put in place since 2013.
Exchange rate volatility is defined as the standard deviation of the exchange rate annual fluctuations *vis-à-vis* the EUR (over the period 2001-16).

([1]) However, the central bank specified that it regarded its commitment as one-sided, allowing the exchange rate to float freely on the weaker side (see European Commission, 2016).

([2])

([3]) See Annex 7 for the formula used to decompose public debt dynamics into its main drivers, including foreign exchange effects.

([4])

(Continued on the next page)

Box (continued)

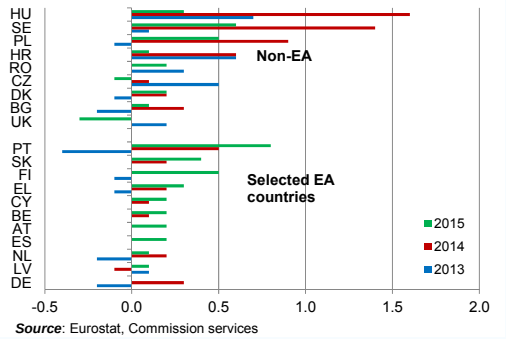
Table 2:
Exchange rate effects on the stock of public debt (% of GDP), by selected non-EA country (K11)

	Absolute average (2002-15)	Peak	Through
BG	0.2	0.3	-0.2
CZ	0.1	0.5	-0.2
DK	0.1	0.2	-0.1
HR	0.5	0.8	0.1
HU	1.1	4.8	-2.4
PL	0.9	2.0	-2.2
RO	0.6	2.1	-1.3
SE	0.6	1.4	-0.4
UK	0.1	0.2	-0.3

Moreover, exchange rate fluctuations also affected the stock of public debt ratio in some euro area countries (e.g. PT, SK and FI, see Graph 1), notably in 2015 with the strong depreciation of the euro (*vis-à-vis* the dollar). In some cases, these adjustments reflect the fluctuation in value of IMF's programme loans to EU countries. ([5])

Hence, even if these adjustments remain on the whole limited ([6]) compared to other drivers of public debt dynamics, they can represent at time a substantial driver in several countries. Therefore, in the statistical country fiches of this report, the decomposition of the change in the public debt to GDP ratio isolates this exchange rate driver (see statistical Annex).

Graph 1: **Exchange rate effects on the stock of public debt (% of GDP), by selected country (K11)**



Source: Eurostat, Commission services

In order to stress test public debt projections, different sensitivity tests are run in this report around the baseline scenario. One of these tests simulates a shock on the nominal exchange rate (calibrated so that the shock is equal to the maximum annual depreciation of the exchange rate, observed over the last 10 years, and is applied for the first two years of the projection years). The results of these simulations should be interpreted with some caution, as upper limits, since most countries use hedging instruments when issuing debt in foreign currency, hence limiting to some extent the impact of exchange rate fluctuations on the evolution of public debt. ([7])

The highest impact on the public debt to GDP ratio would be recorded in Hungary (+10.5 pp. of GDP in 2027 compared to the baseline scenario; see Table 3), Poland (+9 pp. of GDP) and Romania (close to + 8 pp. of GDP) given the relatively large share of their public debt issued in foreign currency, coupled with the historical volatility of their exchange rate. Non-negligible effects can also be seen in HR, LT, LV and SE (close to +5 pp. of GDP in 2027 compared to the baseline scenario). Overall, such a depreciation shock would put some pressures on the EU public debt ratio (+1.2 pp. of GDP in 2027 compared to the baseline scenario). However, the impact would be limited compared to other macro-financial risks (see the effects of the sensitivity tests on the interest rate, the nominal GDP growth and the structural primary balance presented earlier in the report), and would not be sufficient to modify the overall downward path of the public debt ratio.

([5]) These adjustments are more likely to be significant in countries where the share of foreign exchange public debt is important, and where there is a floating exchange rate regime. However, they also depend on the hedging strategies (by derivatives) of national authorities.

([7]) On the other hand, we can't rule out that in case of severe financial markets' pressures, exchange rate volatility could be higher than the one simulated here based on historical values.

(Continued on the next page)

Box (continued)

Table 3:
Gross public debt projections in baseline versus exchange rate shock, by selected country

	2018	2027			
		Baseline	Standardized (temporary) shock on nominal exchange rate (depreciation equivalent to the maximum historical depreciation over last 10 years)		
	Debt	Debt	Exchange rate change (per annum, '-' means depreciation)	Debt	*Debt (difference with Baseline no-policy change scenario)*
BG	25.9	21.1	0.0	21.2	0.0
CZ	38.5	41.9	-6.0	42.5	0.7
DK	38.2	28.9	-0.2	29.3	0.4
HR	82.8	87.8	-2.1	92.7	4.9
LV	36.0	33.6	-0.6	38.1	4.5
LT	40.2	54.1	0.0	58.9	4.8
HU	71.8	70.3	-11.5	80.7	10.5
PL	55.5	69.2	-23.2	78.2	9.0
PT	127.8	124.0	0.0	125.1	1.1
RO	41.5	55.7	-15.1	63.6	7.9
SK	51.5	40.3	0.0	40.8	0.5
FI	68.1	79.8	0.0	82.7	2.9
SE	38.2	28.8	-10.4	33.5	4.7
UK	87.5	89.9	-16.4	89.9	0.0
EU	83.9	81.2	-3.8	82.4	1.2
EA	89.4	85.3	0.0	86.0	0.6

In addition to stress testing the level of different macro-financial and fiscal variables, we explore in this report the possibility of a slower convergence of interest rates, possibly combined with lower growth rates. Indeed, the current environment of very low interest rates can question our baseline assumption of a normalization of financial conditions over the T+10 horizon, in line with the abundant literature on 'secular stagnation'. The rationale for such alternative assumptions as well as some stylised results are presented in the Box 2.3 below.

Box 2.3: Public debt sustainability in an environment of low interest rates and low economic growth

Since the onset of the last financial and economic crisis, interest rates have substantially diminished in major advanced OECD economies. As a consequence of the reduction of 'natural' interest rates, policy rates were massively cut, even below zero in cases, and some central banks made conditional commitments to keep them at a very low level for an extended period, at the same time as expanding massively their balance sheets. Hence, despite the relatively subdued recovery in the EU since the peak of the crisis (forecasted to remain below 2% in the EU over the period 2016-18), ([1]) these favourable financial conditions imply that the differential between interest and growth rates has turned negative since 2015 and thus propitious for public debt reduction (for instance, in 2016, the real long term interest rate on public debt was almost 2 pp. lower than real economic growth in the EU).

The critical question, both in terms of public debt sustainability and fiscal policy orientation, is for how long these interest rates will remain low. Indeed, different views prevail to explain this phenomenon, with evidently different implications for future trends of debt accumulation:

- On the one hand a "back to normal scenario" argues that the current triggers of low interest rates are cyclical (*temporary*) and mainly linked to the financial cycle (Borio, 2012 and Lo and Rogoff, 2015). In this vein, real interest rates declined in response to the recession induced by the global financial crisis (and accompanying monetary policy stimulus as discussed), as overly optimistic expectations on future income and revenues and excessively permissive regulation went into reverse, leading to an increase in aggregate savings and to a deleveraging process. With the "debt super-cycle" having now turned negative, interest rates would remain low for an extensive period of time as deleveraging is a long and persistent process, but will nevertheless return to higher, 'normal' values in the longer term.

- On the other hand, a "low for long" scenario builds upon secular stagnation arguments (Hansen 1939, Summers 2014) stating that equilibrium interest rates have *permanently* declined for structural reasons linked to both supply and demand factors (TFP, sluggish invention and innovation, demographic developments, rising inequality), reflecting an excess of desired saving over desired investment (Bernanke, 2015). These circumstances would result in a persistent output gap and/or slow rate of economic growth (Eichengreen 2015, Gordon, 2015) being associated with low inflation (Summers, 2014). Considering that interest rates are globally set (Hamilton 2015, Rachel and Smith, 2015), low and even negative interest rate environments can be exported, being therefore contagious.

If the secular stagnation literature clearly argues that interest rates (and economic growth) are likely to *permanently* remain low, it appears quite sketchy in providing clear conclusions about the new equilibrium *levels,* their relative magnitude, and therefore the implications for the dynamic efficiency rule (whereby real interest rates should not be lower than growth rates) over time.

In the baseline scenario, in line with the long-run convergence assumptions agreed with the EPC – Ageing Working Group (AWG), real (market) long term interest rates are assumed to converge to 3% within a 10-year horizon (by 2026).

In order to illustrate the current debate, this Box proposes an alternative, "low for long", scenario whereby the assumed increase in long-term interest rates would take longer (a 20-year window - until 2036) to converge to their 3% equilibrium value. Moreover, we explore the possibility of a lower economic growth than the one projected in the baseline scenario, calibrated to reflect the alternative "TFP risk scenario" (lower total factor productivity), agreed by the EPC – AWG (see Ageing Report 2015), hence annual average economic growth permanently reduced by 0.25 pp. Such stylized alternative assumptions aim at exploring the impact of such a "new normal" on public debt sustainability (see the notes to Graph 1 and 2 for details).

The "low for long" scenario would imply, all else equal, that interest rates would remain below economic growth over the T+10 horizon (rather than rising beyond the growth rate as from 2025).

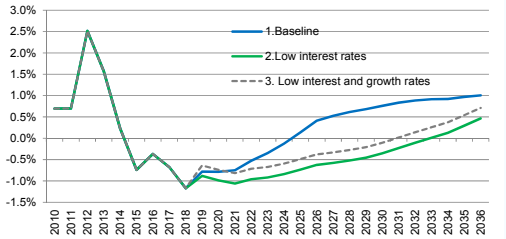
([1]) European Commission (2016b).

(Continued on the next page)

Box (continued)

The differential remains negative, but to a lower extent, under a combined scenario of late convergence year and lower economic growth (-0.3 pp. against -0.6 pp. in 2027, when only assuming slower convergence, and against +0.5 pp. in the baseline scenario, see Graph 1). ([2])

Graph 1: **(Implicit) Real interest rate - growth rate differential, EU**



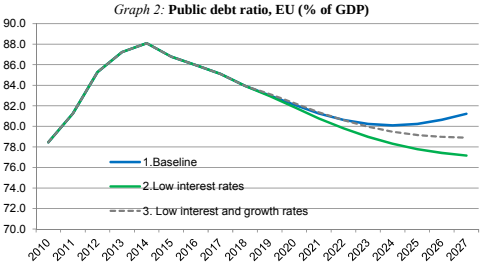
Source: Commission services

Note: In the baseline scenario, the long *market* interest rate is supposed to converge to 3% by 2026 (2036 in the 2 other alternative scenarios). The short-term *market* interest rate is assumed to converge to the same value multiplied by a coefficient corresponding to the historical (pre-crisis) EA yield curve. The implicit interest rate, which is a weighted average of these two market rates and of the implicit long-term interest rate (on outstanding, non-maturing, debt), will tend to converge more slowly to these higher values (especially for countries with a long maturity of public debt). More information can be found in Annex A7.

Under an assumption of slower normalisation of financial conditions, the EU public debt ratio would continue to decline after 2025, against a slight increase beyond this year in the baseline scenario. This continuing declining trend would also be observed when assuming in addition lower economic growth. In 2027, public debt would be almost 5 pps. of GDP lower than in the baseline scenario (see Graph 2). While on a declining path in both alternative scenarios, it would nevertheless remain, in this environment, well above the 60% of GDP Treaty threshold.

([2]) In the two alternative scenarios, the interest – growth rates differential would only turn positive in respectively 2033 and 2031.

Graph 2: **Public debt ratio, EU (% of GDP)**

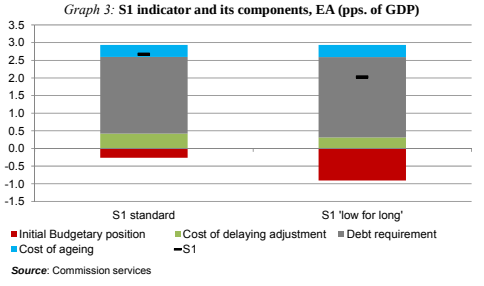


Source: Commission services

Note: 1. The baseline scenario assumes long-term interest rate converging to 3% in real terms by T+10 i.e. 2026; OGWG-agreed GDP growth path (see Box 2.1). 2. The low interest rates scenario consists of a longer (until T+20 i.e. 2036) convergence of long-term interest rates and GDP growth as per baseline. 3. The low interest rate and growth rate scenario foresees interest rates as per 2. and a permanent -0.25 pp. shock to the real growth rate with respect to 1.

Furthermore, with a prolonged period of low interest rates, the required fiscal adjustment, to bring down the debt ratio to 60% of GDP in 2031 (measured by the fiscal sustainability indicator S1), would be reduced by more than ½ pps. of GDP at the EA aggregate level, as the gap to the debt-stabilizing primary balance would diminish, as well as, to a lower extent, the cost of delaying the adjustment (see Graph 3).

Graph 3: **S1 indicator and its components, EA (pps. of GDP)**



Source: Commission services

Note: The S1 indicators and its components, as well as the main underlying assumptions, are more precisely defined in chapter 3.

If the normalisation of financial conditions were to take longer than currently assumed in our framework, then the 'organic' erosion of public debt (Ostry et al., 2015), through favourable snow-ball effect, may last longer than projected in the baseline scenario. Put differently, it implies that less fiscal effort would be needed to arrive at the same debt reduction. However, this favourable dynamic alone would not suffice to ensure medium-long run public debt sustainability:

(Continued on the next page)

Box (continued)

- First, the secular stagnation paradigm also predicts a long-lasting environment of low growth which would reduce the favourable effects of lower interest rates (as illustrated by the alternative scenario 2 of low interest rate and low growth). This is particularly true as the literature is unclear about the sign and magnitude of the interest – growth rate differential to expect in the medium-long term, and future trends could be less favourable than assumed here; ([3]) moreover, even in the more favourable scenario presented here, a significant fiscal gap (as measure by the S1 indicator) would remain;

- Then, implicit liabilities linked to population ageing could eventually also partially absorb the initial benefit of favourable financial conditions especially if growth remains low; ([4])

- Moreover, the extent to which countries with high public debt can benefit from a low interest rate environment crucially depends on the debt maturity profile and the proportion of outstanding debt to be rolled over in the coming years/under low interest rate conditions; ([5])

- A prolonged environment of very low interest rates might weaken the financial sector (and create distortions in asset prices), eventually favouring the build-up of contingent banking liabilities, whereby the sustainability challenge would transform;

- Finally, highly indebted sovereigns will, in these circumstances, have fewer incentives to undertake necessary balance sheet adjustments. Still, they are likely to remain vulnerable to eventual changes in monetary policy or in financial markets' sentiments.

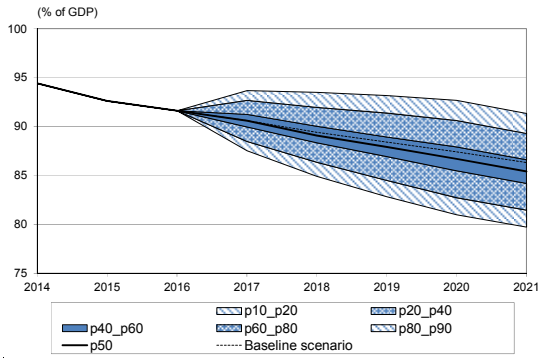
([3]) Note that compared to pre-crisis level, the medium-term growth potential of the euro area has already virtually halved (see European Commission, 2016b).
([4]) Indeed, over a longer time horizon (2060), the difference between the baseline and the alternative scenario 2 would tend to reduce.
([5]) This is the reason why the IIR is used instead of the long-term market interest rate.

2.3. STOCHASTIC DEBT PROJECTION RESULTS

As explained in Chapter 1, Section 3.2, stochastic projections complement the more traditional deterministic public debt projections by featuring the uncertainty of macroeconomic conditions (government primary balance, interest rates, growth and exchange rate) ([30]) in the analysis of debt dynamics in a comprehensive way ([31]).

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 variables under a central scenario (here the deterministic baseline no-fiscal policy change scenario). Results are generally presented in the form of fan charts, representing the cone of the debt-to-GDP ratio distribution over the 5-year projection horizon (see the fan chart for the EA in Graph 2.18; charts for individual EU countries are reported in the statistical country fiches annexed to the report).

Graph 2.18: **Gross public debt (% of GDP) from stochastic debt projections (2016-21), EA**



Source: Commission services

In the fan chart, the projected debt path under the central scenario (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. 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 central scenario.

Graph 2.18 shows that, for the EA, the debt ratio in 2021 is projected to lie between roughly 80% and 91% with an 80% probability (as the two values respectively correspond to the 10th and the 90th distribution percentiles). In terms of debt dynamics, in the presence of temporary shocks to primary balance, interest rates and nominal growth, the EA's debt ratio is projected to continue rising in 2017 with a probability of less than 40%, and start decreasing afterwards with a 80% probability. The debt ratio in 2021 is expected to be lower than in 2016 with a probability of around 91% (only 9% of all simulated combinations of macroeconomic shocks would produce a greater debt ratio in 2021 compared to 2016).

An overview of stochastic projection results country by country is reported in Table 2.12, in the form of debt distribution percentiles in the last projection year, and differences between percentiles (providing a measure of the uncertainty surrounding baseline projections). The estimated probability of a debt ratio at the end of projections greater than the initial debt ratio is additionally reported.

Table 2.12 highlights cross-country differences in the variance of the distribution of the debt ratio in 2021, reflecting the country-specific volatility of macroeconomic conditions.

While 80% of the debt ratio distribution takes values between around 30% and 41% for Sweden and between 92% and 103% for France (with a difference below 12 pps. between the 10th and the 90th distribution percentiles for both countries), the same share of the distribution lies in the much wider interval of 65-111% for Croatia and 78%-120% for Cyprus (a difference of more than 42 pps. between the 10th and the 90th percentiles)

([30]) 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.
([31]) See Berti (2013) and Annex A4 for more details.

Table 2.12: **Stochastic debt projection results, by country**

Country	Debt ratio in 2016	Proj. median debt ratio in 2021	10th percentile of debt ratio distribution in 2021	90th percentile of debt ratio distribution in 2021	Proj. diff. btw. percentiles 90th and 10th of debt ratio distribution in 2021	Proj. diff. btw. percentiles 60th and 40th of debt ratio distribution in 2021	Probability of debt ratio in 2021 greater than in 2016 (%)
BE	107.0	102.4	90.1	115.7	25.6	4.8	33
BG	29.4	22.0	3.5	43.6	40.1	7.9	32
CZ	39.7	38.8	26.0	51.4	25.5	5.0	47
DK	38.9	32.8	24.9	40.6	15.7	3.0	16
DE	68.1	57.7	50.4	65.3	14.9	2.9	4
EE	9.4	10.6	9.0	12.6	3.6	0.7	83
IE	75.4	68.4	54.7	86.7	32.0	6.0	30
EL	:	:	:	:	:	:	:
ES	99.5	102.3	94.9	110.4	15.6	3.0	69
FR	96.4	97.0	91.7	102.9	11.3	2.2	56
HR	85.0	84.9	65.1	110.9	45.8	8.5	50
IT	133.0	129.9	120.5	140.2	19.7	3.7	35
CY	107.1	98.4	78.1	120.3	42.2	8.1	30
LV	40.0	34.2	22.5	48.2	25.6	5.1	29
LT	40.8	41.6	28.6	59.4	30.7	5.8	53
LU	23.2	21.4	14.2	29.0	14.8	3.1	39
HU	73.4	70.5	55.6	85.3	29.8	6.2	41
MT	62.1	51.7	39.4	65.8	26.5	5.2	18
NL	63.0	52.8	45.1	60.9	15.8	3.1	6
AT	83.5	73.8	60.8	87.1	26.3	5.0	18
PL	53.4	58.1	49.6	66.2	16.6	3.5	76
PT	130.3	128.9	117.3	142.9	25.5	4.7	44
RO	38.9	46.9	33.5	62.1	28.6	5.6	77
SI	80.2	75.1	63.5	88.0	24.5	5.0	31
SK	53.3	46.5	34.5	59.5	25.0	4.8	25
FI	65.4	71.3	62.8	80.5	17.7	3.7	80
SE	41.6	35.4	30.2	40.6	10.4	2.1	6
UK	89.2	86.6	77.4	96.1	18.7	3.6	36
EA-19	91.6	85.4	79.7	91.3	11.6	2.4	9

Source: Commission services

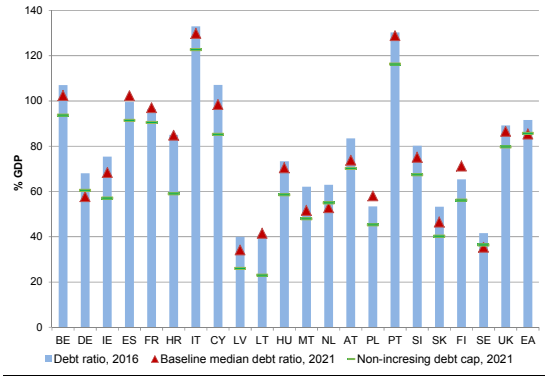
with medians at around 85% and 98% respectively for the two countries (see Table 2.12). This clearly points to higher uncertainty surrounding baseline projections for the latter countries. Beyond HR and CY very high uncertainty is reported for BG, IE, LT, HU and RO, all countries with a difference at or greater than close to 30 pps. between the 10th and the 90th distribution percentiles.

In terms of probability of a debt ratio at the end of projections (2021) greater than the initial (2016) debt ratio, Table 2.12 shows the probability to be very high for FI and ES (around 80% and 70% probability respectively), two countries that already have debt ratios in 2016 above the 60% Treaty reference value (significantly above it in the case of ES). Relatively high probabilities of a 2021 debt ratio greater than the initial level are also reported for some high-debt countries (i.e. countries with 2016 debt ratio above 90%). France for instance, (with a 2016 debt ratio at around 96%), has a 56% probability of a debt ratio in 2021. Portugal has a 44% probability of a greater debt ratio, being at a debt ratio above 130% in 2016, and Italy, with a debt of 133% of GDP in 2016, has also a probability of 35%.

Finally, an alternative (and telling) way to present results from stochastic projections is to look at the median debt ratio a country would need to target for the final projection year (2021) to be able to contain to a relatively small level (10%) the probability of a debt ratio in 2021 greater than its

initial (2016) debt ratio ([32]). We label this indicator here as the "non-increasing debt cap" and report in Graph 2.19 results for all EU countries with 2016 debt ratio above 40%.

Graph 2.19: **Non-increasing debt cap versus baseline median debt ratio, 2021**



Source: Commission services

As indicated in Graph 2.19, for the EA the non-increasing debt cap is around 86% of GDP. This means that to have a EA debt ratio in 2021 that is smaller than in 2016 (around 92% of GDP) with a 90% probability, despite possible shocks to the primary balance, nominal growth and interest rates on government debt, the EA's projected median debt ratio for 2021 should be around 85%.

The graph shows that for the majority of countries (but Germany, the Netherlands and Sweden) the non-increasing debt cap lies below the median debt ratio under the baseline no-fiscal policy change scenario. This means that, under the joint effects of possible macroeconomic shocks reflecting the size and correlation of past shocks, the debt ratio that would be reached in 2021 under no-fiscal policy change projections is, for the majority of EU countries reported in Graph 2.19, not sufficient to ensure a high probability (90%) of a debt ratio in 2021 smaller than the country's initial debt ratio.

([32]) The calculations of this indicator that we present here are based on the simplifying assumption that the country-specific variance of the debt distribution (the width of the projection cone) remains constant at what estimated by running the stochastic simulations around baseline no-fiscal policy change projections (i.e. the variance of the distribution is not affected by the eventual attempt to target the "non-increasing debt cap" by 2021).

2.4. GROSS FINANCING NEEDS PROJECTION RESULTS

Projections of government gross financing needs are increasingly becoming an important element of a comprehensive fiscal sustainability analysis, especially in the current environment of very low interest rates ([33]). The projected dynamics of gross financing needs is indeed particularly important to be able to measure the extent to which governments might need to tap financial markets over the current and the coming years, thus enabling an assessment of rollover risks. Expressed more generally, gross financing needs provide a measure of the ease with which a country can face upcoming dues related to its debt stock. Gross financing needs represent an important "leading indicator" of fiscal stress risks, and are therefore an essential component of any early-warning model of fiscal stress. For instance, (historical and current) public gross financing needs are one of the fiscal variables used to assess possible forthcoming fiscal stress used in the S0 methodology (see chapter 3 of the report).

In this report, we present projections of public gross financing needs over the 10-year horizon (horizon typically used in our debt projections) under the baseline no-fiscal policy change. This is an addition compared to the *Fiscal Sustainability Report* 2015. Generally speaking, public gross financing needs (GFN) are defined as the sum of the government primary deficit (+) / surplus (-), interest payments and debt amortisations. Amortisations include principal repayments made on the outstanding debt (at the end of the previous period) maturing within the year and that needs to be rolled-over. They should cover in principle both debt securities and loans with all types of *original* maturities. The Box 2.4 describes in more details the definition of GFN and the assumptions made for the projections.

At the EU level, public gross financing needs are estimated at around 16% of GDP in 2016, around 2 pps. of GDP less than at the euro area aggregate level (18% of GDP; see Table 2.13). Important cross-country differences appear in line with the

([33]) For example, the debt sustainability analysis (DSA) included in the IMF's Article IV reports, always presents charts of public gross financing needs, together with the more traditional public debt charts, over a 5 year projection horizon.

Table 2.13: **Public gross financing needs (% of GDP) in the baseline no-fiscal policy change scenario, by country**

	2012	2016	2017	2018	2019	2020	2021	2024	2027
BE	25.5	19.7	21.6	21.1	20.4	20.1	19.9	20.1	20.8
BG	3.3	11.1	6.9	8.0	7.7	7.4	7.1	6.6	6.3
CZ	12.6	7.4	9.1	8.9	8.5	8.5	8.6	8.8	9.3
DK	9.1	5.4	6.1	6.6	6.3	5.9	5.4	4.6	4.3
DE	26.8	14.9	13.1	12.6	12.3	11.9	11.7	11.8	12.6
EE	:	:	:	:	:	:	:	:	:
IE	18.7	5.2	6.3	3.1	2.1	2.6	3.0	4.3	5.5
EL	:	:	:	:	:	:	:	:	:
ES	34.9	22.2	22.6	22.8	23.1	23.9	24.6	25.9	27.5
FR	22.9	19.4	19.5	20.1	20.1	20.1	20.1	21.1	22.5
HR	17.8	14.9	17.2	16.2	16.6	16.9	17.4	17.8	18.1
IT	31.4	25.9	26.8	27.0	26.3	25.9	25.5	25.0	25.4
CY	29.2	23.8	14.1	15.2	16.2	17.6	19.1	21.6	23.4
LV	4.5	6.2	4.4	5.3	5.4	5.1	5.0	4.4	4.3
LT	10.5	4.7	6.8	2.5	4.0	4.6	5.4	7.6	10.7
LU	4.5	3.1	2.6	2.6	1.3	1.3	1.4	2.0	2.9
HU	14.9	17.6	16.7	16.9	16.5	16.8	17.2	17.5	17.8
MT	10.4	8.5	6.1	5.3	5.3	5.4	5.5	5.6	5.9
NL	20.9	10.2	12.7	12.1	11.8	11.3	10.7	9.4	9.3
AT	11.9	9.9	12.6	12.5	12.2	11.7	11.1	10.3	10.3
PL	10.2	9.2	9.7	8.9	9.1	9.3	9.7	10.7	12.0
PT	32.9	21.7	16.3	16.0	17.0	17.6	18.2	19.9	21.5
RO	16.7	11.1	7.7	8.2	8.4	9.0	9.7	11.7	14.0
SI	10.0	13.3	12.5	12.2	12.6	12.6	12.7	12.9	14.1
SK	15.6	8.6	10.5	9.8	8.5	8.0	7.6	6.6	5.9
FI	16.2	13.3	11.9	12.0	11.9	12.2	12.4	14.1	16.3
SE	13.3	14.6	15.3	14.6	13.8	13.1	12.5	11.2	10.5
UK	12.9	10.7	10.5	10.0	10.4	10.4	10.6	11.4	12.4
EU	**22.1**	**15.8**	**16.0**	**15.7**	**15.5**	**15.4**	**15.3**	**15.5**	**16.3**
EA	**25.6**	**17.8**	**17.9**	**17.7**	**17.4**	**17.2**	**17.1**	**17.3**	**18.1**

(1) Estimations are not shown for EE due to data limitation.
Source: Commission services

heterogeneity in terms of public debt level and maturity structure, financing conditions, as well the government primary balance ([34]). For instance, in 10 countries, GFN are below 10% of GDP in 2016 (sometimes well below this value like in LU, LT, IE, DK and LV), while 7 countries exhibit GFN greater than 17% of GDP (IT, CY, ES, PT, BE, FR and HU) ([35]). In most countries (22), government borrowing requirements have considerably decreased compared to the level reached in 2012 (which was around 22% of GDP at the EU level and 26% of GDP at the EA level). Particularly important decreases have been observed in IE, ES, DE and PT, in line with the (very) important reduction of the public debt ratio in IE and DE, and the reduction of the budgetary deficit in IE, ES and PT.

([34]) See Table 2.3 for the level of debt ratio, Table 2.4 for the level of the structural primary balance and the implicit interest rate. Graph 2.17 also contains information on the average maturity structure of public debt by country.

([35]) This level corresponds to the critical threshold based on the S0 methodology (close to the IMF threshold at 15% of GDP).

Box 2.4: **Public gross financing needs projections: definition and main assumptions**

Public Gross financing needs (GFN) are calculated as follows:

GFN = Government primary deficit (+)/surplus (-) + interest payments + amortisations *(1)*

Amortisations include principal repayments made on the outstanding debt (at the end of the previous period) *maturing within the year* and that needs to be rolled-over. They should cover in principle both debt securities and loans with all types of original maturities. However, given their specificity, currency and deposits are not included in short-term debt amortizations entering the GFN. Indeed, deposits can represent special operations in place with other public entities, ([1]) which lent money to the government, or liabilities taken from the nationalised bad banks (e.g. IE and UK), *without an urgency to be repaid*. In some specific cases, for some countries, these deposits represent stable liabilities related to debt that is automatically renewed (e.g. IT and PT).

Projecting GFN requires assumptions on the future dynamics of the subcomponents in equation (1), the government balance and the debt amortisations. GFN are calculated in this report with reference to the baseline no-fiscal policy change scenario. For the government balance that is behind the GFN calculation, Commission forecasts are therefore used over the forecast horizon, while thereafter the usual assumptions is made of: i) a structural primary balance constant at last forecast year; ii) a cyclical component calculated using (country-specific) semi-elasticity parameters until the output gap closure in T+5; and iii) a long-term interest rate converging to 3% (real) by the end of the 10-year projection horizon (and the convergence value of the short-term interest rate derived consistently from the value of the EA yield curve, given the long-term rate).

As far as the debt amortisations in equation (1) are concerned, the starting point is provided by Eurostat data on the share of short-term and long-term public debt (including loans). ECB data on the share of *long-term debt* that is maturing within the year (available until 2016 included) are also used. In the projections beyond 2016, it is assumed that the share of maturing long-term debt linearly converges from the value taken in the last available year (2016) to the country-specific historical (5-year) average by the end of the 10-year projection horizon. For simplification, *short-term debt* is assumed to always be maturing within the year all along the projection period. Debt amortizations within the year are then given by the sum of the two, short-term debt and maturing long-term debt, for each year over the projection horizon.

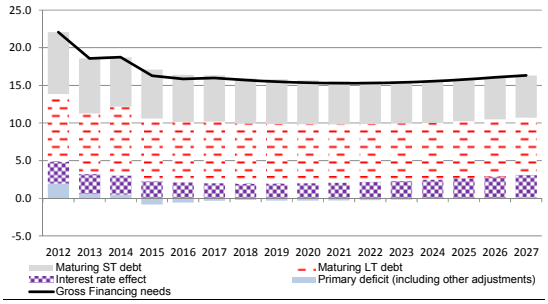
Other institutions also provide estimates of public gross financing needs (e.g. IMF, ECB, OECD). ([2]) Given differences in the underlying fiscal and macro-financial assumptions used, as well as in the data sources, some discrepancies with our own estimates can arise. For instance, the data on maturing debt used by the IMF mostly refer to central government *securities* as from Bloomberg, meaning that loans are excluded, while they are, on the contrary, included in our estimates. For the years 2015 and 2016, public gross financing needs would stand at around 18% of GDP for the euro area according to our estimates. This estimated level is greater than the one calculated by the IMF (2016) at around 14% of GDP, but smaller than the one computed by the ECB (2015) at 22.5% of GDP (see footnote 2 for the references).

([1]) Deposits are claims based on a standard contract that allows the placement of a variable amount of money. It is possible for a government unit to incur liabilities in the form of deposits. For example, a court or tax authority may hold a security deposit pending resolution of a dispute.

([2]) See the IMF Fiscal Monitor (April 2016), the ECB Financial Stability Review (November 2015) and the OECD Sovereign Borrowing Outlook 2016.

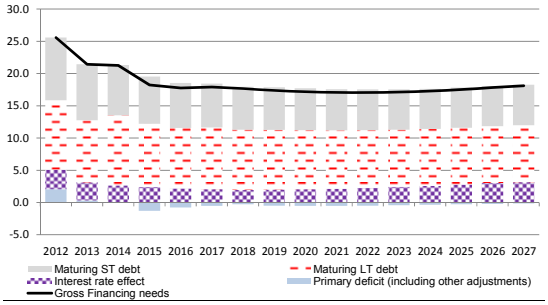
Over the 10-year projection horizon, EU / EA public gross financing needs are projected to remain roughly constant at their current (2016) level, with a slight overall decrease up until 2022, followed by a limited increase thereafter. Several countries are projected to experience decreases of their borrowing requirements over the whole period (e.g. BG, SE, SK, MT and DE), while others should see their GFN increase by 2027 (e.g. LT, ES, HR, FR, FI, RO and PL). These trends are largely driven by the projected dynamics of the primary balance (in line with often increasing costs of ageing) and the projected increase of the interest bill (in line with the assumption of normalization of financial conditions, see Graphs 2.20 and 2.21). They would remain however well below the peak reached in 2012 in most of countries.

Graph 2.20: **Public gross financing needs projections decomposition, baseline no-fiscal policy change scenario, EU (% of GDP)**



Source: Commission services

Graph 2.21: **Public gross financing needs projections decomposition, baseline no-fiscal policy change scenario, EA (% of GDP)**



Source: Commission services

3. QUANTITATIVE RESULTS ON FISCAL SUSTAINABILITY INDICATORS

This chapter presents updated results on short-, medium- and long-term sustainability indicators in the context of the multi-dimensional approach to fiscal sustainability used by the Commission ([36]).

3.1. SHORT-TERM FISCAL SUSTAINABILITY CHALLENGES

3.1.1. The S0 indicator

The assessment of short-term sustainability challenges is based on the S0 indicator, which is an "early-detection indicator" designed to highlight short-term fiscal risks (1 year horizon) stemming from the fiscal, as well as the macro-financial and competitiveness sides of the economy. This indicator is not a quantification of the required fiscal adjustment, like the traditional S1 and S2, but rather a composite indicator estimating the extent to which there might be a fiscal stress risk in the short-term, using a wide range of variables, which have proven to perform well in detecting situations of fiscal stress in the past.

A whole set of fiscal and financial-competitiveness variables (25 variables altogether, 12 in the fiscal side and 13 in the financial-competitiveness side – see Table 3.1) is used to construct S0. In particular, most of the variables included in the scoreboard for the surveillance of macroeconomic imbalances (used in the context of the Macroeconomic Imbalances Procedure) are among the financial-competitiveness variables incorporated in the S0 indicator. This duly reflects the evidence, also based on the most recent experience in the EU, on the role that financial and competitiveness variables can play in generating potential fiscal risks.

The methodology lying behind the S0 indicator (the so-called "signals' approach") allows for an endogenous determination of thresholds of fiscal risk for the composite indicator itself, for each individual variable incorporated in the composite indicator, as well as two thematic sub-indexes incorporating only fiscal and financial-competitiveness variables respectively (revised thresholds are reported in Table 3.1) ([37]). Values of the overall S0 indicator, the individual variables, and the two sub-indexes beyond the respective thresholds are read as signals of upcoming (shorter-term) fiscal risks.

More precisely, the composite indicator S0 is calculated as the weighted proportion of variables having reached their optimal thresholds, where the weights are given by the "signalling power" of the individual variables (i.e. their ability to correctly predict past fiscal events). The higher the proportion of individual variables taking values above their respective threshold, the higher the value of S0 (especially for variables found to have a high signalling power).

Operationally, the short-term fiscal assessment is conducted at three different levels. First of all, and primarily, the value of the S0 indicator is used to assess overall risks. Secondly, the values of the fiscal and financial-competitiveness sub-indexes are taken into account separately to identify countries where fiscal risks emerge from one of the two thematic areas, though not at aggregate level. The consideration of the two sub-indexes is, moreover, relevant also to gain insights on the specific area(s) risks stem from for the countries, where overall fiscal sustainability risks are detected to be high by the S0. Finally, the identification of specific sources of vulnerability, at country level, is done through the analysis of individual variables included in the S0.

Results from the assessment based on S0 analysis are in any case to be interpreted with caution. Though the framework described above tends to be rather comprehensive, there are additional dimensions, relevant for the analysis of short-term sustainability challenges that are necessarily left aside (for instance, factors that are more qualitative in nature or variables for which data availability is limited). The broader background of country-specific contexts is therefore to be kept in mind when reading results.

([36]) See European Commission (2016a, 2012) and Berti et al. (2012) for further methodological details.

([37]) See Box 3.1 for a presentation of the changes. Eventual dissimilarities with the MIP thresholds are due to the methodological aspects and different definitions of the fiscal stress events (see also Annex A1).

Table 3.1: **Thresholds and signalling power of S0 indicator, fiscal and financial competitiveness sub-indexes and individual variables used in the S0 indicator**

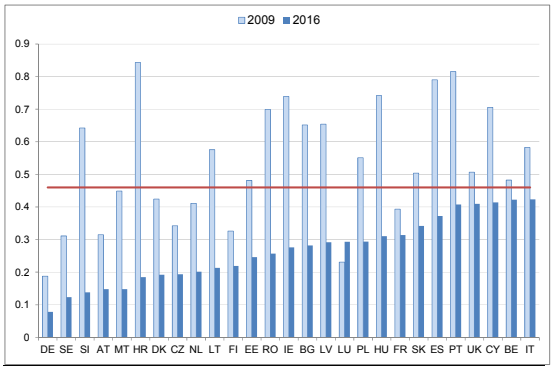
Variables	safety	threshold	signaling power	type I error	type II error	crisis number	no-crisis number
Balance, % GDP	>	-9.61	0.07	0.04	0.89	44	1080
Primary balance, % GDP	>	0.23	0.13	0.47	0.40	43	1058
Cyclically adjusted balance, % GDP	>	-2.50	0.23	0.52	0.25	40	981
Stabilizing primary balance, % GDP	<	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. governme	<	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, % GDP	<	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 on	<	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) Variables' names preceded by L1 are taken in lagged value.
(2) The signalling power is defined as [1-(type-I error + type-II error)].
(3) The calculation of gross financing needs for S0 is based on all debt securities issued by the general government as elaborated by the ECB (see ECB, 2010).
Source: Commission services.

3.1.2. Results on the short-term sustainability indicator

With regard to overall short-term risks of fiscal stress, 2016 values of the S0 indicator are shown for EU Member States in Graph 3.1 (values for 2009 are also reported for reference). In 2009 more than half of EU countries had a value of the S0 above the threshold, pointing to high risk in the short term, up to 1 year ahead. Since then, the situation has improved in all countries. In 2016, no single country, among the (non-programme) EU countries, would be at risk of facing fiscal stress in the near future, by reporting a value of the S0 indicator above its threshold, represented by the horizontal line.

Graph 3.1: **The S0 indicator for EU countries, 2009 and 2016**



Source: Commission services.

By looking at the two thematic sub-indexes (Graph 3.2 reports 2016 and, for reference, 2009 values with thresholds represented by horizontal lines), overall risks can be better qualified as stemming from both the fiscal and the financial-competitiveness sides of the economy, or stemming only from one side.

Box 3.1: Revision and update of the S0 indicator results

Once S0 entered the Commission's fiscal sustainability assessment framework,([1]) it was decided that thresholds used for S0 would be updated every 3-4 years so to avoid that data revisions could impinge on their stability. Hence, in view of the Autumn 2016 *Debt Sustainability Monitor Report*, the thresholds (for S0, the two sub-indexes and each individual variable in S0) have been updated and some methodological refinements have been carried out as well.

More in detail, the changes introduced in the S0 calculation concerned both the dataset and the underlying variables, as described thereafter:

- the statistical sources used for some variables have been changed (e.g. for gross financing needs the Bloomberg source has been replaced with ECB publicly available data);
- the series of fiscal stress events has been extended until 2015. ([2]) The thresholds are therefore now computed with reference to fiscal stress events spanning from 1970 until 2015;
- three variables have been taken out from the S0 indicator (the two ageing variables on the fiscal side and the leverage of financial corporations on the macro-financial side) as they were deemed not sufficiently strong leading indicators of fiscal stress events (based on their estimated signalling power).

The new updated results presented in this report (Tables 3.1-3.3, Graphs 3.1-3.2) include all the changes described above. Compared to the definition of S0 used so far (since the FSR 2012), the overall signalling power of S0 remains unchanged (at 0.55); while the signalling power of the two sub-indexes is significantly increased (from 0.23 to 0.28 on the fiscal side, and from 0.48 to 0.55 on the financial-competitiveness side). Moreover, the thresholds have been modified significantly in some cases (e.g. gross public debt,([3]) private sector debt, net international investment position and short-term debt of non-financial corporations) due to the data revisions.

Table 1: Thresholds and signalling power after revisions

		threshold		signalling power	
Variables	safety	FSR 2015	DSM 2016	FSR 2015	DSM 2016
Balance, % GDP	>	-10.17	-9.61	0.07	0.07
Primary balance, % GDP	>	0.00	0.23	0.17	0.13
Cyclically adjusted balance, % GDP	>	-3.12	-2.50	0.25	0.23
Stabilizing primary balance, % GDP	<	2.55	2.34	0.02	0.08
Gross debt, % GDP	<	103.28	68.44	0.03	0.12
Change in gross debt, % GDP	<	6.50	8.06	0.11	0.12
Short-term debt gen. gov., % GDP	<	16.00	13.20	0.10	0.20
Net debt, % GDP	<	58.11	59.51	0.13	0.20
Gross financing need, % GDP	<	16.83	15.95	0.16	0.26
Interest rate-growth rate differential	<	5.92	4.80	0.08	0.08
Change in expenditure of gen. government, % GDP	<	2.25	1.90	0.14	0.11
Change in final consumption expend. of gen. government, % GDP	<	0.64	0.61	0.17	0.07
Fiscal index	<	0.35	0.36	0.23	0.28
L1.net international investment position, % GDP	>	-50.10	-19.80	0.31	0.29
L1.net savings of households, % GDP	>	0.96	2.61	0.34	0.33
L1.private sector debt, % GDP	<	209.20	164.70	0.25	0.18
L1.private sector credit flow, % GDP	<	10.90	11.70	0.44	0.37
L1.short-term debt, non-financial corporations, % GDP	<	27.40	15.40	0.25	0.20
L1.short-term debt, households, % GDP	<	3.50	2.90	0.27	0.21
L1.construction, % value added	<	7.25	7.46	0.27	0.22
L1.current account, 3-year backward MA, % GDP	>	-2.45	-2.50	0.38	0.34
L1.change (3 years) of real eff. exchange rate, based on exports deflator, ref 37 countries	<	9.76	9.67	0.23	0.11
L1.change (3 years) in nominal unit labour costs	<	12.70	7.00	0.27	0.18
Yield curve	>	0.59	0.59	0.48	0.37
Real GDP growth	>	-0.89	-0.67	0.10	0.10
GDP per capita in PPP, % of US level	>	73.32	72.70	0.28	0.22
Financial-competitiveness index	<	0.45	0.49	0.48	0.55
Overall index	<	0.43	0.46	0.55	0.55

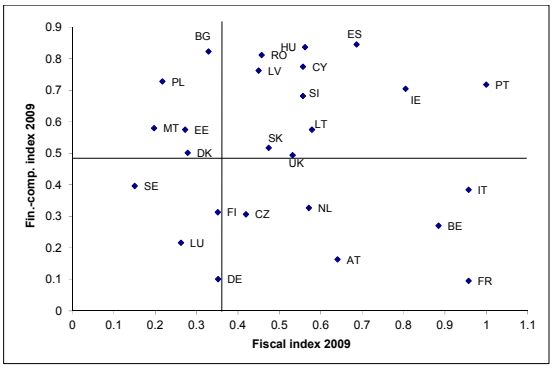
([1]) See Fiscal Sustainability Report (European Commission, 2012 and 2016a) and Berti et al. (2012).
([2]) While keeping the one from Baldacci et al. (2011) pre-2011.
([3]) At 68% of GDP (down from 103% of GDP), this level is now closer to the debt burden benchmarks used by the IMF (2013) for market-access countries in its Debt Sustainability Analysis framework (70% of GDP for emerging economies and 85% of GDP for advanced economies).

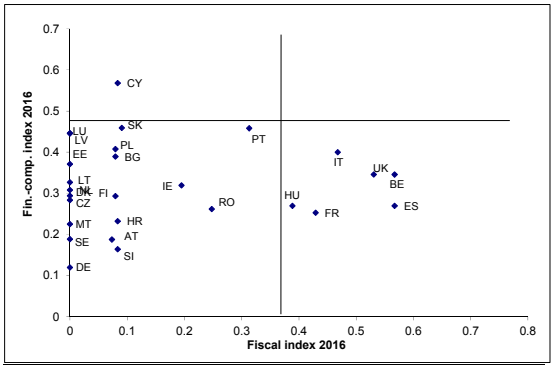
The analysis of the thematic sub-indexes highlights a substantial improvement over the last six years. There is only one country (Cyprus), among the (non-programme) EU countries, facing short-term challenges to fiscal sustainability stemming from the financial-competitiveness side, whereas six countries (Belgium, Hungary, Spain, France, Italy and the United Kingdom) would face short-term challenges stemming from the fiscal side. However, as the overall S0 indicator signals no risk for these countries, the identified short-term challenges (arising from either the fiscal side, or the financial-competitiveness side of the economy) are not as acute to generate risks of fiscal stress at aggregate level.

Values taken by the specific variables incorporated in the composite indicator S0 are reported in Table 3.2 and Table 3.3 for the fiscal and financial-competitiveness subgroups respectively.

By highlighting values above the variable-specific thresholds, the tables allow tracking down the specific sources of fiscal risk for each Member State, thereby identifying areas calling for policy action. However, the relevance of the individual breaches should be evaluated taking into account the signalling power of each variable as identified in Table 3.1.

Graph 3.2: **Fiscal and financial-competitiveness sub-indexes, 2009 and 2016**





Source: Commission services.

Table 3.2: **Fiscal variables used in the S0 indicator, 2016**

	Balance (%GDP)	Primary balance (%GDP)	Cycl. adj. balance (%GDP)	Stabil. primary balance (%GDP)	Gross debt (%GDP)	Change gross debt (%GDP)	Short-term debt (%GDP)	Net debt (%GDP)	Gross financing needs (%GDP)	Interest growth rate diff.	Change expend. gen. govt (%GDP)	Change consumpt. gen. govt (%GDP)
BE	-3.0	-0.5	-2.8	-0.1	107.0	1.2	8.1	62.0	20.1	0.0	-0.1	-0.1
BG	-0.8	0.1	-0.8	0.1	29.4	3.4	0.3	-1.7	4.1	0.6	-3.3	-0.4
CZ	-0.2	0.7	-0.3	0.0	39.7	-0.6	2.2		6.7	-0.1	-1.3	0.5
DK	-0.9	0.4	0.7	0.6	38.9	-1.5	4.0	7.3	6.8	1.6	-0.9	0.1
DE	0.6	2.0	0.6	-1.0	40.2	-3.0	6.2	45.4	9.1	-1.5	0.2	0.4
EE	0.5	0.6	0.5	-0.4	9.4	-0.7	0.2	-1.6		-4.0	-0.5	0.2
IE	-0.9	1.4	-1.8	-0.4	75.4	-3.3	9.0	63.8	2.2	-0.5	-1.3	0.2
ES	-4.6	-1.8	-3.7	-1.0	99.5	-0.3	8.9	81.4	21.4	-1.0	-1.2	-0.4
FR	-3.3	-1.5	-2.5	-0.1	96.4	0.2	10.6	89.2	18.2	-0.1	-0.5	-0.1
HR	-2.1	1.3	-1.7	1.1	85.0	-1.8	5.8		12.8	1.3	-0.5	-0.3
IT	-2.4	1.6	-1.5	1.8	133.0	0.7	18.8	113.8	23.3	1.4	-0.7	0.0
CY	-0.3	2.3	0.1	0.8	107.1	-0.4	2.3		4.2	0.7	-1.6	-0.2
LV	-0.8	0.3	-1.3	0.2	38.3	3.7	1.3	32.3	4.6	0.4	-0.5	0.5
LT	-0.5	1.0	-1.0	0.1	40.8	-1.9	2.3	39.2	2.0	0.2	0.0	0.4
LU	1.3	1.7	1.9	-0.8	23.2	1.1	1.4		-1.3	-3.6	-0.4	0.0
HU	-1.5	1.6	-1.9	-0.1	73.4	-1.3	11.4	71.5	18.4	-0.1	-2.1	0.8
MT	-0.7	1.6	-1.2	-1.3	62.1	-1.9	3.7		7.1	-2.2	-2.7	-0.3
NL	-0.8	0.3	-0.3	-0.1	63.0	-2.2	6.3	34.8	9.4	-0.2	-0.5	0.0
AT	-1.5	0.7	-1.1	-0.6	83.5	-2.0	5.1	58.5	10.9	-0.7	-0.9	-0.1
PL	-2.4	-0.8	-2.4	-0.1	53.4	2.2	0.4	18.3	7.3	-0.1	0.1	0.0
PT	-2.7	1.7	-2.3	0.9	130.3	1.3	18.2	121.9	13.7	0.7	-2.0	0.0
RO	-2.8	-1.3	-2.9	-1.0	38.9	1.0	2.3		6.8	-2.8	-1.2	0.2
SI	-2.4	0.4	-2.2	-0.2	80.2	-3.0	4.6		11.6	-0.2	-2.3	0.3
SK	-2.2	-0.7	-2.0	-0.1	53.3	0.9	0.8		10.2	-0.2	-3.5	0.0
FI	-2.4	-1.2	-1.3	-0.1	65.4	1.7	6.9	-47.1	8.0	-0.1	-0.4	-0.2
SE	0.0	0.4	-0.3	-2.0	41.6	-2.4	11.6	-18.0	8.4	-4.8	-0.4	0.2
UK	-3.5	-1.0	-3.9	0.3	89.2	0.2	13.2	80.5	11.3	0.3	-0.2	-0.1

Source: Commission services

Table 3.3: **Financial-competitiveness variables used in the S0 indicator, 2016**

	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	0.5	1.2	79.0	61.3	2.2	166.3	4.5	41.1	2.6	5.4	-0.2	-2.5	1.5
BG	1.6	3.1	32.9	-60.0	-12.4	110.5	-0.3	16.9	2.3	4.3	0.6	-3.5	14.9
CZ	-0.2	2.2	59.2	-30.7	3.3	68.6	0.9	7.8	1.8	5.7	0.2	-3.1	0.5
DK	0.7	1.0	82.5	39.0	2.5	212.8	-3.3	25.6	4.3	4.5	8.8	3.4	4.9
DE	0.3	1.9	84.2	48.7	5.8	98.9	3.0	10.0	2.0	4.6	7.5	1.7	5.7
EE		1.1	49.7	-40.9	1.2	116.6	3.3	12.2	1.0	6.2	0.9	2.3	14.4
IE	0.7	4.1	118.9	-208.0	2.1	303.4	-6.7	16.3	1.9	2.5	4.7	5.8	-18.1
ES	1.4	3.2	62.8	-89.9	1.4	154.0	-2.7	9.3	2.6	5.6	1.3	-1.0	-0.7
FR	0.6	1.3	71.0	-16.4	5.4	144.3	4.4	24.1	1.7	5.4	-0.7	-0.5	2.5
HR	1.9	2.6	39.9	-77.7	5.1	115.0	-1.3	10.5	3.8	5.2	2.7	-0.8	-5.0
IT	1.3	0.7	64.3	-23.6	1.9	117.0	-1.7	20.6	3.5	4.8	1.5	0.1	1.5
CY	3.9	2.8	56.4	-130.3	-8.4	353.7	4.4	34.7	12.5	3.6	-4.1	-0.6	-10.5
LV	0.3	1.9	44.0	-62.5	-6.9	88.8	0.7	13.5	2.1	6.4	-1.8	0.7	16.0
LT	0.9	2.0	50.9	-44.7	-3.5	55.0	2.2	4.9	1.2	7.3	0.9	-6.9	11.6
LU	0.0	3.6	180.1	35.8		343.1	24.2	9.5	2.9	5.1	5.3	11.2	0.6
HU	1.6	2.1	46.7	-60.8	2.2	83.9	-3.1	10.0	2.5	4.1	3.0	-5.1	3.9
MT	1.1	4.1	60.8	48.5		139.1	5.4	15.4	3.8	4.4	4.3	3.6	3.9
NL	0.4	1.7	86.4	63.9	2.8	228.8	-1.6	33.0	3.6	4.6	9.1	-5.1	0.2
AT	0.5	1.5	85.7	2.9	4.2	126.4	2.1	13.3	3.7	6.4	2.1	0.3	6.1
PL	0.9	3.1	47.4	-62.8	-0.3	78.6	3.1	8.3	3.0	7.8	-1.3	2.3	-0.4
PT	1.9	0.9	52.4	-109.3	-2.5	181.5	-2.3	21.0	2.9	4.1	0.7	-2.4	0.0
RO	2.1	5.2	39.9	-51.9		59.1	0.2	13.1	1.0	8.5	-1.0	-2.6	0.5
SI	1.1	2.2	56.3	-38.7	3.9	87.3	-5.1	11.4	2.5	5.5	5.4	0.3	-0.6
SK	0.4	3.4	53.3	-61.0	1.8	81.4	8.2	14.4	2.2	7.9	1.1	-5.6	2.2
FI	0.5	0.8	72.8	0.6	-0.4	155.7	9.5	6.0	4.0	6.3	-1.0	0.1	3.6
SE	0.9	3.4	84.4	4.1	8.8	188.6	6.5	39.8	14.3	5.9	5.0	-2.7	3.6
UK	1.0	1.9	74.2	-14.4	-0.1	157.8	2.5	26.1	9.9	6.2	-4.8	7.6	1.7

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

3.2. MEDIUM- AND LONG-TERM FISCAL SUSTAINABILITY CHALLENGES

3.2.1. The S1 and S2 indicators

In the medium and long term, fiscal sustainability challenges are usually assessed by checking whether a finite and an infinite version of the government intertemporal budget constraint are met. In particular, the intertemporal budget constraint (solvency condition) refers to the capacity of a country to meet its net debt obligations with a stream of future primary surpluses. Other things equal, the greater the projected cost of ageing, the more difficult it is to fulfil the intertemporal budget constraint, as the primary balance required to the purpose will need to be sufficiently large to account for these additional future costs.

Using respectively the finite and the infinite version of the government budget constraint, two sustainability gap indicators are derived to capture sustainability challenges over the medium and the long-term respectively:

- the medium-term sustainability indicator S1 shows the additional adjustment effort required, in terms of a cumulated gradual improvement in the structural primary balance over 5 years (starting from the year after the forecasts, currently 2019) ([38]), to reach a specific public debt-to-GDP ratio in fifteen years' time (currently 2031) from now, including paying for any future additional expenditure (until the target date) arising from an ageing population. The debt target is set at 60% in the standard definition of the indicator; or alternatively at the pre-crisis debt ratio; or end-of-forecast debt ratio. The timescale of the indicator has been chosen to be long enough to allow the impact of ageing to be analysed in a meaningful way, while still remaining within the sights of current taxpayers and policy makers;

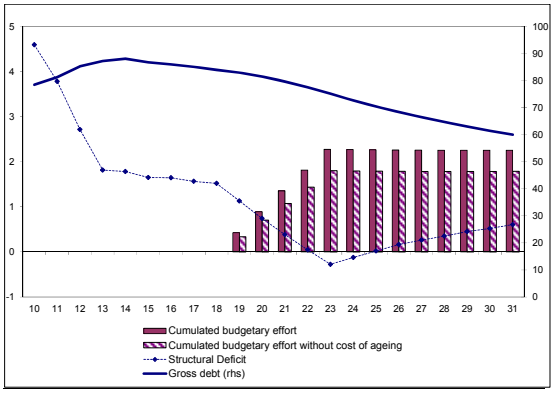
- the long-term sustainability indicator S2 shows the upfront adjustment to the current structural primary balance (kept then constant at the adjusted value forever) required to stabilise the debt-to-GDP ratio over the infinite horizon, including paying for any additional expenditure arising from an ageing population.

The S2 indicator described above (a flow measure) can also be presented in the alternative form of a stock measure, leading to the so called intertemporal net worth indicator (INW), which comprises the current net worth (i.e. assets minus liabilities) of the general government together with the sum of discounted future primary balances

3.2.2. Results on the medium-term sustainability indicator

The consolidation to the structural primary balance implied by the S1 indicator in the EU-28 is shown in Graph 3.3, together with the resulting evolution of debt and the structural balance. The required consolidation without budgetary costs due to ageing populations is also shown, pointing to the medium term benefits achievable through structural reforms, which are still quite remarkable.

Graph 3.3: **Fiscal required adjustment until t+5 to reach a 60% public debt to GDP ratio by 2031 (as % of GDP) - EU**



Source: Commission services.

Updated results on S1, under the baseline no-fiscal policy change scenario, are provided in Table 3.4, for the standard definition of the indicator (target debt ratio of 60% of GDP in 2031). The Table also reports the decomposition of the S1 indicator into: i) the initial budgetary position; ii) the cost of delay, which shows the additional required adjustment due to the gradual improvement in the primary balance compared to an immediate

([38]) After 2023 the structural primary balance remains constant at its 2023 value (which incorporates the additional consolidation efforts made till that year), meaning that no further additional consolidation is assumed after 2023, while deconsolidation is also ruled out.

adjustment; iii) the debt requirement to reach the 60% target debt; and, iv) the required adjustment to cover the ageing costs until 2031. Results show that substantial fiscal adjustment would be required to ensure sustainability over the medium term in a number of countries, though required consolidation efforts vary significantly across EU countries, depending on the initial structural primary balance, starting debt ratio and growth prospects over the next 20 years.

For the EU and the EA, the required improvement in the structural primary balance to achieve a debt-to-GDP ratio target of 60% by 2031 amounts respectively to 2.3 and 2.7 pps. of GDP over the period 2019–2023, i.e. an average budgetary consolidation effort of about 0.5 percentage points per year respectively. In other words, the average structural primary balance for the EU would have to improve from a projected surplus of 0.4% of GDP in 2018 to a surplus of 2.7% in 2023, and for the EA the structural primary balance would have to improve from a surplus of 0.6% of GDP in 2018 to a surplus of 3.3% in 2023.

Table 3.4: **The medium-term sustainability indicator (S1) and its components - all data as % of GDP**

	S1	Due to			
		Initial Budgetary position		Debt requirement	Ageing costs
		Gap to the debt-stabilizing primary balance	Cost of delaying adjustment		
BE	4.3	-0.4	0.7	3.6	0.4
BG	-3.5	-0.1	-0.5	-2.5	-0.3
CZ	-1.2	0.0	-0.2	-1.7	0.7
DK	-2.9	-0.4	-0.5	-1.6	-0.4
DE	-0.4	-1.5	-0.1	0.2	1.0
EE	-4.5	0.0	-0.7	-3.8	0.0
IE	0.4	-1.7	0.1	0.9	1.1
ES	4.9	2.0	0.8	3.0	-0.9
FR	4.5	0.7	0.7	2.9	0.3
HR	2.4	0.7	0.4	1.6	-0.3
IT	6.6	0.2	1.1	5.3	0.0
CY	2.9	-0.2	0.5	3.1	-0.4
LV	-2.1	0.4	-0.3	-1.9	-0.3
LT	1.1	0.6	0.2	-1.3	1.6
LU	-3.7	-1.2	-0.5	-3.0	1.0
HU	0.8	0.7	0.1	0.9	-0.9
MT	-1.2	-1.8	-0.2	-0.2	1.0
NL	-1.1	-0.7	-0.2	0.0	-0.2
AT	0.8	-1.4	0.1	1.5	0.6
PL	1.8	1.6	0.3	-0.3	0.3
PT	6.1	0.2	1.0	4.9	-0.1
RO	0.7	1.7	0.1	-1.4	0.3
SI	2.4	-0.1	0.4	1.3	0.9
SK	-2.1	-1.2	-0.3	-0.7	0.1
FI	2.8	0.2	0.4	0.6	1.6
SE	-2.9	-1.0	-0.4	-1.7	0.2
UK	3.3	-0.2	0.5	2.1	0.9
EU	2.3	-0.2	0.4	1.7	0.4
EA	2.7	-0.3	0.4	2.2	0.3

Source: Commission services

The debt target of 60% in 2031 would require a particularly high fiscal adjustment for ES, FI, CY, UK, BE, IT, FR and PT (all at high risk in the medium-term) and would be also important for LT, HU, SI, AT, PL, IE, HR and RO (all at medium risk in the medium-run), but with different intensity ([39]).

Table 3.4 finally also shows that for eleven countries (LU, EE, DK, LV, SE, BG, DE, SK, CZ, NL and MT) the S1 indicator takes a negative value, thus indicating that already under current policies these countries would not breach the 60% of GDP threshold by 2031. Most of these countries (except DE) are expected to have a debt level in 2018 already below the 60% target. However, if the pre-crisis (2007) debt ratio is taken as the reference target, only DE, MT and SE among the aforementioned countries would still have a negative value of the S1 indicator (see Table 3.5).

Table 3.5 reports, in detail, the S1 indicator values and yearly adjustment needs with different debt end-points. While the starting budgetary position in 2018 would not need to be improved to stabilize debt at its current level's for the EU as a whole, the required adjustment to reach pre-crisis levels (2007 levels) in 2031 would be even higher than with the 60% debt target, due to fact that several Member States experienced debt levels significantly below 60% of GDP in 2007. The table also shows that the structural primary balance adjustment required to stabilise the debt-to-GDP ratio at pre-crisis levels would be particularly demanding for HR, PT, ES, FR, LT, RO, SI, FI and the UK (a cumulated budgetary consolidation effort at least equal to 4% of GDP). Finally, Table 3.5 presents the impact of an increase of one percentage point to the interest rate of new and rolled over debt. The increase in the required adjustment is directly proportional to the current debt ratio and medium-term financing needs of a country.

A better knowledge of the S1 components can be drawn by Table 3.4 and Graph 3.4, which shows that in the EU as a whole and in the EA the initial budgetary position has only a mitigating impact on the S1 indicator. By contrast, all other components (the debt requirement, the ageing cost and the cost

([39]) 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 an adjustment in the structural primary balance of up to 0.5 pps. of GDP per year till 2023), 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.

Table 3.5: **The adjustment of primary balances required until 2023 to reach a given target public debt/GDP ratio by 2031 (all data as % of GDP).**

	Baseline							+1p.p in the short-term/long-term interest rate on maturing and new debt from 2019		
	Structural Primary balance 2018	Required annual adjustment of structural primary balance between 2019 and 2023			Budgetary effort by 2023 (cumulated SPB)			Difference in budgetary effort by 2023 (cumulated SPB)		
		2031 Debt Target								
		60 percent of GDP (S1)	Pre-crisis levels (2007)	End-forecast levels (2018)	60 percent of GDP (S1)	Pre-crisis levels (2007)	End-forecast levels (2018)	60 percent of GDP (S1)	Pre-crisis levels (2007)	End-forecast levels (2018)
BE	0.0	0.9	0.4	0.0	4.3	1.8	0.0	0.5	0.7	0.7
BG	0.1	-0.7	0.1	-0.1	-3.5	0.4	-0.5	0.3	0.2	0.2
CZ	-0.1	-0.2	0.3	0.2	-1.2	1.7	0.8	0.4	0.2	0.3
DK	0.5	-0.6	0.0	-0.2	-2.9	0.0	-1.0	0.4	0.2	0.3
DE	1.5	-0.1	-0.1	-0.1	-0.4	-0.7	-0.6	0.4	0.4	0.4
EE	0.0	-0.9	0.1	0.0	-4.5	0.5	0.0	0.3	0.0	0.1
IE	1.4	0.1	0.7	-0.1	0.4	3.7	-0.7	0.2	0.1	0.3
EL	:	:	:	:	:	:	:	:	:	:
ES	-1.3	1.0	1.4	0.2	4.9	7.1	1.1	0.7	0.6	0.8
FR	-0.8	0.9	0.8	0.2	4.5	4.1	1.1	0.5	0.5	0.7
HR	0.8	0.5	0.9	0.1	2.4	4.4	0.4	0.5	0.4	0.6
IT	1.2	1.3	0.6	-0.1	6.6	2.9	-0.3	0.8	1.0	1.1
CY	0.8	0.6	0.7	-0.2	2.9	3.5	-0.9	0.5	0.5	0.7
LV	-0.6	-0.4	0.5	0.0	-2.1	2.5	0.1	0.3	0.1	0.2
LT	-0.1	0.2	0.9	0.5	1.1	4.7	2.7	0.3	0.1	0.2
LU	0.8	-0.7	0.2	-0.1	-3.7	1.2	-0.3	0.3	0.0	0.1
HU	-0.3	0.2	0.1	-0.1	0.8	0.3	-0.3	0.5	0.5	0.5
MT	1.5	-0.2	-0.3	-0.2	-1.2	-1.5	-1.0	0.3	0.3	0.3
NL	0.9	-0.2	0.1	-0.2	-1.1	0.4	-1.1	0.4	0.3	0.4
AT	1.2	0.2	0.1	-0.2	0.8	0.4	-1.0	0.4	0.5	0.5
PL	-1.7	0.4	0.6	0.4	1.8	3.2	2.2	0.4	0.3	0.4
PT	1.5	1.2	1.1	-0.1	6.1	5.3	-0.3	0.6	0.6	0.9
RO	-1.7	0.1	1.0	0.5	0.7	4.9	2.3	0.4	0.2	0.3
SI	0.2	0.5	1.2	0.2	2.4	5.8	0.9	0.4	0.3	0.5
SK	0.7	-0.4	0.1	-0.3	-2.1	0.7	-1.3	0.4	0.3	0.4
FI	-0.4	0.6	1.0	0.4	2.8	5.2	2.1	0.4	0.3	0.4
SE	0.6	-0.6	-0.2	-0.2	-2.9	-1.0	-0.9	0.4	0.3	0.3
UK	0.1	0.7	1.0	0.2	3.3	5.0	0.8	0.4	0.3	0.5
EU	0.4	0.5	0.5	0.0	2.3	2.6	0.1	0.5	0.5	0.6
EA	0.6	0.5	0.5	0.0	2.7	2.3	0.0	0.5	0.6	0.7

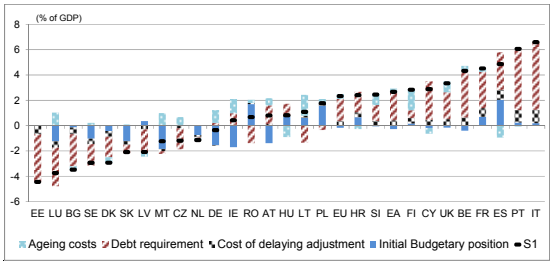
Source: Commission services

of delay) contribute to increasing the S1 indicator for both the EU and the EA aggregate.

Taking into account the gradual adjustment of the primary balance (the so-called "cost of delay" subcomponent), the required adjustment measured by the IBP turns positive in both the EU and the EA. In particular, the additional adjustment due to the debt requirement of 60% of GDP (DR) (positive only for those countries with the initial level of debt over 60% of GDP) accounts for the largest adjustment in both the EU and the EA by respectively 1.7 and 2.2 pps. of GDP, but for countries like IT and PT it explains around 5.0 percentage points of GDP of adjustment.

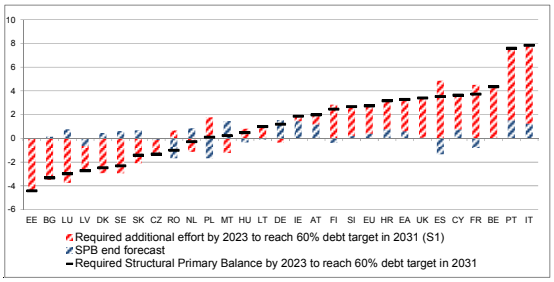
Finally, the CoA component accounts for 0.4 and 0.3 pps. of GDP of the S1 sustainability gap for the EU and EA, respectively; however, with large differences across countries ranging from -1.0% of GDP in Spain and Hungary to 1.6% of GDP in Finland and Lithuania.

Graph 3.4: **The S1 sustainability indicator and its components**



Source: Commission services.

Graph 3.5: **The required structural primary balance by 2023 to reach 60% debt target in 2031 (% of GDP)**



Source: Commission services

3.2.3. The required structural primary balance

It is informative to see the overall size of the structural primary balance required to close the medium-term sustainability gap, that is, to reach a debt target of 60% of GDP by 2031. This is given by the required structural primary balance (RSPB), which represents the structural primary balance that would be necessary at the beginning of the long-term projection to ensure medium-term sustainability. It is calculated by summing up the structural primary balance (at the end of forecast period) with the required adjustment estimated by S1.

The Graph 3.5 shows significant variation in terms of the RSPB across Member States. While for the EU it represents an average of 2.7% of GDP, and 3.3% for the EA, the figures range from under -4.4% of GDP for Estonia to over 3% of GDP for the United Kingdom, France, Spain, Cyprus, Croatia, Belgium, Portugal and Italy. Among them, two countries will require a primary balance greater than 7% of GDP (PT and IT).

While for a few Member States the RSPB is enough large to see it as political and social unsustainable, empirical evidence also suggests that the required adjustments emerging from S1 results (as reported in Table 3.5 and Graph 3.5) would not be unprecedented. Indeed, during the past three decades, there have been 14 episodes in advanced economies and 26 in emerging economies when individual countries adjusted their structural primary balance by more than 7 percentage points of GDP ([40]).

3.2.4. Results on the long-term sustainability indicator

The long-term sustainability indicator S2 shows the upfront adjustment to the current structural primary balance (kept then constant at the adjusted value forever) required to stabilise the debt-to-GDP ratio over the infinite horizon, including paying for any additional expenditure arising from an ageing population. It should be borne in mind that the S2 indicator does not put any restrictions on the level at which debt stabilises; rather, it imposes that debt does not grow faster than output. However, in the short- to medium-term, the current high level of debt is a source of risk in times of changing economic and fiscal circumstances, and this aspect is duly reflected in the other fiscal sustainability indicators presented in this report.

Overall, the S2 long-term sustainability gap is, on average, 1.8% of GDP in the EU and 1.5% of GDP in the EA, which highlights low risk for long-term sustainability.

([40]) IMF (2010). The list includes the following EU 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).

Box 3.2: Assessing aggregated fiscal sustainability risks based on the S1 indicator

In this report, in line with the *Fiscal Sustainability Report* 2015, fiscal sustainability is assessed at the country level. However, some results, such as the sustainability indicators S1 and S2 and the projected gross public debt ratio, are also presented at the EU / EA level, whereby the country-specific levels of sustainability indicators and gross public debt ratio are 'simply' aggregated based on the respective country economic weight (GDP).([1]) Such values are provided as a reference, for indicative purposes (enabling for example to locate one specific country as respect to a European 'average'), but do not necessarily constitute *per se* an appropriate estimation of the EU / EA overall fiscal sustainability challenges.

Aggregating fiscal sustainability requirements in order to appropriately assess overall fiscal sustainability challenges in the EU / EA can be done in different ways depending on the economic and institutional context considered. As pointed in the DG ECFIN's Report on *Public Finances in EMU* 2016, which explored this issue (in the specific context of exploring the needs in terms of macroeconomic stabilisation and fiscal sustainability in the euro area), different approaches can be distinguished:

- A strictly national public debt approach, as foreseen by the Treaties. The national responsibility of fiscal policy and the 'no bail-out' rule enshrined in the Treaties imply that fiscal sustainability needs could only be apprehended on a country by country basis. In this case, aggregating fiscal sustainability needs would not be warranted.

- A spillover approach, whereby negative contagion effects between Member States are considered. As was observed during the 2010-12 euro area sovereign debt crisis, considerable tensions, observed in countries found to stand at high risks, spread more largely to countries with initially limited own fiscal sustainability needs. In this case, the presence of such contagion effects implies that discussing fiscal sustainability risks at the aggregate level is relevant.

In this last case, in order to reflect negative contagion effects, more weight should be given to Member States with higher fiscal risks. This could be done by using debt ratios (rather than GDP weights), or more radically by only aggregating the fiscal sustainability gaps of countries with medium to high risks, disregarding the fiscal leeway potentially available in other countries (i.e. for countries with a negative S1 value).

- Additionally, we consider in this report a market-based approach, whereby current government bond yield spreads (with respect to German government bond yields) are used to weight the country-specific sustainability gaps, as a way to capture current financial markets appreciation of aggregated EU / EA sovereign risk.

Finally, the reference value of the traditional aggregated EU / EA S1, by considering both positive and negative values of country-specific fiscal gaps and using GDP weights, can be interpreted as a situation where an EMU perspective prevails, in a context where new mechanisms and instruments have been introduced (European Stability Mechanism, Banking Union, enhanced fiscal and macroeconomic surveillance). ([2])

Giving more weight to countries with a high level of debt (in nominal terms), or only considering countries at medium / high medium-term fiscal sustainability risks (i.e. a positive S1 value) would logically increase the level of the aggregated EU / EA S1, compared to the current definition (see Graph 1). In these cases, the EU (EA) fiscal sustainability risks would be clearly considered *high* (as opposed to *medium* in the EU based on the current definition of aggregated S1, and close to the critical threshold in the EA). Interestingly, using weights based on the current level of government bond yield spreads ([3]) would reduce the aggregated EU / EA S1, due to the fact that several relatively large economies with relatively high S1 values

([1]) The use of GDP-weights respects the identity equation, as all variables considered (sustainability indicators and gross public debt) are expressed as a share of GDP.

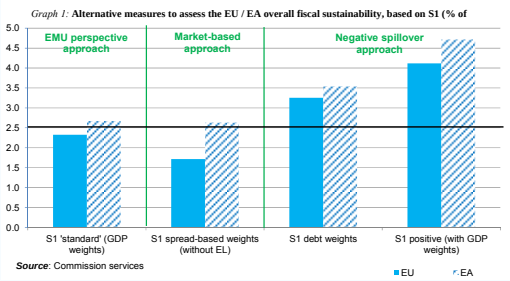
([2]) A full debt mutualisation case, not considered here, would assume that public debt of all countries would be pooled together and subject to the same financing conditions.

([3]) Yield spreads as measured in 2015 on the basis of ECB data. EL has been taken out of the aggregate for this calculation given its still limited access to financial markets.

(Continued on the next page)

Box (continued)

benefit from limited spreads (e.g. BE and FR), illustrating the fact that the perception of sovereign risks by financial markets has returned towards the one prevailing before the euro area sovereign debt crisis (with limited spreads except for a limited number of countries).

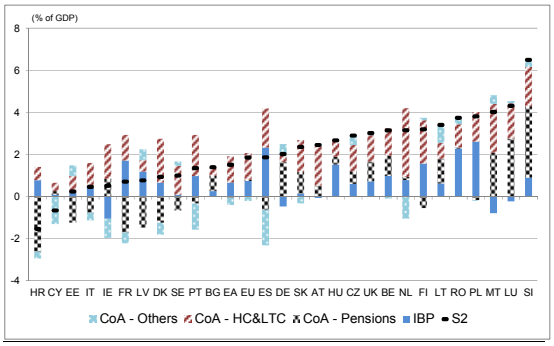


Looking at individual countries, Graph 3.6 shows that only one country (Slovenia) is classified as high risk with substantial long-term sustainability challenges ([41]). Other 13 countries (BE, CZ, LT, LU, MT, NL, AT, PL, RO, SK, FI, HU and the UK) also faces sustainability challenges in the long term, though of a lower magnitude (medium risk).

When assessing the long-term sustainability challenges, it is also important to look at the nature and source of the challenge the countries are facing, in particular whether this is related to the initial budgetary position (IBP)([42]) or to the long-term ageing cost (CoA) ([43]).

Besides the distinction between the two-subcomponents (IBP and CoA), Graph 3.6 makes it possible to further visualize, by country, the disaggregation of the S2 ageing cost component into pensions, healthcare and long-term care and other determinants (education expenditure and unemployment benefits, see also Table 3.6). It emerges that the health and long-term components always contribute to raise the sustainability gap for all member states, going from 0.3% of GDP for DE to 3.3% of GDP for the NL. On the other hand, the pension expenditure contributes to reduce the sustainability gap in nine countries (DK, EE, ES FR, HR, LV, ES, IT and SE) by more than 0.5 pps. of GDP.

Graph 3.6: **The S2 sustainability indicator and its components**



Source: Commission services.

Overall, the total cost of ageing is expected to be very significant, greater than 1.5% of GDP, in Belgium, the Czech Republic, Germany, Ireland,

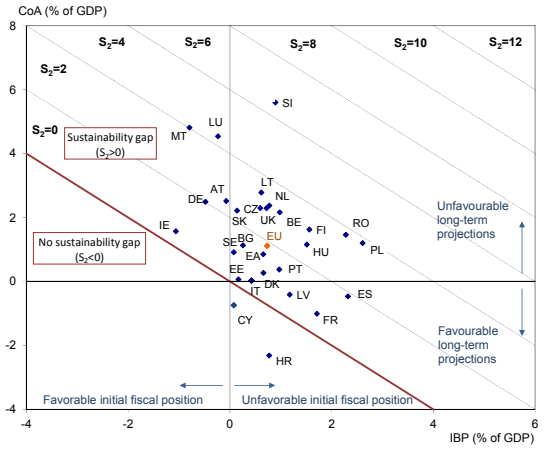
([41]) For the long-term sustainability indicator S2, the following thresholds are used to assess the scale of the sustainability challenge: 1) if S2 is lower than 2, the country is assigned low risk; 2) if S2 is between 2 and 6, the country is assigned medium risk; 3) if S2 is greater than 6, the country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

([42]) More specifically, this component of S2 is given by the gap between the current or initial structural primary balance and the debt-stabilising primary balance to ensure sustainability.

([43]) The long-term budgetary projections (incorporated in the calculation of the sustainability indicators presented here) have been published in European Commission (2015a).

Lithuania, Luxembourg, Malta, the Netherland, Austria, Slovenia, Slovakia, Finland and the UK.

Graph 3.7: **The EU countries map across the S2 components**



Source: Commission services.

Given S2, is thus possible to allocate EU countries along the two components (costs of ageing and IBP) as in the Graph 3.7. The further along the horizontal axis countries are, the larger the required adjustment to stabilise the debt ratios given the initial budgetary position (IBP), before considering the long-term costs of ageing. If, however, the debt ratio is above the 60% of GDP threshold, the EU fiscal rules stipulate that it should be reduced below it, while this is not a constraint in the S2 indicator. The higher up the vertical axis, the greater the required adjustment due to the long-term change in age-related costs (CoA).

The sustainability gap (S2) is the sum of the vertical and horizontal distances from each dot to the solid diagonal line. Countries that are north-east of the solid diagonal line have a sustainability gap; the further away from that line, the greater their gap.

Countries that lie in the area south-west of the solid line (no-one in the chart) don't have a sustainability gap in the long-term, the ageing population notwithstanding. The dotted diagonals are 'isogap' lines: two countries located on the same line have the same sustainability gap (S2) over an infinite horizon, though they may have different initial budgetary positions and different ageing-related costs.

Most countries are in the top right quadrant in Graph 3.7, showing that their sustainability gap is due to the compounding effects of an unfavourable initial fiscal position and an increase in the budgetary cost of ageing. AT, IE, MT and LU are located in the top left quadrant due to a favourable initial budgetary position in 2018, accompanied by an unfavourable impact of projected age-related costs (to different degrees for the five countries). Indeed, for some of these countries (AT, MT and LU), the favourable initial budgetary position is not enough to ensure long-term sustainability, given the expected long-term increase in expenditure due to the ageing population (as usual, under the assumption of no fiscal policy change). The other countries (CY, LV, FR, ES and HR) lie in the bottom right quadrant with a small negative sustainability gap, due to a favourable developments in long-term age-related spending that compensate for an otherwise unfavourable initial budgetary position (as usual, under the assumption of no fiscal policy change).

Finally, Table 3.6 summarises the relevant information on the S2 components and shows an alternative forward-looking fiscal measure of sustainability ([44]), the Intertemporal Net Worth (INW), defined as the total of the discounted sum of future primary balances under current policies and current net worth (the difference between assets and liabilities, i.e. the negative of net debt) ([45]).

As can be seen from the data, the INW of most EU countries (except Cyprus, Croatia and Estonia) is negative and deeply negative for Ireland, Luxemburg and Slovenia, pointing to the need for further fiscal consolidation and reforms of welfare systems to keep age-related expenditures (pensions and health care) under control, in order to bring future liabilities in line with the capacity to generate assets.

([44]) The INW indicator is calculated by using its direct correspondence with the S2 indicator. Data on assets are from AMECO - Financial assets: general government (see Annex A2 for the mathematical derivation of the INW from the S2 indicator).
([45]) See European Commission (2012).

Table 3.6: **Results of the S2 indicator and the Intertemporal Net Worth (INW)**

	S2			CoA				INW
	S2	IBP	CoA	Pensions	HC	LTC	Others	
BE	3.1	1.0	2.2	1.0	0.2	1.1	-0.1	-371.9
BG	1.4	0.3	1.1	0.7	0.3	0.1	0.0	-77.2
CZ	2.9	0.6	2.3	0.6	0.8	0.5	0.4	-267.9
DK	0.9	0.7	0.3	-1.3	0.5	1.5	-0.6	-44.9
DE	2.0	-0.5	2.5	1.6	0.3	0.0	0.6	-96.5
EE	0.2	0.2	0.1	-1.2	0.4	0.4	0.5	33.2
IE	0.5	-1.1	1.6	0.8	1.0	0.7	-0.9	-626.1
ES	1.9	2.3	-0.5	-0.6	0.8	1.1	-1.7	-213.6
FR	0.7	1.7	-1.0	-1.7	0.6	0.6	-0.5	-34.5
HR	-1.5	0.8	-2.3	-2.6	0.6	0.0	-0.3	149.4
IT	0.5	0.4	0.0	-0.8	0.5	0.6	-0.4	-11.2
CY	-0.7	0.1	-0.7	0.2	0.2	0.2	-1.3	141.3
LV	0.8	1.2	-0.4	-1.5	0.4	0.1	0.5	-52.6
LT	3.4	0.6	2.8	1.2	0.1	0.7	0.9	-236.6
LU	4.3	-0.2	4.5	2.8	0.4	1.2	0.1	-763.2
HU	2.7	1.5	1.2	0.4	0.5	0.3	0.0	-154.7
MT	4.0	-0.8	4.8	2.1	1.4	0.9	0.4	-355.8
NL	3.1	0.8	2.4	0.1	0.6	2.6	-1.1	-233.5
AT	2.4	-0.1	2.5	0.5	0.9	0.9	0.1	-158.5
PL	3.8	2.6	1.2	-0.2	0.8	0.6	0.0	-218.5
PT	1.3	1.0	0.4	-0.3	1.7	0.2	-1.2	-34.4
RO	3.7	2.3	1.5	0.1	0.6	0.5	0.3	-255.7
SI	6.5	0.9	5.6	3.4	0.9	1.0	0.3	-488.7
SK	2.4	0.1	2.2	1.0	1.3	0.2	-0.3	-143.1
FI	3.2	1.6	1.6	-0.5	0.5	1.6	0.1	-176.7
SE	1.0	0.1	0.9	-0.7	0.3	1.1	0.2	-75.7
UK	3.0	0.7	2.3	0.9	1.0	0.3	0.1	-351.7
EU	1.8	0.7	1.1	0.1	0.6	0.6	-0.2	-166.7
EA	1.5	0.7	0.8	-0.1	0.6	0.7	-0.3	-126.2

Source: Commission services.

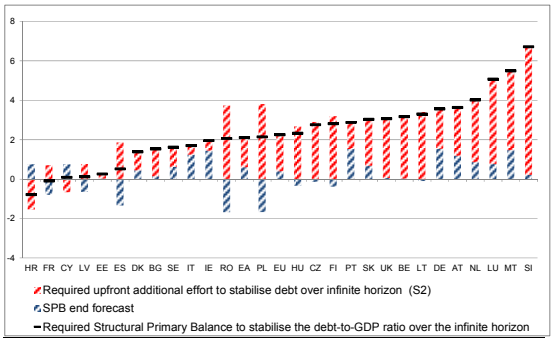
3.2.5. The required structural primary balance

It is informative to see not only the fiscal gap reflected in the S2 indicator, but also the overall size of the required structural primary balance (RSPB) to close the sustainability gaps.

The RSPB represents the structural primary balance that would be necessary at the beginning of the long-term projections to ensure long-term sustainability in the light of these liabilities, once all other spending has been covered and is calculated by summing the structural primary balance at the end of forecasts with the additional effort measured by S2.

Likewise the S2 results, Graph 3.8 shows that the RSPB varies widely across Member States. The figures range from -0.8% of GDP for Croatia to over 5.0% of GDP for Malta, Luxemburg and Slovenia.

Graph 3.8: **The required structural primary balance to stabilise the debt-to-GDP ratio over the infinite horizon (% of GDP)**



Source: Commission services

3.3. SENSITIVITY ANALYSIS OF SUSTAINABILITY INDICATORS

Sustainability indicators are obviously sensitive to a number of assumptions. Indeed, fiscal projections over a long period of time need assumptions that may have a strong impact on the results, and are surrounded by high uncertainty. This section analyses how sensitive are the results on the S1 and S2 sustainability indicators to three different scenarios, such as ([46]):

1) the baseline no-fiscal policy change scenario (which includes ageing cost) relying on Commission Autumn Forecast and the EPC agreed long-run convergence assumptions of underlying macroeconomic variables.

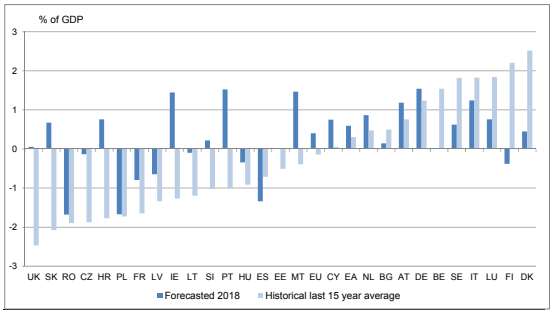
2) The "AWG risk scenario", which captures the impact of additional non-demographic cost drivers, which may stimulate expenditure growth in healthcare and long-term care in excess of what can be expected due to purely demographic factors. The impact of non-demographic drivers on healthcare and long term care is related, inter alia, to technological change (e.g. development of new drugs and treatments) and institutional factors (e.g. widening of healthcare coverage).

3) The "historical SPB scenario", in which gradual convergence (over 4 years) to the last 15-year historical average is assumed for the SPB beyond forecasts, while all other macroeconomic assumptions are kept as in the baseline scenario.

([46]) See Box 2.1 of this report for more details.

As shown by Graph 3.9, the structural primary balance at the end of the forecast period (2018) is significantly higher than the 15-year historical average for a few countries (SK, HR, IE, PT and the UK), highlighting that currently high primary balance might lead to fiscal fatigue beyond the medium-term and so fiscal sustainability risks might be higher than those captured by the fiscal indicators. By contrast, a particularly low current fiscal stance (compared to the historical SPB scenario) might not be the most likely outcome beyond the medium-term horizon, suggesting that the fiscal sustainability risk could be overestimated for a few countries such as for FI. This uncertainty is also expressed in Graph 3.10 and 3.11, by measuring S1 and S2 in correspondence of the "historical SPB scenario" and the "AWG risk scenario" ([47]).

Graph 3.9: **The 15-year historical SPB against the forecasted value in 2018**



Source: Commission services

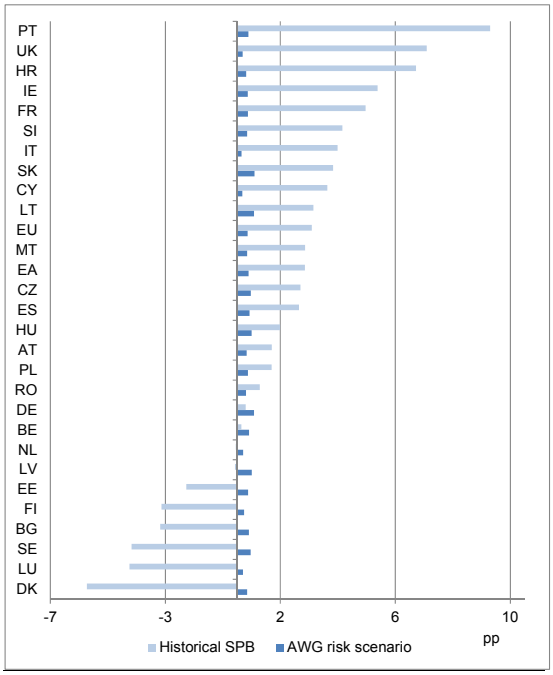
Graph 3.10 shows deviations in percentage points of the S1 indicators calculated over the risk scenarios in comparison with the baseline.

In both the EU and the EA, the "AWG risk scenario" involves a small deviation in the cumulated adjustment required by 2023, equal to 0.4 pps. over the baseline scenario. Across countries, the gap between this AWG risk scenario and the baseline doesn't differ much around the averages.

([47]) When interpreting results on fiscal indicators calculated over the historical SPB scenario, two different effects must be taken into account: one is clearly related to the different pattern between the historical SPB and its baseline; while the other one derives from the historical scenario's specific design (based on 4-year convergence period).

Using the "historical SPB scenario", the S1 deviations from the baseline would be larger than in the "AWG risk scenario" for both the EA and the EU as a whole, respectively 2.4 and 2.6 pps. of GDP. Across countries, deviations from the baseline range widely, from -5.2 pps. of GDP in Denmark to 8.8 pps. of GDP in Portugal. Eight countries show a negative deviation from the baseline (DK, SE, LU, BG, FI, EE and to a lesser extent LV and NL), meaning that the consolidation history of these countries would envisage a better fiscal sustainability compared to the baseline.

Graph 3.10: **Difference from the baseline scenario (S1)**



Source: Commission services

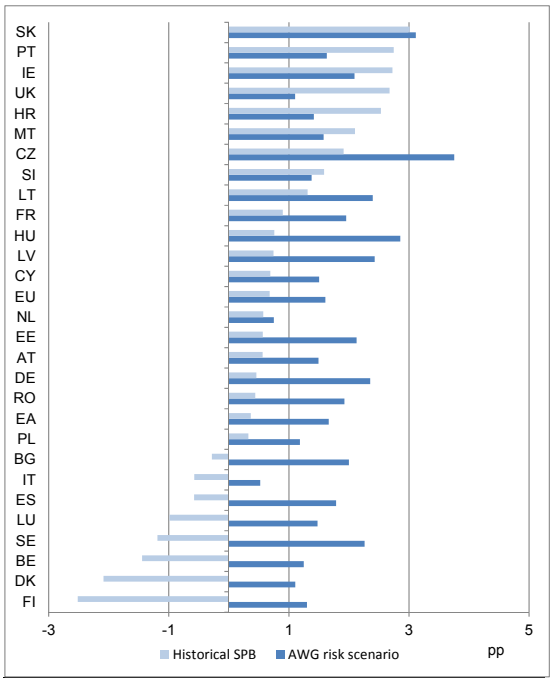
Likewise, Graph 3.11 shows deviations of the S2 indicator calculated on the alternative scenarios compared to the baseline. In both the EU and the EA, the "AWG risk scenario" involves a permanent adjustment significantly higher than the baseline scenario (1.6 and 1.7 pps. of GDP respectively). Across countries, the gap between the AWG risk and the reference scenario varies from 0.5 pps. in Italy to 3.8 pps. in Czech Republic.

Instead, the "historical SPB scenario" would produce a wider range of deviations from the baseline S2 values, though the average would be smaller than in the "AWG risk scenario" for both

the EA and the EU as a whole (respectively 0.4 pps. and 0.7 pps. of GDP).

In particular, the countries badly affected by the "historical SPB scenario" are PT, IE, MT, SK, HR and the UK, which would register a positive deviation of more than 2.0 percentage points of GDP from the baseline required adjustment.

Graph 3.11: **Difference from the baseline scenario (S2)**



Source: Commission services

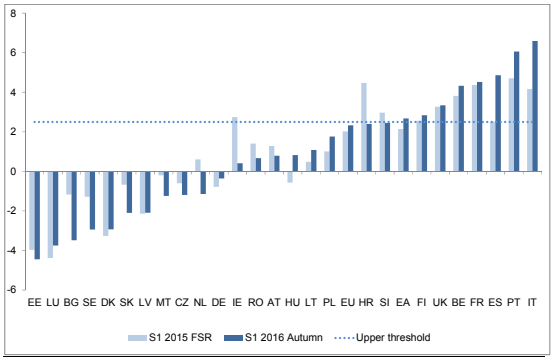
3.4. COMPARISON WITH PREVIOUS RESULTS

This section compares S1 and S2 results with those in the *Fiscal Sustainability Report 2015* (FSR 2015 henceforth) excluding those countries under programme in the FSR 2015.

In Graph 3.12 the medium-term sustainability risk (S1) appears only slightly increasing in the EU average, as most of the EU countries have maintained their risk category (though IT, PT and ES have worsened in term of the required adjustment by more than 1.0 pps. of GDP). Hungary has moved upward from low to medium risk category; whereas Ireland, Slovenia and Croatia have moved downward from high to medium sustainability risk and the Netherlands from medium to low risk category.

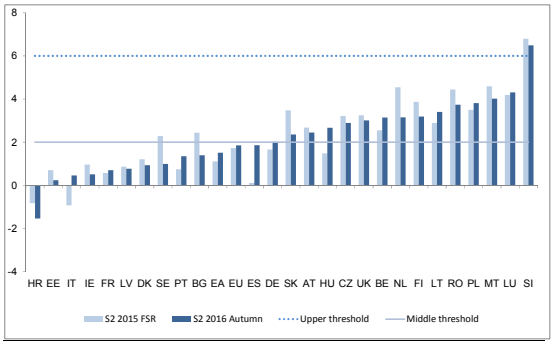
As a result, the set of EU countries exceeding the high risk threshold (that is, 2.5% of GDP) currently includes Belgium, Finland, Spain, France, Italy, Portugal and the UK (among those countries considered in both vintages).

Graph 3.12: **S1 in comparison with the FSR 2015 results (all as % of GDP)**



Source: Commission services

Graph 3.13: **S2 in comparison with the FSR 2015 results (all as % of GDP)**

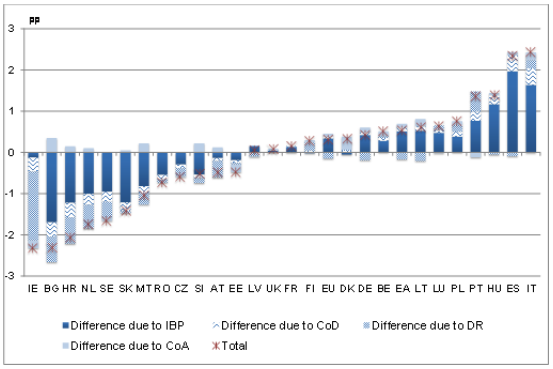


Source: Commission services

Concerning the S2 indicator, the Graph 3.13 shows that the long term sustainability risk is stable in most of the countries compared to the FSR 2015. The exception are, on the positive side, Sweden and Bulgaria which have moved from medium to low risk category; while, on the other hand, Hungary has reached the medium risk category from the lower one. Likewise the FSR 2015 (relatively to the countries evaluated in both vintages), only one Member State exceeds the upper threshold (Slovenia) in this report.

Having maintained constant the cost of ageing between this report and the previous one ([48]), all the variation in the fiscal indicators are mainly due to the changes in the initial budgetary position and/or the debt requirement (in relation to S1) ([49]).

Graph 3.14: **Components of S1 changes (DSM 2016, based on EC Autumn 2016 forecasts vs FSR 2015, based on EC Autumn 2015 forecasts)**



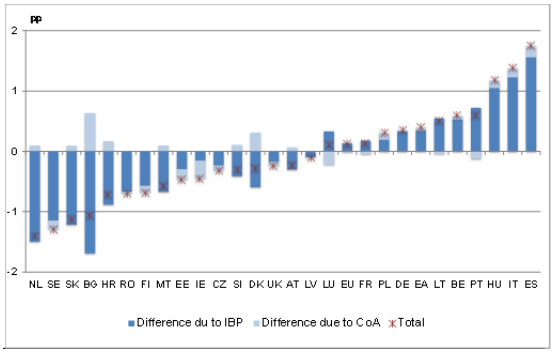
Source: Commission services

There is a large heterogeneity in the contributions to the changes in S1. The highest positive variations (which mean an increasing required adjustment in the medium term) are mainly due to a weaker budgetary position in terms of lower structural primary balance, in this new round of forecasts, and, to a lesser extent, to higher debt requirement.

When an infinite horizon is taken into account (S2), the required adjustment due to the IBP components has become tighter in eleven countries, and in Spain, Italy and Hungary the change is larger than 1.0 percentage point of GDP, compared to the FSR 2015.

More extensively, Graph 3.16 shows a cross-country comparison by risk classification based on the S1 indicator along various waves of Commission forecasts ([50]).

Graph 3.15: **Components of S2 changes (DSM 2016, based on EC Autumn 2016 forecasts vs FSR 2015, based on EC Autumn 2015 forecasts)**



Source: Commission services

For the EU aggregate, the S1 indicator has broadly stabilised at around 2.0 pps. of GDP since 2012.

This highlights a certain stickiness of the indicator over more recent years in the EU as a whole, after the impact of a significant consolidation effort and structural reforms undertaken in the aftermath of the economic and financial crisis.

The number of high-risk countries has widened from five to nine between 2012 and 2014, and eight countries (ES, FI, SI, BE, FR, IT, PT and the UK) are classified as high risk in the medium term in this edition of the Debt Sustainability Monitor Report.

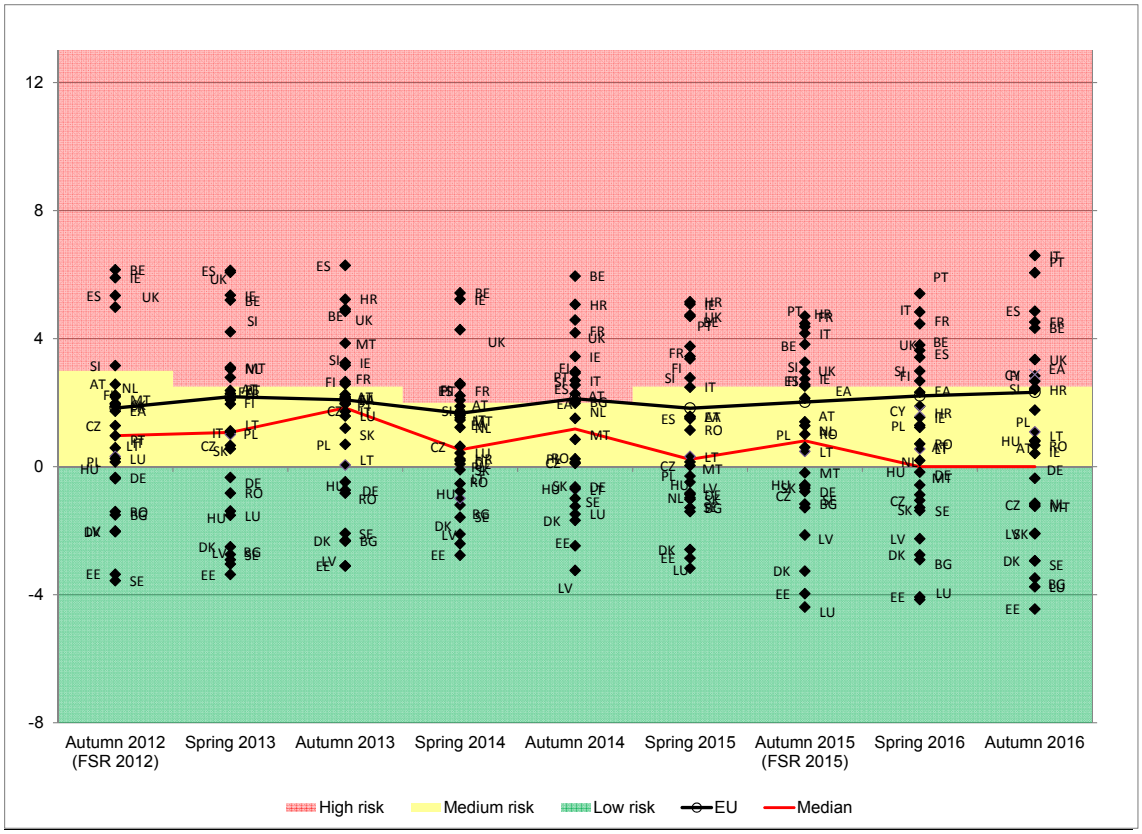
Finally, Graph 3.17 allows a comparison between values of the S2 indicator over Commission forecasts vintages (up to Autumn 2016). For the EU as a whole, the S2 sustainability gap has kept decreasing moving from medium- to the low-risk area. This reflects the determined fiscal consolidation since the onset of the crisis, as well as the general improvement in pension projections as from the 2015 Ageing Report. In terms of country-by-country risk classification, Graph 3.17 shows that the majority of the European countries have joined the low- and medium-risk area (the only exception to this being Slovenia).

([48]) Nevertheless, small changes are possible because of the different projection horizon.

([49]) The positive changes mean that the fiscal indicators and/or their components have increased between the 2015 FSR and this Report.

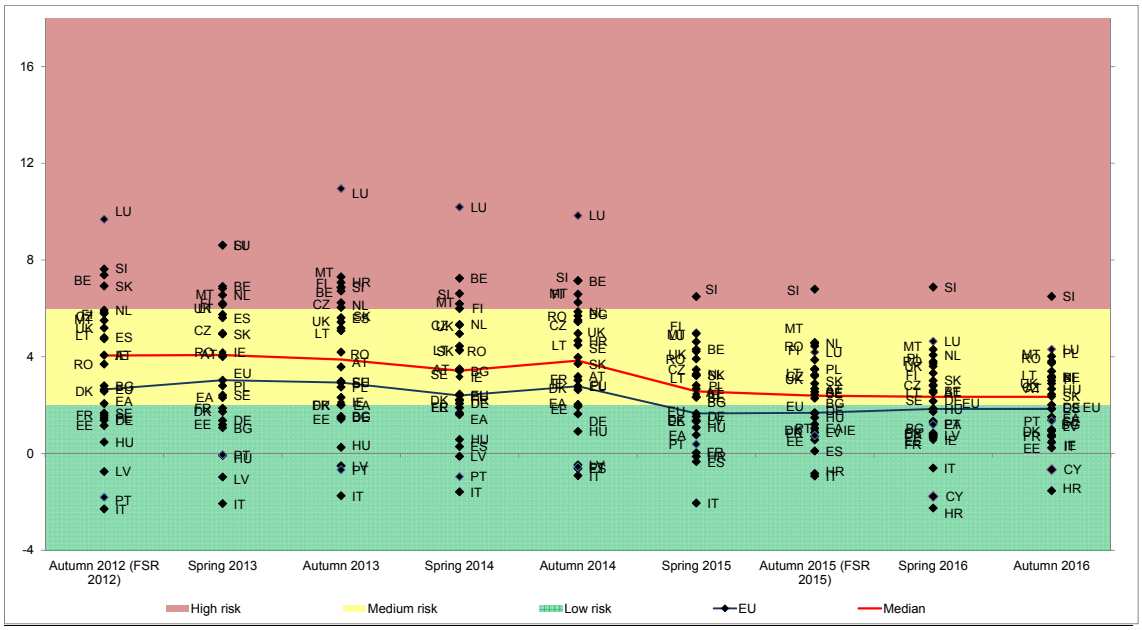
([50]) The delimitation between the medium and high risk categories has been set to reflect the 0.5 pps. of GDP benchmark fiscal consolidation effort per year (over 5 years) since the Spring 2015 forecasts; while previously the adjustment period was assumed to end by 2020. So, in the FSR 2012 the threshold was set at 3.0 pps. of GDP to reflect a fiscal adjustment period of 6 years and later it was further reduced to 2.5 and 2.0 pps. of GDP (Spring and Autumn 2014). In addition, in order to take constant the 15 years' adjustment period toward the 60% debt ratio, the target year has been postponed to 2031 starting from this Report.

Graph 3.16: **The S1 sustainability indicator throughout Commission services forecast vintages (% of GDP)**



Source: Commission services

Graph 3.17: **The S2 sustainability indicator throughout Commission services forecast vintages (% of GDP)**



Source: Commission services

4. ADDITIONAL RISKS AND MITIGATING FACTORS FOR DEBT SUSTAINABILITY

Sensitivity analyses for various sustainability indicators have been presented in chapters 2 and 3 of this report.

A number of additional factors which do not enter the calculation of sustainability indicators, but which provide complementary information, are discussed in this chapter. Factors such as government contingent liabilities, the structure of public debt and certain government assets are relevant to the assessment of a country's overall sustainability of public finances because they address two questions: *i)* liquidity-related: within the actual explicit level of government liabilities, which share has short remaining maturity, is volatile or entails currency risks? *ii)* solvency-related: is the actual explicit level of government liabilities accurate? Which is the risk that government liabilities become larger, how large can they become if risk materialises and which back-stops can there be identified on the assets side to mitigate the risks?

4.1. RISKS RELATED TO THE STRUCTURE OF PUBLIC DEBT FINANCING

The analysis of the structure of public debt financing (in terms of maturity, creditor base and currency of denomination) can inform further about risks associated with public debt. With this aim, three variables of debt structure form part of DG ECFIN's DSA ([51]): *i)* the share of short-term debt in total public debt (at original maturity); *ii)* the share of debt held by non-residents in total public debt, and *iii)* the share of debt denominated in a foreign currency in total public debt.

Large increases in the share of short-term public debt (i.e. debt with a maturity of less than one year) provide an indication of higher rollover risk at any given debt level in terms of a government's reliance on temporary market financing. Conversely, a large share of public debt held by non-residents may capture vulnerabilities in terms of volatility of capital holdings as shown by the literature, though it can also signal strong confidence in a well-performing economy. Finally, a large share of debt in a foreign currency provides an indication of risks related to exchange rate fluctuations. Each of the three variables is analysed using critical thresholds of fiscal risk calculated using the signals' approach (the approach for threshold determination used in S0 computation) ([52]). Values taken by the variables are examined in relation to the calculated critical thresholds to establish whether fiscal risks related to the structure of public debt financing seem to emerge under one dimension or another.

The results of the analysis are presented in the form of a heat map reporting values of the three variables as follows: *i)* in red, if they are at or above the critical threshold of fiscal risk from the signals' approach; *ii)* in yellow, if they are below the threshold, as obtained from the signals' approach, but at or above a benchmark of around 80% of the same threshold, highlighting an intermediate level of fiscal risk; *iii)* in green otherwise. Heat maps highlighting risks related to public debt structure are reported for each Member State in the statistical country fiches in Annex A10.

An overview of results across countries is reported in Table 4.1.

Firstly, fiscal risks related to the debt maturity structure are flagged for most countries except Bulgaria, Estonia, Cyprus, Latvia, Lithuania, Austria, Poland and Slovakia ([53]). Liquidity risks associated to short-term debt could be qualified by the possibility of roll-over to longer maturities and, in the case of external short term debt, by the level of a country's international reserves ([54]).

([51]) See European Commission (2014c), "Assessing Public Debt Sustainability in EU Member States: A Guide", *European Economy Occasional Paper* No. 200.

([52]) For details on the signals approach see Chapter 1 of the European Commission (2016a), "Fiscal Sustainability Report 2015", *European Economy* 18/2016. This methodology shows that, based on historical events, the three variables appear to be very good leading indicators of fiscal stress. See Annex A1 and Chapter 3 for more details.

([53]) Compared to the Fiscal Sustainability Report 2015 which considered the y-o-y change in short term public debt to total debt ratio, this report looks at the level of the same variable, which tends to present a more acute picture.

([54]) These qualifiers are not considered in the DSM. The extent to which international reserves are greater or equal than the

Secondly, as it could be expected, the exposure to exchange rate risks appears critical (high fiscal risks) for some Central and Eastern European countries (CEEC) (Hungary, Poland, Romania, Croatia, Bulgaria and Latvia). However, hedging of foreign currency positions can mitigate such risks ([55]) and countries with a peg or a currency board are less exposed to fiscal risks from the share of public debt in foreign currency (the idiosyncrasies of different exchange rate regimes and the extent to which exchange rate shocks could impact the public debt to GDP ratios was detailed in Chapter 2 Box 2.2.).

Finally, potential fiscal risks related to the creditor base (share of debt held by non-residents) need to be carefully evaluated against country-specific contexts to assess whether vulnerabilities under this dimension effectively arise. Indeed, since a relatively high share of public debt held by non-residents may also signal, for instance, particularly strong confidence in a currently well-performing economy, risks related to the higher volatility of a non-resident creditor base need to be assessed against such background. Information on the share of public debt held by non-residents is thus qualified by each country's average spread on 10-year government bonds vs. Germany for the same year. To this end Table 4.1. shows foreign held debt heat map as blended shading between the volatility risks linked to non-resident tenure (left side of the shaded cells) and the sovereign risk given by spreads (right side of the shaded cells). It is thus evident that several countries with large shares of foreign held public debt are at this juncture associated with creditor confidence (Belgium, Germany, Ireland, France, Latvia, Lithuania, Austria, Slovenia, Slovakia and Finland), whereas for some CEEC (Poland, Romania) as well as for Cyprus and Portugal this large share of foreign held debt is more prone to volatility due to high sovereign risks and speculative investment.

Table 4.1: **Heat map of risks related to the structure of public debt financing, by country (2015)**

	Share of short-term public debt out of total debt (%):	Share of public debt in foreign currency out of total debt (%):	Share of public debt by non-residents out of total debt (%):
BE	7.6	0	53.8
BG	1.1	79.1	47.8
CZ	5.4	16.3	21.1
DK	9.7	4.2	34.5
DE	8.8	4.2	52.8
EE	0.0	0	66.5
IE	11.4	5.1	63.0
ES	9.0	0.3	44.1
FR	11.1	2.5	55.6
HR	6.7	78.6	40.8
IT	14.2	0.2	34.1
CY	2.1	4.7	58.6
LV	3.6	33	71.9
LT	5.2	28	72
LU	6.5	0	36.6
HU	15.3	35.3	48.4
MT	5.8	0	8.8
NL	9.8	1	47.4
AT	5.2	1.2	74.5
PL	0.8	35	58
PT	14.1	10.9	66.6
RO	6.5	53.8	49.7
SI	5.5	0.1	65.
SK	1.5	6.6	53.2
FI	9.5	1.6	76.1
SE	27.2	25.8	38.8
UK	14.8	0	n.a.

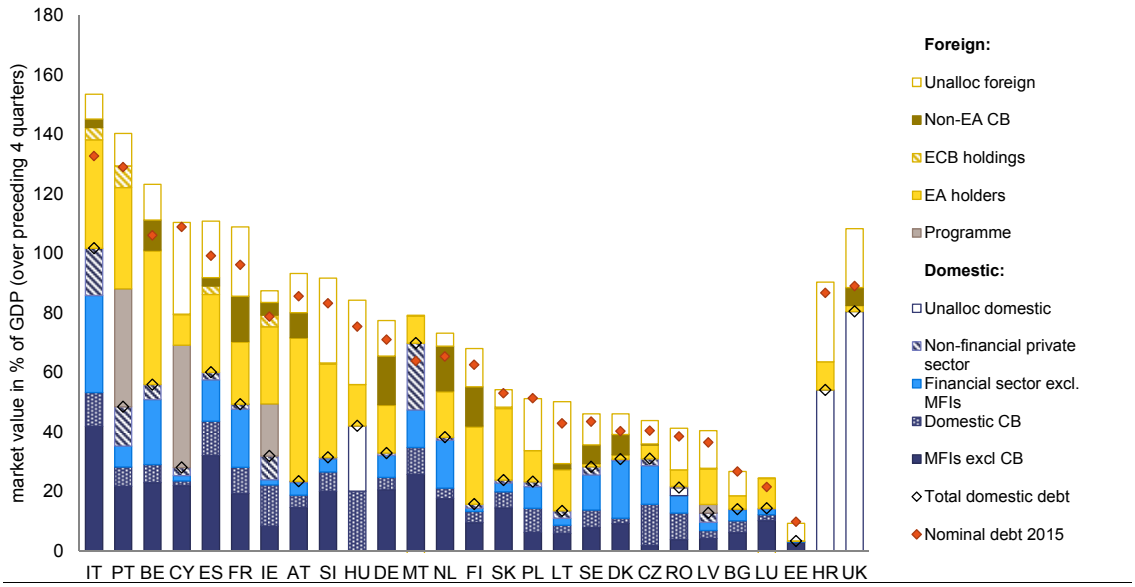
(1) One–off events in relation to short term debt may influence significantly its share in overall public debt – e.g. governments may choose to use short-term initial maturities due to interest rates.
(2) Critical upper and lower thresholds: (i) Share of short-term public debt: upper threshold 6.57pps.; lower threshold 5.3 pps.; (ii) Share of public debt in foreign currency: upper threshold 31.58%; lower threshold 25% (iii) Share of public debt by non-residents: upper threshold 49.01%; lower threshold 40%. Spread on 10-year government bonds vs. Germany – 2015 average - upper threshold 231; lower threshold 185. (see also Annex A5).
Source: Eurostat for the change in the share of short-term public debt over total debt; ECB and OECD for the share of public debt by non-residents and average spread on 10-year government bonds vs. Germany; Eurostat, ECB and OECD for the share of public debt in foreign currency.
Source:

Yet, certain international creditors pose, arguably, no fiscal risks, this being the case for lenders such as the IMF, ECB, ESM or other institutions associated to adjustment programmes. An overview of government debt breakdown by holder shows that countries potentially at risk according to the broader foreign creditor base indicated above (Portugal, Cyprus, Ireland) actually feature

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.

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

Graph 4.1: **Holders of government debt, 2015-Q4, market value**



(1) Debt refers to consolidated general government debt in market value, as reported in national accounts. Only data for total MFI is reported. The repartition between banks and central bank is an estimate based on annual nominal data. Non-EA central banks: refers to holdings by international organizations and non-EA central banks as reserve assets
Source: ECB, Eurostat, CSV, ECB financial accounts for domestic, Eurostat IIP and IMF CPIS for foreign holdings. Minor sources: Government finance statistics and ECB MFI balance sheets (for CB holdings), Commission and IMF (for programme liabilities

stable sources of lending (Graph 4.1). Moreover, the fact that significant shares of some governments' debt are in the hands of non-EA central banks (the case of government debt in Belgium, France, Ireland, Austria, Germany, the Netherlands, Finland – Table 4.1 confirms the signals on investor confidence previously highlighted (Graph 4.1.)

4.2. RISKS RELATED TO GOVERNMENTS' CONTINGENT LIABILITIES

Beyond actual explicit and direct liabilities that governments have incurred through borrowing – short- and long-term loans and bonds (i.e. debt) or in the form of currency and deposits, there are a number of other government commitments that are not included in gross debt (here Maastricht debt) and that could usefully gauge fiscal risks ([56]). These commitments represent implicit and contingent liabilities for which estimation methods are still developing and depending largely on available reporting by countries.

There are two main criteria to classify the sources of government obligations and thereby determine the scale of public sector commitments. According to the first criterion, the extent to which a source of obligations is legally binding, government liabilities can be either explicit i.e. legally stipulated (e.g. sovereign debt, various types of state guarantees or insurance schemes recognized by law or contract), or implicit i.e. liabilities not backed up by law, but underpinned by an expectation of materialising or a moral obligation of the government reflecting public and interest group pressures (e.g. future budgetary expenditure on public pensions, health care, social security schemes, potential absorption of losses generated by different events such as disasters, bailouts etc). From the point of view of the second criterion, certainty of materializing, liabilities can be either direct i.e. certain to be incurred by the government (such as debt, present and future budgetary spending commitments on pensions, health care) or contingent on the occurrence uncertain events outside the government's full control (e.g. execution of guarantees and insurance, costs from

([56]) For the definition of Maastricht debt and the instruments not included in it (SDR allocations, liabilities related to insurance, pensions and standardised guarantees and other accounts, payable) see section 5.3.

defaults, financial institutions failure, environmental disasters, wars etc) ([57]).

Implicit and contingent liabilities are therefore not mutually exclusive concepts, but different dimensions of categorization. Within this classification, contingent liabilities are uncertain government obligations that can be either explicit when backed up by legal provision or implicit when the scope is open.

Assessing the value of implicit and contingent liabilities and commitments requires an understanding of the probability that situations giving rise to such liabilities occur, as well as assumptions on the size of these liabilities under various possible scenarios, i.e. assessing the impact or extent of potential exposure. Data limitations may further affect the evaluation of both explicit and implicit contingent liabilities, making it difficult to estimate these categories fully or accurately. For these reasons, this report includes only selected information on explicit and implicit liabilities, focusing mainly on those stemming from the banking sector ([58]).

The contingent liability risk analysis module discussed in the remaining part of section 4.2 consists of three tools: *i)* statistics on explicit contingent liabilities, *ii)* statistics on risks or triggers for contingent liabilities, as well *iii)* estimations of implicit contingent liabilities based on banking stress scenarios (SYMBOL model).

4.2.1. Contingent liabilities, primarily related to the banking sector

In the first tool, statistics on explicit contingent liabilities are summarized in the corresponding table presented in the statistical Annex A9. The classes included here ([59]) refer to government guarantees fixed in the form of a law or a contract in favour of both the financial and non-financial sector such as debt guarantees or guarantees on assets held by (public and private) corporations or households and covering potential losses from the decrease in these assets' value ([60]); government guarantees are reported as overall value as well as disaggregated between one-off and standardised guarantees as percent of GDP ([61]). A subset of government guarantees, i.e. government contingent obligations *related to public support to financial institutions in the context of the financial crisis* is separately reported. This includes financial sector support deemed to be triggered by recent episodes of financial instability and potentially contributing to future government liabilities, contingent on future events ([62]), in percentage of GDP; these obligations are reported as total value and disaggregated into government guarantees on

([57]) For a full classification see Polackova Brixi and Mody (2002) and OECD (2015).

([58]) For more details on the evaluation of fiscal risks from contingent liabilities see European Commission (2014c) " and Chapter 2.3 of European Commission (2015c), "Report on Public Finances in EMU 2015", *European Economy, Institutional Paper* No. 014.

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([59]) Eurostat statistics on explicit contingent liabilities also cover outstanding liabilities of government controlled entities classified outside the general government, liabilities related to public-private partnerships PPP, and non-performing government loans, but these are not included here due to gaps, limited comparability across countries, and lack of recent data. For a more detailed presentation of explicit liabilities collected by Eurostat see the aforementioned Chapter 2.3 of European Commission (2015c).

([60]) Eurostat data on government guarantees excludes: 1. Government guarantees issued within the guarantee mechanism under the Framework Agreement of the European Financial Stability Facility (EFSF); 2. Derivative-type guarantees meeting the ESA 2010 definition of a financial derivative; 3. Deposit insurance guarantees and comparable schemes; 4. Government guarantees issued on events whose occurrence is very difficult to cover via commercial insurance (earthquakes, large scale flooding, etc.), as explained in Eurostat (2015b), "A new data collection for government finance statistics. First time release of data on contingent liabilities and non-performing loans in EU Member States", *Eurostat News Release* No. 26/2015, 10/02/2015.

([61]) A one-off guarantee is an individual guarantee for which guarantors are not able to reliably estimate the risk of calls. One-off guarantees are linked to debt instruments (e.g. loans, bonds). Standardised guarantees are guarantees issued in large numbers, usually for fairly small amounts, along identical lines. It is not possible to estimate precisely the default risk of each loan, but it is possible to estimate how many, out of a large number of such loans, will default. Examples are mortgage loan guarantees, student loan guarantees, etc. See Eurostat (2015b).

([62]) This data is collected regularly by Eurostat with the EDP notifications, in the supplementary tables for the financial crisis (data collection started with the October 2009 EDP notification). Data provided by Member States in these tables indicates the potential maximum impact that could (theoretically) arise for government finances from such contingent liabilities (see Eurostat (2015a), "Eurostat supplementary table for the financial crisis. Background note", October 2015). Similarly to the broader category of government guarantees, government deposit insurance guarantees are not included in the contingent liabilities related to financial sector support in the context of the financial crisis.

liabilities and assets of financial institutions; securities issued by the government under liquidity schemes and liabilities of special purpose entities, including those to which certain impaired assets of financial institutions were transferred.

The second tool comprises a set of six variables capturing short-term risks and indirectly signalling potential future government obligations in support of *the banking sector*: private sector credit flow in percentage of GDP ([63]), bank loan-to-deposit ratio, the share of banks' gross non-performing loans (NPLs) into total loans, both as level and change, which should be read in conjunction with the provision rate of these non-performing loans, and the nominal house price index as y-o-y change ([64]). These variables are presented in the form of a heat map whereby critical thresholds of fiscal risk have been calculated using the signals' approach ([65]), with the upper risk thresholds corresponding to the original signals' approach thresholds and lower threshold of risk set at about 80% of the original thresholds.

Both the table reproducing statistics on government's contingent liabilities and the heat map on government contingent liability risks from the banking sector are reported country by country in the statistical Annex A9. For the heat maps, an overview of results across countries is also provided in Table 4.2. The table shows that, as expected at this juncture, no risks emanate from the credit flow to the private sector for the large majority of EU countries with the exception of Luxembourg and, to a lesser extent, Ireland and Finland, while the same appears to hold generally for the change in the nominal house price index except moderately for Hungary and Sweden. The ratio of bank loans to deposits signals high risk levels for five countries (Denmark, Germany, Italy, Finland and Sweden) while in a few other countries it indicates moderate risks (Belgium, Estonia, Ireland, Spain, France, Luxembourg the Netherlands and Austria). The share of NPLs appears, on the contrary, to be problematic for almost all countries with few exceptions (Estonia, Luxembourg, Finland and Sweden), thus representing a major source of risks at the current juncture. Non-performing loans however have been reducing across the board, except in Portugal where the share has increased y-o-y. A further qualifier of bad assets, the NPL coverage ratio ([66]), shows that in most countries NPLs are provisioned for in proportions varying between 35% and 65% and that only in few cases NPLs are both high as percent of total loans and provisioned for at very low (less than 33%) levels (Denmark, Latvia, Lithuania, the UK)([67]).

Finally, the third tool - the SYMBOL model - simulates a severe banking stress scenario for which it estimates implicit contingent liabilities i.e. the residual burden on public finances after the legal safety net has been used. These estimates are presented in the following section.

([63]) This variable that is also an indicator in the scoreboard of the macroeconomic imbalance procedure (MIP) is used here in a narrower way, capturing risks of fiscal stress from vulnerabilities in the financial sector. The thresholds used here are based on a different methodology than in the MIP so the results would not coincide with the countries flagged in the Alert Mechanism Report (AMR) 2017.

([64]) The change in the nominal house price index has been found in the literature to be a good leading indicator of banking crises. Messages from this variable need nonetheless to be interpreted with caution. In the context of an early-warning system of possible fiscal stress only relatively high positive values of the variable flash red in the heat map, signalling risks of bubbles building up. Yet, in crisis context, negative values of the variable could also pose risks (due to the loss in value of properties repossessed by banks), aspect that needs to be considered in the data interpretation/risk assessment. The MIP scoreboard uses this indicator in deflated terms and with thresholds calculated based on a different methodology (statistical approach).

([65]) See Chapter 1 and Annex A1 for more details.

([66]) Defined as the ratio of specific allowances for loans to total gross non-performing loans and advances.

([67]) This section does not consider additional mitigating factors such as the amount of collateral set aside for non-performing loans (which would in turn require assumptions on the operation of insolvency procedures in each country and on the market recovery rates of collateral). Section 4.2.2 (SYMBOL model) takes these into account.

Table 4.2: **Heat map on governments' contingent liability risks from the banking sector, by country (2015)**

	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (pps.):	Share of non-performing loans (%):	Change in share of non-performing loans (pps. - 2015 vs. 2014):	NPL coverage ratio (%):	Change in nominal house price index (%):
BE	4.6	111.0	3.9	-0.3	42.7	1.6
BG	-0.3	75.1	13.7	-0.2	55.8	2.8
CZ	0.9	82.3	3.3	-1.1	59.9	4
DK	-3.3	358.4	3.6	-0.3	31.2	7
DE	3	139.7	3.0	-0.7	37.2	4.7
EE	3.3	107.7	1.9	-0.8	n.a.	6.9
IE	13.4 (2014)	123.1	18.5	-4.7	38.8	10.5
ES	-2.8	121.7	6.3	-1.8	46.1	3.6
FR	3.3 (2014)	112.3	4.0	-0.2	51.7	-1.5
HR	-1.3	80.6	12.5	-1.2	57.8	-2.9
IT	-1.7	136.1	16.8	-0.2	45.5	-2.6
CY	-8.4 (2014)	95.2	48.9	-1.9	38.0	1.2
LV	0.7	68.3	4.0	-1.7	30.9	-3.3
LT	-1.2 (2014)	96.3	5.1	-1.3	31.7	3.7
LU	24.2	130.7	1.2	-0.4	45.4	5.4
HU	-3.1	81.4	14.0	-5.4	60.0	11.7
MT	3	57.2	2.9	-0.3	35.9	3.5
NL	-1.6	130.1	2.8	-0.5	37.7	3.6
AT	2.1	107.6	6.9	-1.2	55.6	4.9
PL	3.6	96.7	6.8	-0.5	58.6	1.5
PT	-2.2	95.4	19.1	1.1	39.4	3.1
RO	0.2	69.3	14.6	-7.6	65.5	2.9
SI	-5.5	72.2	13.3	-3.3	62.7	0.8
SK	3.9 (2014)	99.1	5.2	-0.2	58.2	5.4
FI	9.5	157.7	1.6	0.0	30.9	0
SE	6.5	219.5	1.2	-0.1	29.5	13.1
UK	2.5	95.2	2.4	-0.9	30.4	5.7

(1) Critical upper and lower thresholds (see Annex A6): (i) Private sector credit flow (% GDP): upper threshold 11.7%; lower threshold 9.4%; (ii). Bank loans-to-deposits ratio: upper threshold 133.37%; lower threshold 107%; (iii). Share of non-performing loans: upper threshold 2.3%; lower threshold 1.8%; (iv). Share of non-performing loans (Change): upper threshold 0.3 pps.; lower threshold 0.2 pps.; (v) NPL coverage ratio: upper threshold 66; lower threshold 33; (vi) Nominal house price index (Y-o-Y Change): upper threshold 13.21; lower threshold 11;
(2) Variables' values in the heat map refer to 2015 unless differently specified.
Source: Eurostat for private sector credit flow; EBA for the bank loans-to-deposits ratio, the share of non-performing loans and the NPL coverage ratio; Eurostat, ECB, BIS and OECD for the change in nominal house price index.

4.2.2. Implicit contingent liabilities from severe stress scenarios on the banking sector (SYMBOL model)

The economic and financial crisis has highlighted the importance of complementing fiscal sustainability analyses with evaluations of governments' contingent liabilities stemming from the banking sector. As shown by recent experience, a government's decision to support a distressed banking sector can sizeably impact public finances.

Estimates of the potential impact of banking losses on public finances ([68]) are obtained using SYMBOL (Systemic Model of Banking Originated Losses), a model developed by the European Commission's Joint Research Centre (JRC) and the Directorate General Financial Stability, Financial Services and Capital Markets Union (DG FISMA). Similarly to previous exercises, the SYMBOL model ([69]) uses unconsolidated balance sheet data to assess the individual banks' losses in excess of bank capital and the recapitalization needed to enable banks to continue to operate in case of distress. As such, the model gauges the potential residual burden on government budget after the mitigating effect of safety net tools (capital, bail-in, resolution funds) available to absorb shocks has been taken into account. The impact of a banking crisis is separated into that on the government deficit and that on gross public debt alone. As a novelty with respect to previous editions, the model now also takes into account asset quality via potential increases the size of bank losses from non-performing loans.

The following assumptions are made: first, results are calibrated to match the gravity of the 2008-2012 crisis ([70]), i.e. a severe and systemic crisis event. Second, the impact of non-performing loans (NPLs) is considered only in the current situation and the effect is supposed to become negligible in the long-term. Third, a conservative assumption is used whereby all simulated bank excess losses and recapitalization needs that cannot be covered by

([68]) Second-round effects", which would be linked to the fiscal consequences of possible bank failures, are not taken into account. As explained in European Commission (2016a) Part 5.2.2 and in Part IV, Chapter 2 of European Commission (2011a), the relationship between the government's budget and banks' balance sheets is not uni-directional but rather circular and dynamic. Dynamic effects are, however, beyond the scope of the analysis presented here. It is not taken into account, for instance, that a downgrading of sovereign bonds reduces the value of bank assets and can lead to higher funding costs and further bank downgrading.

([69]) More details are reported in European Commission (2016a). SYMBOL has been used by the European Commission for the ex-ante quantitative impact assessment of several legislative proposals (see Marchesi et al, 2012; European Commission, 2011b; Cariboni et al, 2012; Cannas et al, 2013; Cariboni et al, 2015), for the cumulative evaluation of the entire financial regulation agenda (ERFRA, European Commission, 2014a), and for the estimation of contingent liabilities linked to public support to the EU banking sector (European Commission, 2011a, 2012 and 2016; Benczur et al, 2015).

([70]) Bank losses and recapitalization needs triggered by the last crisis are proxied by state aid data, in particular the total recapitalization and asset relief provided to banks over 2008-12 (around 615 bn euro), see European Commission's DG Competition State Aid Scoreboard, European Commission (2014b) and Benczur et al. (2015).

the safety net fall on public finances ([71]), Fourth, the safety net is considered able to fully rule out contagion effects; more specifically, in the main scenario systemic banks are recapitalised and non-systemic banks are liquidated ([72]). European Commission (2016a) provide further details on the SYMBOL model and the methodology used. Annex 6 presents the sample used to run simulations. The current exercise illustrates how the regulatory framework set up by the Commission in recent years would limit the impact of a systemic banking crisis on public finances. Three pieces of legislation are considered: the new Capital Requirement Regulation and Directive IV (CRDIV) ([73]), which improved the definitions of regulatory capital and risk-weighted assets, increased the level of regulatory capital by introducing the capital buffers, including extra capital buffers for European Global Systematically Important Institutions (G-SIIs) and Other Systemically Important Institutions (O-SII); the Bank Recovery and Resolution Directive (BRRD) ([74]), which introduced bail-in ([75]) and national resolution funds ([76]), and the Single Resolution Mechanism Regulation (SRMR) ([77]), which introduced the Single Resolution Fund (SRF). To reflect the phasing-in ([78]) of the safety-net tools foreseen by this body of legislation, two regulatory scenarios are modelled ([79]).

An initial (2017 Q1) short-term scenario with safety net in progress, comprising:

- Bank total capital and risk-weighted assets (RWA) taken directly from the banks' balance sheets, adjusted to the new definitions proposed in the CRDIV ([80]).
- Non-performing loans contribute to losses in the banking system of each country and their magnitude has been estimated according to the *Equation 1 below*.
- Extra capital buffers for G-SIIs and O-SIIs, phased in proportion of 1/2 of the final buffers ([81]).
- Bail-in: modelled as a worst-case scenario whereby a Loss Absorbing Capacity (LAC) is built to represent, together with regulatory capital, 8% of TA ([82]).

([71]) The severity of the systemic crisis assessed in this exercise is higher than that of the "EU-wide stress test" performed by the EBA –cannot be compared directly due to different methodologies. The EBA EU-wide banking stress test performed in 2016 was carried out at the highest consolidation level on a sample covering broadly 70% of the EU banking sector, measured in terms of total consolidated assets at the end of 2014. Based on end-2015 figures, the exercise assessed the resilience of EU banks against a common macroeconomic baseline and adverse scenario applied over a period of three years, to end-2018. The exercise had a bottom-up stress test approach, whereby banks were required to project the impact of risk drivers on, primarily, solvency, but also on net interest income, profit and loss, and capital items not covered by other risk types, subject to strict constraints defined in the common methodology. The common set of risks examined covered credit risk including securitisations, market risk and counterparty credit risk, and operational risk including conduct risk. An explicit treatment of conduct risk and FX lending was also added.

([72]) Potential contagion across banks through bail-in (some of the losses absorbed by the safety net re-entering the banking system) is disregarded due to scarce data.

([73]) See European Parliament and Council (2013).

([74]) See European Parliament and Council (2014a).

([75]) A legal framework ensuring that part of the distressed banks' losses are absorbed by unsecured creditors. The bail-in tool entered into force on 01/01/2016.

([76]) Funds financed by banks to orderly resolve failing banks, avoiding contagion and other spill-overs.

([77]) See European Parliament and Council (2014b).

([78]) CRDIV increased capital requirements are being phased-in from 2014 to 2019 and banks are progressively introducing the capital conservation buffer; according to BRRD and SRMR, national RFs and the SRF have a target of 1% of covered deposits to be collected over 10 years from 2015 onwards and 8 years from 2016 onwards, respectively.

([79]) In the estimation G-SII buffers are applied only to the parent group, while O-SII buffers are applied at the sub-consolidated level. G-SIIs requirements on Total Loss Absorbing Capacity (TLAC) are not considered. See Financial Stability Board (2014).

([80]) These decrease capital and increase RWA. To properly estimate the effects of these CRDIV improved definitions, the results of the Basel III monitoring exercise (Quantitative Impact Study, QIS), run by the European Banking Authority are used. Since Basel III definitions of RWA and capital reflect better banks' true risk and capital quality, SYMBOL adjusts inputs to reflect these definitions even in scenarios where CRDIV is not yet implemented.

([81]) See Financial Stability Board (2015), "2015 update of the list of global systemically important banks (GSIBs)" and https://www.eba.europa.eu/risk-analysis-and-data/other-systemically-important-institutions-o-siis-/2015.

([82]) The BRRD does not establish a harmonized level of liabilities eligible for bail-in, but Art. 44 sets out that the RF can kick in only after shareholders and holders of other eligible instruments have made a contribution to loss absorption and recapitalisation of at least 8% of TA. Since bank-level data on bail-inable liabilities is unavailable, the bail-in tool is modelled in both the short- and long-term by imposing that individual banks hold a LAC of at least 8% of their TA. In practice banks with total capital under this threshold are assumed to meet the 8% minimum threshold

- Resolution Funds ([83]) - national (NRFs, for Member States not part of the Banking Union) and single (SRF, for Banking Union members) – phased-in in proportion of 2/10 of their target or long-run level ([84]) and contributing to resolution absorbing losses by up to 5% of the TA of the insolvent bank, provided that at least 8% LAC has already been called in ([85]).

A final (long-term) 2025 scenario, by when the safety net is assumed to be completely phased-in by 2025, and which comprises:

- Bank total capital reflecting the CRDIV improved definition and an increased minimum level ([86]) set at the maximum between the CRDIV adjusted capital and 10.5% of the CRDIV adjusted RWA ([87]).

- Fully built extra capital buffers for G-SIIs and O-SIIs.

- Bail-in: as in the 2016 scenario.

- Resolution Funds: Both NRFs and SRF fully in place and able to absorb losses of up to 5% of the TA of the insolvent bank provided that at least 8% LAC has already been called in.

The 2017 scenario considers that insufficient provisioning of non-performing loans may lead to an overestimation of capital and to an under estimation of losses, thus capturing the effect of NPLs on the banking sector. This is a novelty with respect to past exercises (see Box 4.1).

In the 2025 scenario banks are first "topped up" to the required minimum capital and, in case of G-SIIs and O-SIIs to the corresponding extra capital buffer.

In reality, in this round of simulations G-SIIs and O-SIIs buffers do not bind in any scenario because, for all banks, total capital alone already meets the set requirements.

In both scenarios, only the subset of banks considered to be systemic will go into resolution and recapitalize (European Commission (2016a) explains how systemic banks are selected). All remaining banks are assumed not to be systemic and to be liquidated in case of distress. Under each scenario two levels of bank recapitalization are considered: 8% and 10.5% of each bank's RWA, representing the minimum level of capital and capital conservation buffer set by the CRDIV. The extra capital buffers built for G-SIIs or O-SIIs are not recapitalised.

Graph 4.2 illustrates the order of intervention of different tools. The first cushion assumed to absorb simulated losses is capital, the second tool is bail-in, and the last are RFs, as legally foreseen ([88]). Table 4.3 summarizes the scenarios and recapitalization levels considered.

via bail-in liabilities. In the simulation, bail-in stops once the 8% of TA limit has been reached. If a bank holds capital above 8% of TA, there would be no bail-in, but capital might be bearing losses above 8% of TA.

([83]) In practice, under the Agreement on the mutualisation and transfer of contributions to the SRF (IGA), in the short-term only a part of current SRF contributions would be mutualised (i.e. available to all banks irrespective of their location), while the rest of the fund is only available to banks from their country of origin. Since a system-wide waterfall under IGA with sequential intervention of national and mutualised SRF is complex to model and since in the short-term only 10% of the SRF would be in place, the model assumes that the entire SRF is already mutualised.

([84]) Given the aim to portray worst-case fiscal consequences, ex-post contributions to the NRFs/SRF are not modelled, but these can actually go up to 3 times the ex-ante contributions, further reducing the impact on public finances.

([85]) In case of excess demand for SRF funds, funds are rationed in proportion to demand (i.e., proportionally to excess losses and recapitalization needs after the minimum bail-in, capped at 5% of TA at bank level).

([86]) Only mandatory components of total capital, i.e. common equity Tier 1 (CET1), additional Tier (AT1) and capital conservation buffer are included. The discretionary counter-cyclical capital buffer (at the regulator's choice) is not.

([87]) Before running the simulation, banks are “topped up” to this increased level of minimum capital requirement. In practice, it affects only a small subset of banks, as most already hold capital exceeding the long-run requirement.

([88]) Additional tools are available to absorb residual losses and recapitalization needs, including additional bail-in liabilities, leftover resolution funds and the deposit guarantee scheme. See Benczur et al. (2015) for a discussion.

Box 4.1: SYMBOL Developments: Considering loan losses linked to NPLs

SYMBOL is a live project endeavouring to capture risks relevant at every point in time. In the current exercise the model has been adapted to reflect risks banks face in relation to asset quality, in particular non-performing loans (NPLs). The effect of non-performing loans on the banking sector is considered to be one whereby NPLs entail risks in the short-term, but not in the long-term when their effect becomes negligible.

The novelty with respect to past exercises ([1]) plays out in the 2017 scenario which now considers that insufficient provisioning of NPLs may lead to an overestimation of capital and to an underestimation of potential losses. The modelling assumption is that non-collateralised NPLs count as loan losses for the system, while the ones collateralised by immovable property are redeemable subject to a recovery rate. In some cases this assumption may lead to certain bias, especially there where foreclosure of household mortgages is particularly difficult (leading to underestimation) or where household mortgages result in better recovery rates than those applicable to firms (leading to overestimates).

For each bank i and each country j potential loan losses from NPLs are computed as follows:

$$NPLsLosses(i,j) = \big(1 - CollShare(j)\big) * NPLs(i,j) + CollShare(j)NPLs(i,j)\big(1 - RR(j)\big) - Provisions(i,j). \quad \textit{(Equation 1)}$$

Where *RR* is the recovery rate, ([2]) *CollShare* represents the proportion of total loans covered by collateral, ([3]) *Provisions* are the proportion of the total loan portfolio that has been provided for, but not charged off (a reserve for losses) [(4)] and *NPLs* are gross non-performing loans declared by banks in their balance sheets. Bankscope gross loans data is available for all banks in the sample. *NPLs* (and/or *Provisions*) data is available for almost two thirds of the banks; for the remaining one third, *Provisions* missing values have been estimated using country aggregates coming from the EBA dashboard, while gross *NPL* missing data has been imputed using a robust regression with *Provisions* as explanatory variable.

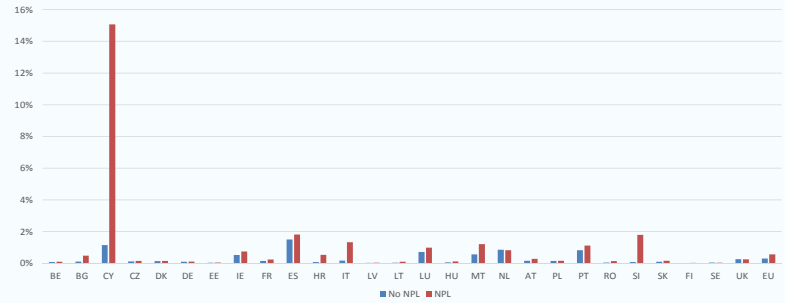
Extra loan losses from NPLs calculated as per *Equation 1* are then added to those coming from the SYMBOL simulation before the intervention of any safety net tools. Factoring the impact of NPLs into the model in this fashion leads in some cases to significantly higher losses in excess of capital and recapitalization needs at 8% of RWA after the safety net intervention in the initial scenario (see Graph 1).

([1]) See European Commission (2016a) Section 5.2.2.
([2]) Country specific RR are a function of time, cost and outcome of the insolvency proceedings against a local company. (World Bank 2016 Doing Business Report).
([3]) *CollShare* is a proxy calculated as the sum of the share of loans collateralised by immovable property (i.e. the share of loans for housing purposes in total loans) and the share of other collateralized loans at country level (ECB). For Lithuania and Malta, the information is missing, so EU averages apply instead. For Slovakia, the share of loans collateralized by immovable property is available while the share of other collateralised loans is not, so the latter has been replaced by the corresponding EU average. For Cyprus the collateral share is calculated using the average ratios of collateral for non performing exposures (NPE) to NPEs for Bank of Cyprus Public Company Limited and Co-operative Central Bank Limited as reported in the EBA 2015 transparency exercise.
([4]) Given a consistent charge-off policy, the higher the ratio of provisions to total loans, the poorer the quality of the loan portfolio e.g: loan loss provision allowance for credit losses.

(Continued on the next page)

Box (continued)

Graph 1. The impact of SYMBOL methodological improvements - Implicit contingent liabilities with and without NPLs consideration after the safety net intervention, initial (2017) short-term scenario, recap 8%



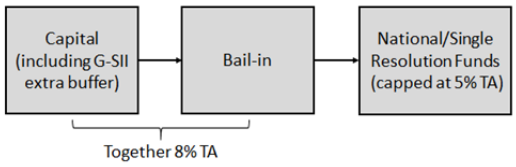
Source: Commission services

Table 4.3: **Scenario settings**

Scenario	Extra loan losses due to NPIs	Total regulatory capital	Risk Weighted Assets	Bail-in	National / Single RF	Deposit Guarantee Scheme	Recapitalization levels for systemic banks
Initial (2017 Q1) short term	Yes	K^{QIS} + 1/2 of buffers for G-SIIs	RWA^{QIS}	Yes	Yes, 5% TA cap, after LAC of 8% has been called in	No	8% RWA^{QIS}
				Capital plus bail-in	2/10 of full target (end of Q1 2017)		
				8% TA	No ex-post contributions		10.5% RWA^{QIS}
Final (2025) long term	No	Max {K^{QIS}; 10.5%·RWA^{QIS} + buffers for G-SIIs}	RWA^{QIS}	Yes	Yes, 5% TA cap, after LAC of 8% has been called in	No	8% RWA^{QIS}
				Capital plus bail-in	At full target		
				8% TA	No ex-post contributions		10.5% RWA^{QIS}

(1) K and RWA are the capital and risk weighted assets as of end 2015 balance sheet or estimated by JRC. Superscript QIS refers to CRDIV adjusted values.
Source: Commission services

Graph 4.2: **Order of intervention of resolution tools**



Source: Commission services.

The SYMBOL model is run on a sample of about 1970 EU banks with December 2015 unconsolidated data. Annex 6 describes the sample, which is representative for most Member States. When the sample includes either a small number of banks or the share of total assets covered is low, results should be interpreted with caution. The cases where this problem is evident (Austria, Cyprus, Estonia, Greece, Ireland, Lithuania, and Malta) are marked by asterisks.

Implicit contingent liabilities from total funding needs, i.e. losses in excess of capital and recapitalization needs at 8% and 10.5%, are presented for the initial 2017 and final 2025 scenarios in Table 4.4. Bank losses in excess of capital are assumed to be covered by public injections of funds to the banking sector, affecting equally public deficit and gross and net debt. Conversely, recapitalization is deemed recoverable since capital injection is done in exchange of shares (partial government ownership of the bank) being recorded as a financial transaction affecting

neither the deficit nor net debt, but only gross debt through the stock-flow adjustment ([89]).

Table 4.4: **Implicit contingent liabilities from banks' excess losses and recapitalization needs under the short term and long term scenario (% GDP)**

	Initial (2017 Q1) short term scenario			Final (2025) long term scenario		
	Excess Losses	Recap Needs 8%	Recap Needs 10.5%	Excess Losses	Recap Needs 8%	Recap Needs 10.5%
	To deficit and debt	Directly to debt	Directly to debt	To deficit and debt	Directly to debt	Directly to debt
BE	0.02%	0.08%	0.13%	0.00%	0.02%	0.05%
BG	0.06%	0.42%	0.77%	0.01%	0.03%	0.07%
CY*(ł)	0.87%	14.20%	20.85%	0.03%	0.26%	1.10%
CZ	0.02%	0.12%	0.25%	0.01%	0.04%	0.09%
DK	0.04%	0.11%	0.21%	0.03%	0.07%	0.12%
DE	0.01%	0.10%	0.20%	0.00%	0.02%	0.07%
EE*	0.00%	0.05%	0.10%	0.00%	0.01%	0.03%
IE*	0.03%	0.70%	1.59%	0.01%	0.11%	0.49%
ES	0.15%	1.67%	3.38%	0.04%	0.39%	1.29%
FR	0.02%	0.22%	0.46%	0.00%	0.02%	0.10%
HR	0.08%	0.45%	0.89%	0.01%	0.03%	0.07%
IT	0.06%	1.27%	2.11%	0.01%	0.03%	0.13%
LV	0.00%	0.03%	0.05%	0.00%	0.00%	0.01%
LT*	0.00%	0.09%	0.17%	0.00%	0.00%	0.02%
LU	0.05%	0.93%	1.81%	0.03%	0.14%	0.48%
HU	0.02%	0.09%	0.19%	0.01%	0.03%	0.06%
MT*	0.05%	1.16%	2.43%	0.02%	0.08%	0.42%
NL	0.09%	0.74%	1.46%	0.00%	0.20%	0.69%
AT*	0.01%	0.26%	0.53%	0.00%	0.03%	0.12%
PL	0.01%	0.15%	0.34%	0.00%	0.06%	0.15%
PT	0.02%	1.10%	2.32%	0.02%	0.14%	0.72%
RO	0.01%	0.12%	0.26%	0.00%	0.01%	0.04%
SI	0.61%	1.18%	1.60%	0.00%	0.02%	0.06%
SK	0.00%	0.15%	0.30%	0.00%	0.01%	0.07%
FI	0.00%	0.02%	0.04%	0.00%	0.00%	0.01%
SE	0.02%	0.02%	0.03%	0.02%	0.02%	0.02%
UK	0.03%	0.22%	0.38%	0.02%	0.12%	0.21%

(1) Note: All figures are % of the corresponding economy's GDP. Unconsolidated data as of December 2015.
(2) (*) Asterisks denote countries with sample representativeness issues i.e. when the country-level aggregates are based on banks representing less than 20% of the country's banking sector or when the number of banks is extremely small (less than 10).
(3) (ł) Two banks of Cyprus are based on consolidated data (Bank of Cyprus Public Company Limited and Co-operative Central Bank Limited).
Source: Commission services

Table 4.4 shows that in the final stage the estimated impact on budget deficit from excess losses is in all cases almost zero, while in the first stage it is negligible for most of the countries but for CY. As for recapitalization needs with direct impact on debt levels, the situation is more nuanced. In the short term where the effect of *NPLs* is included, estimates in Table 4.4 show that most EU countries' contingent liabilities are lower than 1% of GDP even in the 10.5% recapitalization scenario. Seven countries (ES, IT, MT, PT, SI) have final losses between 1% - 4% of GDP under both recapitalisation levels, though the highest isolated case, Cyprus, is at 20.85% of GDP under the 10.5% recapitalisation level ([90]). In the long term, all countries, but Cyprus and Spain, would go to below 1% of GDP estimated exposure. Cyprus and Spain would remain below 1.30% of GDP. Hence, completing the implementation of the safety net implies a decrease of the estimated overall risks at EU level over time.

Table 4.5 presents the risk that banking sector-related implicit contingent liabilities of at least 3% of GDP materialise, hitting public finances. The colour coding of the heat map reflects the relative magnitude of the theoretical probabilities of such an event (see Annex 6 for the details of heat map calibration). It is evident that contingent liabilities have a potential high impact on public finances only for a very limited subset of countries and only in the short term.

([89]) Under the assumption that such recapitalisations meet the following criteria of the Eurostat's decisions on the statistical recording of public interventions to support financial institutions and markets: the financial instrument used ensures a sufficient non-contingent rate of return and the State Aid rules are complied with (see March 2013 decision http://ec.europa.eu/eurostat/documents/1015035/2041337/ESTAT-decision-Criteria-for-classif-of-gov-capital-injec.pdf) and the earlier July 2009 Decision http://ec.europa.eu/eurostat/documents/1015035/2041337/FT-Eurostat-Decision-9-July-2009-3--final-.pdf).

([90]) Cyprus' largest banks tend to have very high RWA/TA ratios and a very high level of gross NPLs (in the short term). Since collateralised shares used in the model are proxies (see Annex A6), in the case of banking models using high levels of collateralisation such as Cyprus the proxy may reflect a lower level of NPL collateralisation than the one actually in place; moreover, all simulations based on samples of 6 banks or less are highly uncertain, since a minor change in any bank's data or the addition of a new bank could have large effects on the results.

Table 4.5: **Risk (theoretical probability) of public finances being hit by more than 3% of GDP in case of a systemic event involving banks excess losses and recapitalisation needs**

	Initial (2017 Q1) short term scenario		Final (2025) long term scenario	
	Excess Losses and Recap Needs 8%	Excess Losses and Recap Needs 10.5%	Excess Losses and Recap Needs 8%	Excess Losses and Recap Needs 10.5%
BE	0.001%	0.002%	0.000%	0.001%
BG	0.001%	0.002%	0.000%	0.000%
CY*(ł)	2.628%	5.019%	0.011%	0.036%
CZ	0.000%	0.001%	0.000%	0.000%
DK	0.004%	0.008%	0.004%	0.006%
DE	0.000%	0.001%	0.000%	0.000%
EE*	0.001%	0.003%	0.000%	0.001%
IE*	0.024%	0.065%	0.005%	0.014%
ES	0.048%	0.160%	0.009%	0.025%
FR	0.001%	0.002%	0.000%	0.001%
FI	0.000%	0.000%	0.000%	0.000%
HR	0.003%	0.008%	0.000%	0.001%
IT	0.005%	0.020%	0.000%	0.000%
LV	0.000%	0.000%	0.000%	0.000%
LT*	0.000%	0.000%	0.000%	0.000%
LU	0.033%	0.086%	0.005%	0.011%
HU	0.001%	0.001%	0.001%	0.001%
MT*	0.055%	0.174%	0.006%	0.013%
NL	0.029%	0.070%	0.004%	0.011%
AT*	0.001%	0.002%	0.000%	0.000%
PL	0.000%	0.000%	0.000%	0.000%
PT	0.030%	0.109%	0.006%	0.017%
RO	0.000%	0.000%	0.000%	0.000%
SI	0.005%	0.018%	0.000%	0.000%
SK	0.000%	0.001%	0.000%	0.000%
SE	0.001%	0.002%	0.001%	0.001%
UK	0.001%	0.002%	0.001%	0.001%

(1)Green (grey): low risk (theoretical probability not exceeding 0.05%). Yellow (light grey): medium risk (theoretical probability between 0.05% and 0.2%). Red (dark): high risk (theoretical probability exceeding 0.2%). Asterisks denote countries with sample representativeness issues i.e. when the country-level aggregates are based on banks representing less than 20% of the country's banking sector or when the number of banks is extremely small (less than 10).
(ł) Two banks of Cyprus are based on consolidated data (Bank of Cyprus Public Company Limited and Co-operative Central Bank Limited).
Source: Commission services.

4.3. THE VALUE OF GOVERNMENT ASSETS AND NET DEBT

Debt figures presented so far in this report are based on what is known as Maastricht (or EDP) debt, i.e. total general government ([91]) debt outstanding at the end of the year in gross and consolidated terms at nominal (face) value. Maastricht debt reflects financial liabilities for a subset of debt instruments - currency and deposits, debt securities and loans ([92]). Using debt figures in gross terms means that the financial (or non-financial) assets owned by the government are not netted out. Using consolidated figures means that any liability of a general government unit that is an asset of another general government unit is netted out and does not add to the general government total.

Keeping gross debt as benchmark indicator is natural since Maastricht debt represents the policy relevant variable in the context of fiscal surveillance in the EU. This choice has a number of advantages. Firstly, it allows keeping a clear record of the government's contractual obligations, tracking developments in gross financial liabilities separately from those in assets which may be particularly volatile due to asset price movements when assets are marked to market. Secondly, gross debt is more widely used and a more straightforward concept to work with in opposition with the methodology of computing net liabilities or net debt. The latter may prove intricate due to the granularity of asset categories that could be chosen to offset liabilities and the fact that the selection criterion, assets liquidity, is not clear cut (liquidity may vary over time and depends on the existence of a market for each instrument and each individual asset - e.g. the market for a particular type of loan may be difficult to identify). For these reasons defining net debt is not a straightforward task. Several different net debt measures exist, with advantages and disadvantages ([93]), and these may come to differing conclusions.

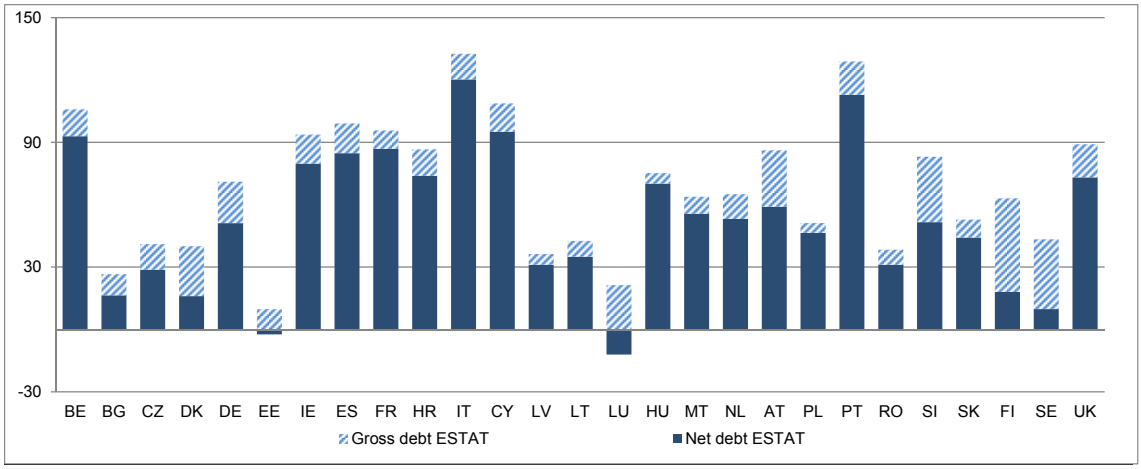
Nonetheless, taking assets into account may provide a useful perspective on the current and future sustainability of Member States public finances since the income generated by government assets may contribute to offsetting debt in two alternative ways: *i) from* returns on assets over the period during which these assets are held on the government's books (property income

([91]) General government consists of central government, state government (if applicable), local government and social security funds (if applicable).

([92]) See the Fiscal Sustainability Report 2015 Annex A9 for a more detailed definition, including the composition and valuation method used.

([93]) Different countries and institutions use different approaches in terms of composition and valuation method. For a description of methodological differences between Eurostat and IMF/WEO see Section 5.3 and Annex A9 of the Fiscal Sustainability Report 2015.

Graph 4.3: **Gross and net government debt (% of GDP), 2015**



(1) See Annex A9 of the Fiscal Sustainability Report 2015 for details on ESTAT net debt definition. "Net debt ESTAT" represents Commission services calculations based on Eurostat data (ESA 2010 methodology). Both assets and liabilities of Social Security Funds (part of general government) are included in the net debt concept calculated by ESTAT, these funds' assets and liabilities featuring in the measure of net debt in the categories Currency and deposits, Debt securities and Loans.
Source: AMECO and Commission services based on Eurostat data,

([94]) or *ii)* from the value at which assets could be traded if the government decided to redeem them. The first source of proceeds (property income) from both financial (debt and non-debt instruments) and non-financial assets is already accounted for in the SPB calculation and future adjustments to property income are included in the medium and long term fiscal sustainability indicators ([95]). The second source refers only to a subset of (debt instruments-related) financial assets and is covered by this section in the government net debt concept presented below.

Consequently, discussing net debt serves an illustrative purpose that highlights the relevance of the value of government assets as complementary indicator and its usefulness for solvency analysis, in particular when assets held by governments are significant and liquid. Net debt can thus provide a more informed view on the countries' current debt sustainability through the lenses of the government's ability to repay its debt at a particular point in time ([96]).

Using calculations on the latest available Eurostat data it can be observed that in some countries (Austria, Germany, Denmark, Estonia, Finland, Luxembourg, Slovenia, Sweden) there are significant differences between gross and net debt figures ([97]). These differences may be explained by various factors such as reinforcements in cash and reserves held during the crisis (Denmark), government take-over of defeasance structures (Germany, Austria), large amounts of government financial assets notably of social security funds, characteristic to some countries (Denmark, Finland, Sweden, Estonia) or assets in the form of currency, deposits, loans and debt securities held by other units within the general government sector (Slovenia – bad bank related, Luxembourg- due market valuation of debt securities in a period of falling interest).

The contrast between gross and net debt essentially portrays how the size of government financial assets varies considerably across countries, reflecting, *inter alia*, differences in pension systems, exposure to (crisis-related) events or country-specific approaches underpinning the build-up of buffers, provisions and reserves. Some

([94]) See Annex A8 for a description of how property income is assumed to contribute to medium and long run projections.
([95]) On the latter see the Fiscal Sustainability Report 2015 Annex A8.
([96]) Broader concepts of netting assets and liabilities such as net financial worth and net worth can also be used. These are provided by National Accounts balancing items. As regards net worth, data coverage of non-financial assets is still under development.
([97]) Gross and net are compared from the same source to avoid the incidence of methodological differences.

countries post negative net debt figures (i.e. positive net assets) due to traditionally low gross debt to GDP ratios combined with relatively significant asset holdings (Estonia, Luxembourg).

Generally, it is evident that accounting for financial assets puts gross debt in perspective. Yet liquidity-related reasons make it advisable to read results under a double proviso *i)* similar asset values may stand for different asset qualities, opaque to the fact that higher rated assets (e.g. bonds) trade more easily than lower rated ones: *ii)* reducing gross debt through a sale of assets remains a largely theoretical idea, hinging on the assumption that the asset categories selected can be totally liquidated.

Not least, it is useful to note that country rankings by net debt remained fairly similar to those on gross debt over the recent years (2009-2015), few exceptions being observed for Finland and Sweden ([98]). Moreover, OECD research shows that markets do not seem to react to net financial liabilities more than they do to gross financial liabilities ([99]), indicating that cautions such as asset quality and feasibility of asset liquidation mentioned above are in fact already internalised.

([98]) Eurostat (2014) and calculations based on 2013-2015 Eurostat data.
([99]) OECD (2015).

5. OVERALL ASSESSMENT OF FISCAL SUSTAINABILITY CHALLENGES

5.1. INTRODUCTION

This chapter brings together in a synthetic way the main results on debt sustainability analysis and fiscal sustainability indicators (based on Autumn 2016 Commission forecasts) presented in the rest of the report. Results are systematized here in the context of the horizontal assessment framework (based on a series of explicit and transparent criteria) already presented and used in the Fiscal Sustainability Report (FSR) 2015. Results are summarised in an overall summary heat map of fiscal sustainability risks per time dimension (short, medium and long run) (Tables 5.1 to 5.4). The framework is meant to allow identifying the scale, nature and timing of fiscal sustainability challenges. It therefore aims at ensuring a comprehensive and multidimensional assessment of sustainability risks, which is key to devise appropriate policy responses. It should nonetheless be kept in mind that quantitative results and ensuing risk assessments based on this horizontal framework should always be complemented with a broader reading and interpretation of results, so as to give due account to country-specific contexts.

5.2. 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), as in the FSR 2015([100]). In the horizontal assessment framework, for which results are reported in the Tables below (see Annex A9 for more details), countries are deemed to face potential high short-term risks of fiscal stress whenever the S0 indicator is above its critical threshold ([101]). In all other cases, countries are deemed to be at low short-term risk.

In Tables 5.1 to 5.4, no EU country (among those object of analysis in this report) appears to be at high risk in the short run, based on S0. Indeed, risks of short-term fiscal stress have very significantly receded relative to the first crisis years (the comparison of 2016 values for S0, signalling risks for 2017, with 2009 values, highlighting risks for 2010, witnesses a striking difference in this respect, as shown in Chapter 3).

Beyond the values of S0 used to reach an overall short-term risk assessment, Tables 5.3 and 5.4 also report, country by country, values of the two fiscal and financial-competitiveness sub-indexes (incorporating only fiscal and macro-financial variables respectively), and the most relevant variables (in terms of economic interpretation, as well as predictive power based on past fiscal stress events) taken from S0 and from the heat maps on risks related to the structure of public debt financing and government contingent liabilities ([102]). These are meant to support the reading and interpretation of S0 results on a country by country basis.

5.3. OVERALL ASSESSMENT OF MEDIUM-TERM FISCAL SUSTAINABILITY CHALLENGES

Medium-term fiscal sustainability challenges are assessed based on the joint use of the DSA and the S1 indicator. As anticipated in Chapter 1, the integration of DSA results in medium-term risk assessments allows reaching conclusions that reflect, in a more detailed way, the projected evolution of public debt over the next 10 years, on top of the synthetic assessment based on the medium-term fiscal gap indicator S1([103]). This additionally confers more stability to medium-term risk evaluations as DSA conclusions (centred as

([100]) See Annex A1, and Berti et al. (2012) for more information on S0.

([101]) The threshold for S0 (calculated using the "signals' approach") is 0.46.

([102]) Values for all S0 variables are reported by country in Chapter 3. Values for all the variables included in the summary heat map on risks from the structure of public debt financing and government contingent liability risks are reported by country in Chapter 4. Upper thresholds of risk (above which values are in red) for the individual variables are obtained using the "signals' approach" (see Annex A1). Lower thresholds of risk are generally prudentially set at around 80% of the respective upper thresholds.

([103]) In principle, different projected paths of the public debt ratio can be consistent with the same synthetic assessment provided by fiscal gap indicators (as long as the differences cancel out in the government inter-temporal budged constraint), while differences in the projected trajectory of the debt ratio should also be taken into account in the fiscal sustainability assessment (if anything else, through the factoring in of the possible reaction by financial markets).

they are on the debt stock) tend to be more stable than S1 values, which are relatively more sensitive to changes in the initial budgetary position from one forecast to the next.

Overall, the joint use of the DSA and S1 indicator allows capturing medium-term sustainability challenges in a more comprehensive way, as S1 appears relatively more suited to capture risks for public finances from ageing ([104]), while the DSA allows a more detailed and stable assessment of the budgetary position net of implicit liabilities from ageing, including the consideration of the specific debt trajectory.

The horizontal assessment framework on sustainability challenges (see Tables 5.3 - 5.4 and Annex A9 for more details) sets at potential high medium-term sustainability risk countries that are deemed to be at overall high risk based on DSA results or at high risk based on S1 (under the baseline no-fiscal policy change scenario). A country is therefore considered to face high sustainability challenges if either its DSA or baseline S1 or both point in that direction. This means that high risks are highlighted also in case this is the conclusion pointed to by the DSA alone (while S1 does not), or by S1 alone (while the DSA does not). 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 DSA or S1 point in that direction (while none of the two indicates high risks).

5.3.1. Approach used in the assessment of medium-term challenges based on DSA

The overall DSA assessment by country is based on debt projection results under the three main DSA scenarios: i) the baseline no-fiscal policy change scenario; ii) the historical structural primary balance (SPB) scenario; iii) the Stability and Growth Pact (SGP) scenario. Additionally, the overall DSA assessment relies on results for the negative sensitivity tests (on nominal growth, interest rates and the government primary balance) and stochastic projections, as tools that allow assessing the impact of individual and joint macroeconomic shocks on baseline projections. Practically, for each of these DSA scenarios and sensitivity tests, plus stochastic projections, individual assessments are made (in terms of high/medium/low risk for the country under examination) that are then aggregated into an overall DSA assessment per country.

A country's DSA results into an assessment of potential overall high risk if baseline no-fiscal policy change projections point to such a high level of risk, or alternatively if the latter point to an overall medium risk assessment but potential high risks are highlighted by alternative scenarios (historical SPB scenario; sensitivity test on macro-fiscal assumptions) or stochastic projections. This second criterion for a high-risk assessment allows prudentially capturing upward risks around baseline projections in cases where the latter, already by themselves, appear to entail medium risks.

In Annex A9, the economic rationale followed to reach the overall DSA assessment is explained in detail through decision trees. As reported in Tables 5.3 - 5.4, for the DSA scenarios, variables used in the assessment are: i) the level of gross public debt over GDP *at the end of projections* (2027); ii) the year at which the debt ratio peaks over the 10-year projection horizon (which provides a synthetic indication on debt dynamics); and iii) the position of the average SPB (in the overall SPB distribution for all EU-28 countries over 1980-2016) assumed over the projection period under the specific scenario (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). 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. Table 5.2 also provides details about the DSA risk classification.

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 (2021) greater than the initial debt ratio (in 2016), which captures the probability of a higher debt ratio due to the joint effects of

([104]) S1 is a particularly suited tool to assess the impact of ageing, thanks to the decomposition of the indicator that allows singling out the cost of ageing contribution to the fiscal gap in terms of overall discounted value. Debt projections are a less appropriate tool to serve this purpose as the contribution of the cost of ageing to the overall debt stock, year by year, as could be extracted from the DSA, would be much less intelligible than the S1 age-related sub-component.

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 A9 reports all upper and lower thresholds used for each of the individual variables and indicators mentioned above.

5.3.2. Approach used in the assessment of medium-term challenges based on S1

For the S1 indicator, the identification of medium-term sustainability challenges relies on calculations based on the baseline no-fiscal policy change scenario. Countries are therefore deemed to face potential high/medium/low sustainability risks in the medium term, according to S1, depending on the value taken by the indicator under the aforementioned scenario ([105]). S1 calculations under two alternative scenarios, the historical SPB scenario and the AWG risk scenario (incorporating less favourable ageing cost projections) are nonetheless also reported in Tables 5.3 - 5.4 to support the reading and interpretation of the results.

Finally, for each of the three scenarios mentioned above, S1 values are accompanied in Tables 5.3 - 5.4 by the indication of the relative position (in the SPB distribution for all EU-28 countries over 1980-2016) of the related required structural primary balance (RSPB). This makes more immediate to grasp how common/uncommon the implied fiscal position is. As for the variables used for DSA assessment, thresholds used for the S1 sub-components and the percentile rank of the RSPB are reported in Annex A9.

5.3.3. Country-specific results on medium-term sustainability challenges

The approach described above (and with more detail in Annex A9) leads to the country-specific assessments of medium-term sustainability challenges reported in the summary heat map in Tables 5.3 - 5.4. As many as 12 countries appear to face potential *high* medium-term risks (BE, ES, FR, HR, IT, CY, HU, PL, PT, SI, FI and UK). For 8 of these 12 countries, risks are deemed to be high based on both the DSA and S1. The exceptions are HR, HU, PL and SI, which would be at medium risk for S1, while at high risk for the DSA (in all four cases this is due to a debt ratio at the end of projections, under the baseline no-fiscal policy change scenario, above the 60% Treaty reference value, accompanied by high risks highlighted by one or more of the alternative scenarios or sensitivity test scenarios, in terms of either significantly higher debt ratio or still increasing debt ratio at the end of projections).

Among the 8 high-risk countries, for which assessments based on DSA and S1 are aligned, 6 countries (BE, ES, FR, IT, CY and PT) are deemed to be at high risk for their DSA due to their high level of debt as a percentage of GDP *at the end of projections* (above 90%), under the baseline no-fiscal policy change scenario (which of course leads to even higher debt ratios under negative sensitivity tests). For the other two countries (FI and UK), having a debt below 90% of GDP in 2016, but still well above the 60% reference value, the indication of high risk under the DSA is driven by a debt ratio that would be still increasing at the end of the 10-year projection period under all sensitivity test scenarios (accompanied for FI also by a probability well above 60% of a debt ratio in 2021 greater than in 2016).

Based on the analysis of S1 results, for 7 countries (BE, ES, FR, IT, CY, PT and UK) among the countries facing high sustainability challenges in the medium term, the main determinant is assessed to be the distance of the countries' debt ratios relative to the 60% debt target incorporated in S1. For 3 of these countries (ES, CY and PT), projected age-related costs have overall a mitigating effect contributing to reducing the required fiscal adjustment under S1 (and a neutral effect in the case of IT), while for the other 3 countries (BE, FR and UK) ageing costs contribute to raising the required adjustment. For one remaining high sustainability risk country highlighted by S1 (FI), the overall contribution of projected age-related spending to the required

([105]) As in the FSR 2012 and 2015, the lower and upper thresholds of risk for S1 are set having regard to the benchmark structural fiscal adjustment in the SGP (a structural adjustment of up to 0.5 pps. of GDP per year). Given that the adjustment is assumed to take place over 5 years, according to the S1 standard definition, the upper threshold of risk is 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., and at medium risk when S1 is between 0 and 2.5 pps.

fiscal adjustment is particularly important (at 1.6 pps. of GDP).

Four EU countries are deemed to be at *medium* sustainability risk in the medium term (IE, LT, AT and RO). For 2 of these four countries, the medium risk assessment is aligned between the DSA and S1 (IE and AT). For IE and AT, the DSA highlights medium risk because of a debt ratio at the end of projections above 60% (though below 90%) under no-fiscal policy change. Among the other two medium-risk countries in the medium term, (LT and RO), medium risks are highlighted by S1, while the countries would be at low risk based on their DSA. In the case of LT, the impact of the projected cost of ageing would largely drive the positive value of S1, while in the case of RO the initial budgetary position (IBP) would be the main contributor to the positive S1.

The remaining 11 EU countries (BG, CZ, DK, DE, EE, LV, LU, MT, NL, SK and SE) are deemed to be at *low* risk in the medium-term (based on both DSA and S1).

5.4. ASSESSMENT OF LONG-TERM FISCAL SUSTAINABILITY CHALLENGES

The long-term fiscal sustainability indicator S2, under the baseline no-fiscal policy change scenario, is used to identify long-term fiscal sustainability challenges. Countries would therefore be considered at high/medium/low sustainability risk in the long run depending on the value taken by the baseline S2 indicator ([106]). Analogously to what done for S1, S2 calculations are reported in Tables 5.3 - 5.4 for other two alternative scenarios (the SPB historical scenario and the AWG risk scenario), meant to support the reading and interpretation of S2 results. S2 values under all scenarios are also accompanied by an indication of the relative position of the related RSPB (in the SPB distribution for all EU-28 countries over 1980-2016) to allows a better grasp on how common/uncommon the implied fiscal stance would be.

([106]) Lower and upper thresholds of risk for S2 are set at 2 and 6 pps. of GDP respectively, as in the FSR 2015. 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.

Results in Tables 5.3 - 5.4 show that only one country (SI) appears to be at *high* long-term sustainability risk, primarily due to projected cost of ageing developments (with spending on pensions accounting for most of the projected impact on public finances). 13 EU countries (BE, CZ, LT, LU, HU, MT, NL, AT, PL, RO, SK, FI and UK) appear to face *medium* risk in terms of long-term sustainability challenges. For as many as 10 of these countries (BE, CZ, LT, LU, MT, NL, AT, SK and UK), these challenges are brought about primarily (exclusively for LU, MT and AT) by projected age-related costs. For other 3 countries (HU, PL and RO), on the contrary, long-term challenges are primarily brought about by their initial budgetary position (IBP). For the last country (FI) long-term challenges are brought about by the cost of ageing and the IBP to the same extent. The remaining 13 EU countries (BG, DK, DE, EE, IE, ES, FR, HR, IT, CY, LV, PT and SE) appear to be at *low* sustainability risk in the long run, conditional on fiscal policy unchanged at the last Commission forecast year, as assumed in the baseline scenario.

If less favourable ageing cost projections were to materialise over the long term (especially due to higher healthcare spending, as assumed under the AWG risk scenario, or due to the structural primary balance returning to its historical value under the historical SPB scenario), significant changes would intervene in terms of long-term fiscal sustainability challenges. Two countries (CZ and MT) would be facing high, rather than medium, risks over the long term, while other 10 countries (BG, DK, DE, EE, IE, ES, FR, LV, PT and SE) would face medium, rather than low, risks.

5.5. COMPARISON WITH THE 2015 FISCAL SUSTAINABILITY REPORT RESULTS

As in the 2015 Fiscal Sustainability Report, no country appears to face potential short-term fiscal risks according to the S0 indicator (see Table 5.1).

Medium-term fiscal sustainability risks, assessed as from the joint use of the S1 indicator and the DSA tool, would not have substantially changed across the EU compared to the 2015 FSR: indeed, in this report, 11 countries, with the addition of CY (which was not covered in the previous report,

hence 12 in total), are classified at *high* fiscal sustainability risk in the medium-term (i.e. the same number as in the 2015 FSR), while 4 countries appear to face *medium* risks in the medium-term against 5 in the previous report, and 11 countries are classified at *low* risk in the medium term, against 10 in the FSR 2015. In terms of composition, changes in the medium-term classification concern 5 countries (IE, HU, NL, PL and RO). In 2 of these countries, the level of risk is deemed to have increased (HU and PL, from medium to high), while in the 3 other countries, it is deemed to have decreased (IE and RO, from high to medium, and NL, from medium to low). In all cases, the change in the initial budgetary position (i.e. debt ratio and / or structural primary balance) mainly explains this evolution. In the case of IE, the substantial revision in GDP growth contributes to a great extent to more favourable ratios.

Finally, long-term fiscal sustainability risks would not have overall changed based on the S2 indicator, with still only one EU country at high risk (SI) and 13 countries at medium risk (against 14 in the 2015 FSR) ([107]). Looking at the classification country by country, the long-term classification has changed for 3 countries, with an improvement of risk category in 2 cases (BG and SE, from medium to low), and a deterioration in 1 other case (HU), driven by the change in the initial budgetary position (improvement in the first 2 cases, deterioration in the last one).

([107]) Moreover, the aggregate value of S2 at the EU level little changed from 1.7 pps. of GDP in the FSR 2015 to 1.8 pps. of GDP in this report.

Table 5.1: **Fiscal sustainability assessment by Member State (in bracket, classification in the FSR 2015, based on Commission services Autumn 2015 forecasts, whenever the risk category has changed)**

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

Source: Commission services

Table 5.2: **Final DSA risk classification: detail of the assessment**

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

* If a country is classified at medium risk based on the baseline scenario, other scenarios are considered to confirm (or not) the classification (i.e. deterministic sensitivity tests, historical SPB scenario and stochastic projections).
Source: Commission services

Table 5.3: **Summary heat map on fiscal sustainability challenges**

	BE	BG	CZ	DK	DE	EE	IE	ES	FR	HR	IT	CY	LV	LT
Heat map for short-term risks in the EU countries														
S0 overall index	0.42	0.28	0.19	0.19	0.08	0.25	0.28	0.37	0.31	0.18	0.42	0.41	0.29	0.21
S0 Fiscal sub-index	0.57	0.08	0.00	0.00	0.00	0.00	0.19	0.57	0.43	0.08	0.47	0.08	0.00	0.00
S0 Financial competitiveness sub-index	0.35	0.39	0.28	0.29	0.12	0.37	0.32	0.27	0.25	0.23	0.40	0.57	0.45	0.33
Fiscal risks from fiscal context														
Primary balance (% of GDP)	-0.5	0.1	0.7	0.4	2.0	0.6	1.4	-1.8	-1.5	1.3	1.6	2.3	0.3	1.0
Change in gross debt (% of GDP)	1.2	3.4	-0.6	-1.5	-3.0	-0.7	-3.3	-0.3	0.2	-1.8	0.7	-0.4	3.7	-1.9
Share of short-term public debt (% of GDP)	8.1	0.3	2.2	4.0	6.2	0.2	9.0	8.9	10.6	5.8	18.8	2.3	1.3	2.3
Gross financing needs (% of GDP)	20.1	4.1	6.7	6.8	9.1		2.2	21.4	18.2	12.8	23.3	4.2	4.6	2.0
Fiscal risks from macro-financial context														
Private debt (% of GDP)*	166.3	110.5	68.6	212.8	98.9	116.6	303.4	154.0	144.3	115.0	117.0	353.7	88.8	55.0
Private credit flow (% of GDP)*	4.5	-0.3	0.9	-3.3	3.0	3.3	-6.7	-2.7	4.4	-1.3	-1.7	4.4	0.7	2.2
Net international Investment Position (% of GDP)*	61.3	-60.0	-30.7	39.0	48.7	-40.9	-208.0	-89.9	-16.4	-77.7	-23.6	-130.3	-62.5	-44.7
Change in share of non-performing loans (p.p.)	-0.3	-0.2	-1.1	-0.3	-0.7	-0.8	-4.7	-1.8	-0.2	-1.2	-0.2	-1.9	-1.7	-1.3
Fiscal risks from financial market developments														
Sovereign yield spreads(bp) - 10 year	38	230	27	10			68	116	44	289	171	376	43	95
Overall SHORT-TERM risk category	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**
Heat map for medium-term risks in the EU countries														
S1 indicator in the EU countries														
	BE	**BG**	**CZ**	**DK**	**DE**	**EE**	**IE**	**ES**	**FR**	**HR**	**IT**	**CY**	**LV**	**LT**
S1 indicator - Baseline scenario	4.3	-3.5	-1.2	-2.9	-0.4	-4.5	0.4	4.9	4.5	2.4	6.6	2.9	-2.1	1.1
of which CoA	0.4	-0.3	0.7	-0.4	1.0	0.0	1.1	-0.9	0.3	-0.3	0.0	-0.4	-0.3	1.6
Required Structural Primary balance related to S1 - Percentile rank	9%	90%	74%	84%	34%	96%	26%	13%	12%	15%	0%	13%	86%	37%
S1 indicator - AWG risk scenario	4.7	-3.1	-0.7	-2.6	0.2	-4.1	0.8	5.3	4.9	2.7	6.7	3.1	-1.6	1.7
of which CoA	0.8	0.1	1.1	-0.2	1.5	0.4	1.4	-0.6	0.6	0.0	0.1	-0.3	0.1	2.1
Required Structural Primary balance related to S1 - Percentile rank	6%	88%	69%	81%	27%	94%	22%	11%	10%	13%	0%	12%	82%	29%
S1 indicator - Historical SPB scenario	4.5	-6.2	1.0	-8.2	-0.1	-6.2	5.3	7.0	9.0	8.6	10.1	6.0	-2.2	3.7
of which CoA	0.6	-0.3	0.8	-0.4	1.3	0.0	1.4	-1.2	0.3	-0.4	0.1	-0.4	-0.3	2.2
Required Structural Primary balance related to S1 - Percentile rank	2%	100%	70%	100%	35%	100%	10%	1%	0%	1%	0%	2%	92%	19%
S1 indicator - overall risk assessment	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	HIGH	LOW	MEDIUM
Sovereign-debt sustainability risks in the EU countries														
	BE	**BG**	**CZ**	**DK**	**DE**	**EE**	**IE**	**ES**	**FR**	**HR**	**IT**	**CY**	**LV**	**LT**
Baseline no-policy change scenario	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	HIGH	LOW	LOW
Debt level (2027)	102.3	21.1	41.9	28.9	52.6	8.7	63.2	109.6	102.6	87.8	128.9	93.0	33.6	54.1
Debt peak year	2017	2016	2027	2016	2016	2017	2016	2027	2027	2027	2018	2016	2016	2027
Average Structural Primary Balance (2018-2027) Percentile rank	56%	54%	58%	48%	29%	56%	31%	74%	69%	42%	34%	42%	67%	57%
Historical SPB scenario	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	MEDIUM
Debt level (2027)	91.9	18.5	54.6	13.4	54.8	12.8	82.5	105.2	108.5	106.2	125.0	97.9	38.5	62.5
Debt peak year	2017	2016	2027	2016	2016	2027	2027	2027	2027	2027	2018	2016	2016	2027
Average Structural Primary Balance (2018-2027) Percentile rank	35%	48%	75%	24%	33%	63%	66%	70%	75%	72%	28%	52%	73%	70%
Stability and Growth Pact (SGP) institutional scenario	MEDIUM	LOW	LOW	LOW	LOW	LOW	LOW	MEDIUM	MEDIUM	MEDIUM	HIGH	MEDIUM	LOW	LOW
Debt level (2027)	80.2	24.2	33.4	33.7	45.0	6.7	53.7	83.4	76.6	80.0	107.5	77.6	30.1	39.2
Debt peak year	2017	2016	2016	2016	2016	2017	2016	2017	2017	2016	2018	2016	2016	2017
Average Structural Primary Balance (2018-2027) Percentile rank	23%	55%	52%	44%	28%	54%	31%	24%	28%	29%	12%	18%	57%	49%
Negative shock (-0.5p.p.) on nominal GDP growth	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	LOW
Debt level (2027)	108.0	22.4	44.0	30.9	55.8	9.2	66.7	115.5	107.9	93.1	136.6	98.7	35.3	56.7
Debt peak year	2027	2016	2027	2016	2016	2017	2016	2027	2027	2027	2027	2016	2016	2027
Positive shock (+1p.p.) to the short- and long-term interest rates on newly issued and rolled over debt	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	LOW
Debt level (2027)	108.6	22.8	44.6	30.9	56.4	9.2	65.6	117.1	108.7	93.2	138.8	98.5	35.6	56.5
Debt peak year	2027	2016	2027	2016	2016	2017	2016	2027	2027	2027	2027	2016	2016	2027
Negative shock on the PB equal to 50% of the forecasted cumulative change over the two forecast years	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	LOW
Debt level (2027)	103.6	21.2	46.0	35.8	54.7	12.0	67.2	111.3	103.7	92.3	134.3	102.9	35.0	57.5
Debt peak year	2017	2016	2027	2016	2016	2027	2016	2027	2027	2027	2027	2016	2016	2027
Stochastic projections	HIGH	MEDIUM	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	HIGH	LOW	MEDIUM
Probability of debt in 2021 greater than in 2016 (%)	33%	32%	47%	16%	4%	83%	30%	69%	56%	50%	35%	30%	29%	53%
Difference of the 10th and 90th percentile in 2021 (p.p. of GDP)	25.6	40.1	25.5	15.7	14.9	3.6	32.0	15.6	11.3	45.8	19.7	42.2	25.6	30.7
Debt sustainability analysis - overall risk assessment	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	LOW
Overall MEDIUM-TERM risk category	**HIGH**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**MEDIUM**	**HIGH**	**HIGH**	**HIGH**	**HIGH**	**HIGH**	**LOW**	**MEDIUM**
Heat map for long-term risks in the EU countries														
	BE	**BG**	**CZ**	**DK**	**DE**	**EE**	**IE**	**ES**	**FR**	**HR**	**IT**	**CY**	**LV**	**LT**
S2 indicator - Baseline scenario	3.1	1.4	2.9	0.9	2.0	0.2	0.5	1.9	0.7	-1.5	0.5	-0.7	0.8	3.4
of which Pensions	1.0	0.7	0.6	-1.3	1.6	-1.2	0.8	-0.6	-1.7	-2.6	-0.8	0.2	-1.5	1.2
Health care	0.2	0.3	0.8	0.5	0.3	0.4	1.0	0.8	0.6	0.6	0.5	0.2	0.4	0.1
Long-term care	1.1	0.1	0.5	1.5	0.0	0.4	0.7	1.1	0.6	0.0	0.6	0.2	0.1	0.7
Required Structural Primary balance related to S2 - Percentile rank	16%	30%	13%	18%	11%	38%	35%	40%	55%	55%	18%	24%	48%	11%
S2 indicator - AWG risk scenario	4.4	3.4	6.6	2.0	4.4	2.4	2.6	3.6	2.7	-0.1	1.0	0.8	3.2	5.8
of which Pensions	1.2	0.9	0.6	-1.2	1.6	-1.2	0.8	-0.6	-1.7	-2.6	-0.8	0.2	-1.5	1.2
Health care	0.5	0.8	1.3	1.2	0.8	0.8	1.6	1.4	1.1	1.2	0.9	0.5	1.0	0.6
Long-term care	1.9	1.4	3.7	2.0	1.9	2.0	2.2	2.2	2.1	0.7	0.8	1.4	1.9	2.5
Required Structural Primary balance related to S2 - Percentile rank	10%	13%	0%	11%	1%	15%	15%	19%	24%	30%	14%	13%	18%	1%
S2 indicator - Historical SPB scenario	1.7	1.1	4.8	-1.2	2.5	0.8	3.2	1.3	1.6	1.0	-0.1	0.0	1.5	4.7
of which Pensions	1.0	0.8	0.6	-1.3	1.7	-1.3	0.8	-0.7	-1.8	-2.8	-0.8	0.2	-1.5	1.2
Health care	0.2	0.3	0.8	0.6	0.3	0.4	1.0	0.8	0.7	0.6	0.6	0.2	0.4	0.0
Long-term care	1.1	0.1	0.5	1.6	0.0	0.5	0.7	1.1	0.6	0.0	0.7	0.2	0.1	0.7
Required Structural Primary balance related to S2 - Percentile rank	29%	34%	3%	42%	8%	29%	11%	51%	37%	19%	22%	18%	35%	4%
Overall LONG-TERM risk category	**MEDIUM**	**LOW**	**MEDIUM**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**MEDIUM**

* = variables' values are taken with a 1-year lag, according to the definition of the variables in the S0 indicator.
Source: Commission services

Table 5.4: **Summary heat map on fiscal sustainability challenges**

	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK
Heat map for short-term risks in the EU countries													
S0 overall index	0.29	0.31	0.15	0.20	0.15	0.29	0.41	0.26	0.14	0.34	0.22	0.12	0.41
S0 Fiscal sub-index	0.00	0.39	0.00	0.00	0.07	0.08	0.31	0.25	0.08	0.09	0.08	0.00	0.53
S0 Financial competitiveness sub-index	0.45	0.27	0.22	0.31	0.19	0.41	0.46	0.26	0.16	0.46	0.29	0.19	0.35
Fiscal risks from fiscal context													
Primary balance (% of GDP)	1.7	1.6	1.6	0.3	0.7	-0.8	1.7	-1.3	0.4	-0.7	-1.2	0.4	-1.0
Change in gross debt (% of GDP)	1.1	-1.3	-1.9	-2.2	-2.0	2.2	1.3	1.0	-3.0	0.9	1.7	-2.4	0.2
Share of short-term public debt (% of GDP)	1.4	11.4	3.7	6.3	5.1	0.4	18.2	2.3	4.6	0.8	6.9	11.6	13.2
Gross financing needs (% of GDP)	-1.3	18.4	7.1	9.4	10.9	7.3	13.7	6.8	11.6	10.2	8.0	8.4	11.3
Fiscal risks from macro-financial context													
Private debt (% of GDP)*	343.1	83.9	139.1	228.8	126.4	78.6	181.5	59.1	87.3	81.4	155.7	188.6	157.8
Private credit flow (% of GDP)*	24.2	-3.1	5.4	-1.6	2.1	3.1	-2.3	0.2	-5.1	8.2	9.5	6.5	2.5
Net international Investment Position (% of GDP)*	35.8	-60.8	48.5	63.9	2.9	-62.8	-109.3	-51.9	-38.7	-61.0	0.6	4.1	-14.4
Change in share of non-performing loans (p.p.)	-0.4	-5.4	-0.3	-0.5	-1.2	-0.5	1.1	-7.6	-3.3	-0.2	0.0	-0.1	-0.9
Fiscal risks from financial market developments													
Sovereign yield spreads(bp) - 10 year	18	309	83	18	26	303	317	307	113	51	21	17	105
Overall SHORT-TERM risk category	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**	**LOW**
Heat map for medium-term risks in the EU countries													
S1 indicator in the EU countries													
	LU	**HU**	**MT**	**NL**	**AT**	**PL**	**PT**	**RO**	**SI**	**SK**	**FI**	**SE**	**UK**
S1 indicator - Baseline scenario	-3.7	0.8	-1.2	-1.1	0.8	1.8	6.1	0.7	2.4	-2.1	2.8	-2.9	3.3
of which CoA	1.0	-0.9	1.0	-0.2	0.6	0.3	-0.1	0.3	0.9	0.1	1.6	0.2	0.9
Required Structural Primary balance related to S1 - Percentile rank	88%	47%	52%	61%	25%	55%	0%	71%	19%	75%	20%	83%	14%
S1 indicator - AWG risk scenario	-3.5	1.3	-0.9	-0.9	1.1	2.1	6.4	1.0	2.8	-1.5	3.1	-2.5	3.5
of which CoA	1.2	-0.5	1.3	0.0	0.8	0.6	0.2	0.5	1.2	0.6	1.8	0.6	1.0
Required Structural Primary balance related to S1 - Percentile rank	86%	38%	45%	57%	22%	47%	0%	67%	16%	69%	19%	79%	13%
S1 indicator - Historical SPB scenario	-7.5	2.3	1.1	-1.2	2.0	3.0	14.9	1.4	6.1	1.2	0.2	-6.6	9.9
of which CoA	1.3	-1.1	1.2	-0.1	0.8	0.3	-0.1	0.3	1.2	0.1	2.0	0.3	1.1
Required Structural Primary balance related to S1 - Percentile rank	100%	31%	42%	68%	19%	34%	0%	64%	5%	69%	21%	96%	0%
S1 indicator - overall risk assessment	LOW	MEDIUM	LOW	LOW	MEDIUM	MEDIUM	HIGH	MEDIUM	MEDIUM	LOW	HIGH	LOW	HIGH
Sovereign-debt sustainability risks in the EU countries													
	LU	**HU**	**MT**	**NL**	**AT**	**PL**	**PT**	**RO**	**SI**	**SK**	**FI**	**SE**	**UK**
Baseline no-policy change scenario	LOW	MEDIUM	LOW	LOW	MEDIUM	MEDIUM	HIGH	LOW	MEDIUM	LOW	MEDIUM	LOW	MEDIUM
Debt level (2027)	17.2	70.3	45.8	47.2	67.2	69.2	124.0	55.7	76.5	40.3	79.8	28.8	89.9
Debt peak year	2018	2016	2016	2016	2016	2027	2016	2027	2016	2016	2027	2016	2027
Average Structural Primary Balance (2018-2027) Percentile rank	42%	63%	30%	40%	34%	77%	29%	77%	52%	43%	63%	44%	55%
Historical SPB scenario	LOW	MEDIUM	LOW	LOW	MEDIUM	MEDIUM	HIGH	LOW	MEDIUM	LOW	MEDIUM	LOW	HIGH
Debt level (2027)	9.5	74.3	58.8	50.0	70.2	69.6	141.2	57.2	85.2	59.7	61.0	20.2	107.6
Debt peak year	2018	2027	2016	2016	2016	2027	2027	2027	2027	2027	2019	2016	2027
Average Structural Primary Balance (2018-2027) Percentile rank	29%	68%	55%	45%	40%	78%	63%	79%	67%	75%	29%	29%	79%
Stability and Growth Pact (SGP) institutional scenario	LOW	MEDIUM	LOW	LOW	MEDIUM	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM
Debt level (2027)	11.7	62.0	37.6	48.1	61.3	47.0	100.8	36.2	53.5	38.2	57.9	29.8	71.5
Debt peak year	2018	2016	2016	2016	2016	2018	2016	2019	2016	2016	2018	2016	2016
Average Structural Primary Balance (2018-2027) Percentile rank	42%	34%	28%	37%	29%	48%	10%	53%	23%	41%	40%	46%	31%
Negative shock (-0.5p.p.) on nominal GDP growth	LOW	HIGH	LOW	LOW	MEDIUM	HIGH	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
Debt level (2027)	18.1	74.3	48.5	50.2	71.3	72.4	131.5	58.1	80.7	42.7	83.7	30.6	94.7
Debt peak year	2018	2027	2016	2016	2016	2027	2027	2027	2027	2016	2027	2016	2027
Positive shock (+1p.p.) to the short- and long-term interest rates on newly issued and rolled over debt	LOW	HIGH	LOW	LOW	MEDIUM	HIGH	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
Debt level (2027)	17.8	74.7	47.9	50.3	71.3	73.3	131.4	59.1	81.1	43.3	84.2	31.4	94.3
Debt peak year	2018	2027	2016	2016	2016	2027	2027	2027	2027	2016	2027	2016	2027
Negative shock on the PB equal to 50% of the forecasted cumulative change over the two forecast years	LOW	HIGH	LOW	LOW	MEDIUM	HIGH	HIGH	LOW	MEDIUM	LOW	HIGH	LOW	HIGH
Debt level (2027)	23.9	74.9	47.5	48.6	67.5	71.7	126.5	58.5	78.7	45.8	80.5	31.3	97.4
Debt peak year	2027	2027	2016	2016	2016	2027	2016	2027	2016	2016	2027	2016	2027
Stochastic projections	LOW	MEDIUM	MEDIUM	LOW	MEDIUM	LOW	HIGH	MEDIUM	MEDIUM	LOW	HIGH	LOW	MEDIUM
Probability of debt in 2021 greater than in 2016 (%)	39%	41%	18%	6%	18%	76%	44%	77%	31%	25%	80%	6%	36%
Difference of the 10th and 90th percentile in 2021 (p.p. of GDP)	14.8	29.8	26.5	15.8	26.3	16.6	25.5	28.6	24.5	25.0	17.7	10.4	18.7
Debt sustainability analysis - overall risk assessment	LOW	HIGH	LOW	LOW	MEDIUM	HIGH	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
Overall MEDIUM-TERM risk category	**LOW**	**HIGH**	**LOW**	**LOW**	**MEDIUM**	**HIGH**	**HIGH**	**MEDIUM**	**HIGH**	**LOW**	**HIGH**	**LOW**	**HIGH**
Heat map for long-term risks in the EU countries													
	LU	**HU**	**MT**	**NL**	**AT**	**PL**	**PT**	**RO**	**SI**	**SK**	**FI**	**SE**	**UK**
S2 indicator - Baseline scenario	4.3	2.7	4.0	3.1	2.4	3.8	1.3	3.7	6.5	2.4	3.2	1.0	3.0
of which Pensions	2.8	0.4	2.1	0.1	0.5	-0.2	-0.3	0.1	3.4	1.0	-0.5	-0.7	0.9
Health care	0.4	0.5	1.4	0.6	0.9	0.8	1.7	0.6	0.9	1.3	0.5	0.3	1.0
Long-term care	1.2	0.3	0.9	2.6	0.9	0.6	0.2	0.5	1.0	0.2	1.6	1.1	0.3
Required Structural Primary balance related to S2 - Percentile rank	1%	15%	4%	12%	12%	19%	14%	19%	0%	26%	16%	36%	29%
S2 indicator - AWG risk scenario	5.8	5.5	5.6	3.9	3.9	5.0	3.0	5.7	7.9	5.5	4.5	3.3	4.1
of which Pensions	2.8	0.4	2.1	0.1	0.5	-0.2	-0.3	0.1	3.4	1.0	-0.6	-0.7	0.9
Health care	0.7	1.0	2.1	1.0	1.4	1.4	2.4	1.0	1.4	2.1	0.9	0.8	1.5
Long-term care	2.5	2.6	1.8	2.9	2.0	1.2	1.2	2.0	1.9	2.5	2.5	2.8	0.9
Required Structural Primary balance related to S2 - Percentile rank	0%	2%	1%	8%	4%	11%	5%	7%	0%	5%	9%	14%	19%
S2 indicator - Historical SPB scenario	3.3	3.4	6.1	3.7	3.0	4.1	4.1	4.2	8.1	5.4	0.7	-0.2	5.7
of which Pensions	2.8	0.5	2.2	0.2	0.5	-0.2	-0.4	0.1	3.6	1.1	-0.6	-0.7	1.0
Health care	0.4	0.6	1.5	0.7	1.0	0.9	1.8	0.6	0.9	1.4	0.5	0.3	1.0
Long-term care	1.3	0.3	0.9	2.8	1.0	0.6	0.3	0.6	1.1	0.2	1.6	1.1	0.3
Required Structural Primary balance related to S2 - Percentile rank	3%	11%	0%	9%	10%	17%	2%	15%	0%	5%	47%	58%	9%
Overall LONG-TERM risk category	**MEDIUM**	**MEDIUM**	**MEDIUM**	**MEDIUM**	**MEDIUM**	**MEDIUM**	**LOW**	**MEDIUM**	**HIGH**	**MEDIUM**	**MEDIUM**	**LOW**	**MEDIUM**

* = variables' values are taken with a 1-year lag, according to the definition of the variables in the S0 indicator.

Source: Commission services

ANNEX A1

The early-detection indicator of fiscal stress risk

A1.1. 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 A1.1: **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): ([108])

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

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

$i = 1,.., n$

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 ([109]); 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) ([110]). 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

([108]) 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.

([109]) 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.

([110]) See, for instance, Reinhart, Goldstein and Kaminsky (2000); Hemming, Kell and Schimmelpfennig (2003).

absolute thresholds for variable i only for those countries having a history of medium to high values for the variable concerned (or medium to low, depending on what the fiscal-stress-prone side of the distribution is), while country-specific thresholds would not be meaningful for the rest of the sample.

The TME function in equation (1) is the criterion we used to calculate the thresholds but it is not the only possible criterion used in the literature. The minimisation of the noise-to-signal ratio (NSR) is another possible option ([111]). In this case the optimal threshold for variable i (t_i^*) is obtained as:

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

$i = 1,\ldots,n$

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.

A1.2. 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) ([112]). 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 [113]. The variables are therefore assigned higher weight in the composite indicator, the higher their past forecasting accuracy ([114]).

([111]) See, for instance, Reinhart, Goldstein and Kaminsky (2000); Hemming, Kell and Schimmelpfennig (2003).

([112]) 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).

([113]) 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).

([114]) 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 A2

The medium- and long-term sustainability indicators (S1, S2) and the intertemporal net worth indicator (INW)

A2.1 NOTATION

t : time index. Each period is one year

t_0 : last year before the long-term projection (e.g. 2017)

$t_0 + 1$: first year of the long-term projection period. Start of the fiscal adjustment

t_1 : end of the fiscal adjustment (relevant for S1)

t_2 : target year for the debt ratio (e.g. 2030, relevant for S1)

t_3 : final year of the long-term projection period (e.g. 2060)

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.

A2.2 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.

A2.3 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. ([115]) In addition to accounting for the need to adjust the initial intertemporal budgetary position and the debt level, it incorporates financing for any additional

([115]) This is in contrast to the S2 indicator, which is defined as an immediate, one-off adjustment.

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:

$$D_{t_2} = D_{t_0}\alpha_{t_0;t_2} - \sum_{i=t_0+1}^{t_1} \left(\mathrm{SPB}_{t_0} + c(i - t_0)\right)\alpha_{i;t_2}$$

$$- \sum_{i=t_1+1}^{t_2} \left(\mathrm{SPB}_{t_0} + \underbrace{c(t_1 - t_0)}_{= S_1}\right)\alpha_{i;t_2} \qquad (5)$$

$$+ \sum_{i=t_0+1}^{t_2} \left((\Delta A_i - \Delta PI_i - CC_i)\,\alpha_{i;t_2}\right)$$

After some straightforward manipulations ([116]), we can decompose the S1 into the following main components:

$$S_1 \equiv \underbrace{c(t_1 - t_0)}_{T} =$$

$$= \underbrace{\frac{D_{t_0}(\alpha_{t_0;t_2} - 1)}{\sum_{i=t_0+1}^{t_2}(\alpha_{i;t_2})} - \mathrm{SPB}_{t_0} - \frac{\sum_{i=t_0+1}^{t_2}(\Delta PI_i \alpha_{i;t_2})}{\sum_{i=t_0+1}^{t_2}(\alpha_{i;t_2})} - \frac{\sum_{i=t_0+1}^{t_2}(CC_i \alpha_{i;t_2})}{\sum_{i=t_0+1}^{t_2}(\alpha_{i;t_2})}}_{A}$$

$$+ \underbrace{c\frac{\sum_{i=t_0+1}^{t_1}\left((t_1 - i)\alpha_{i;t_2}\right)}{\sum_{i=t_0+1}^{t_2}(\alpha_{i;t_2})}}_{B} + \underbrace{\frac{D_{t_0} - D_{t_2}}{\sum_{i=t_0+1}^{t_2}(\alpha_{i;t_2})}}_{C} \qquad (6)$$

$$+ \underbrace{\frac{\sum_{i=t_0+1}^{t_2}(\Delta A_i \alpha_{i;t_2})}{\sum_{i=t_0+1}^{t_2}(\alpha_{i;t_2})}}_{D}$$

where (T) is the total adjustment (the S1 indicator by definition); (A) the strict initial budgetary position (i.e. the gap to the debt-stabilizing 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.

A2.4 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 ([117]).

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:

([116]) 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).

([117]) 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.

$$D_t = D_{t_0}\alpha_{t_0;t} - \sum_{i=t_0+1}^{t}\left(\mathrm{PB}_i\alpha_{i;t}\right). \quad (7)$$

Rearranging the above and discounting both sides to their time t_0 values, we obtain the debt ratio on the initial period:

$$D_{t_0} = \left(\frac{D_t}{\alpha_{t_0;t}}\right) + \sum_{i=t_0+1}^{t}\left(\frac{\mathrm{PB}_i}{\alpha_{t_0;i}}\right). \quad (8i)$$

Assuming an infinite time horizon ($t \to \infty$) we get:

$$\begin{aligned} D_{t_0} &= \lim_{t\to\infty}\left(\frac{D_t}{\alpha_{t_0;t}}\right) + \lim_{t\to\infty}\sum_{i=t_0+1}^{t}\left(\frac{\mathrm{PB}_i}{\alpha_{t_0;i}}\right) \\ &= \lim_{t\to\infty}\left(\frac{D_t}{\alpha_{t_0;t}}\right) + \sum_{i=t_0+1}^{\infty}\left(\frac{\mathrm{PB}_i}{\alpha_{t_0;i}}\right) \end{aligned} \quad (8ii)$$

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:

$$\lim_{t\to\infty}\left(\frac{D_t}{\alpha_{t_0;t}}\right) = 0 \quad (9i)$$

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.

$$D_{t_0} = \sum_{i=t_0+1}^{\infty}\left(\frac{\mathrm{PB}_i}{\alpha_{t_0;i}}\right) \quad (9ii)$$

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:

$$\mathrm{PB}_i = \mathrm{SPB}_{t_0} + S_2 - \Delta A_i + \Delta PI_i + CC_i \quad \text{for} \quad i > t_0. \quad (10)$$

Then the intertemporal budget constraint (9ii) becomes

$$D_{t_0} = \sum_{i=t_0+1}^{\infty}\left(\frac{\mathrm{PB}_{t_0} + S_2 - \Delta A_i + \Delta PI_i + CC_i}{\alpha_{t_0;i}}\right). \quad (9iii)$$

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 ([118]). The latter is equivalent to the modified golden rule, stating that the nominal interest rate exceeds the real growth rate (i.e. $lim_{t\to\infty} r_t > 0$).([119])

After some rearranging ([120]), we can decompose the S2 into the following two components:

$$\begin{aligned} S_2 = &\underbrace{\frac{D_{t_0}}{\sum_{i=t_0+1}^{\infty}\left(\frac{1}{\alpha_{t_0;i}}\right)} - \mathrm{SPB}_{t_0} - \frac{\sum_{i=t_0+1}^{\infty}\left(\frac{\Delta PI_i + CC_i}{\alpha_{t_0;i}}\right)}{\sum_{i=t_0+1}^{\infty}\left(\frac{1}{\alpha_{t_0;i}}\right)}}_{A} \\ &+ \underbrace{\frac{\sum_{i=t_0+1}^{\infty}\left(\frac{\Delta A_i}{\alpha_{t_0;i}}\right)}{\sum_{i=t_0+1}^{\infty}\left(\frac{1}{\alpha_{t_0;i}}\right)}}_{B} \end{aligned} \quad (11)$$

([118]) The latter is an application of the ratio test for convergence.
([119]) See Escolano (2010) for further details on the relationships among the stability of the debt ratio, the IBC and the no-Ponzi game condition.
([120]) In addition, constant multiplicative terms are systematically taken out of summation signs.

where (A) is the initial budgetary position i.e. the gap to the debt stabilising primary balance ([121]); 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 $t_3 = 2060$), equation (11) can be rewritten as:

$$S_2 = \frac{D_{t_0}}{\sum_{i=t_0+1}^{2059}\left(\frac{1}{\alpha_{t_0+1;i}}\right) + \frac{1}{r\alpha_{t_{0+1};2059}}} - \mathrm{SPB}_{t_0} - \frac{\sum_{i=t_0+1}^{2059}\left(\frac{\Delta PI_i + CC_i}{\alpha_{t_0+1;i}}\right) + \frac{\Delta PI_{2060} + CC_{2060}}{r\,\alpha_{t_{0+1};2059}}}{\sum_{i=t_0+1}^{2059}\left(\frac{1}{\alpha_{t_0;i}}\right) + \frac{1}{r\,\alpha_{t_{0+1};2059}}} + \frac{\sum_{i=t_0+1}^{2059}\left(\frac{\Delta A_i}{\alpha_{t_0+1;i}}\right) + \frac{\Delta A_{2060}}{r\,\alpha_{t_{0+1};2059}}}{\sum_{i=t_0+1}^{2059}\left(\frac{1}{\alpha_{t_0;i}}\right) + \frac{1}{r\,\alpha_{t_{0+1};2059}}} \qquad (13ii)$$

where $r_t = r$ and $\Delta A_t = \Delta A_{2060}$ for $t \geq t_3 = 2060$.

([121]) In practical calculations, the present value of property income is also accounted for in the initial budgetary position. Property income enters the equation in an identical manner as age-related costs ΔA_t (i.e. term (B)), but with an opposite sign.

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 $t_3 = 2060$).

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:

$$D_{t_3} = D_{t_0}\alpha_{t_0;t_3} - \sum_{i=t_0+1}^{t_3}\left(\mathrm{PB}_i\alpha_{i;t_3}\right) = \sum_{i=t_3+1}^{\infty}\left(\frac{\mathrm{PB}_i}{\alpha_{t_3;i}}\right) = \sum_{i=1}^{\infty}\left(\frac{\mathrm{PB}_{t_3}}{(1+r_{t_3})^i}\right) = \frac{\mathrm{PB}_{t_3}}{r_{t_3}} \qquad (14ii)$$

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:

$$\begin{aligned} D_t &= D_{t_3}\alpha_{t_3;t} - \sum_{i=t_3+1}^{t}\left(\mathrm{PB}_i\alpha_{i;t}\right) \\ &= \frac{\mathrm{PB}_{t_3}}{r_{t_3}}\left(1+r_{t_3}\right)^{t-t_3} - \mathrm{PB}_{t_3}\sum_{i=t_3+1}^{t-t_3}\left(1+r_{t_3}\right)^{t-i-1} \\ &= \underbrace{\left[\left(1+r_{t_3}\right)^{t-t_3} - r_{t_3}\left(\frac{1-\left(1+r_{t_3}\right)^{t-t_3}}{1-\left(1+r_{t_3}\right)}\right)\right]}_{=1}\frac{\mathrm{PB}_{t_3}}{r_{t_3}} \\ &= \frac{\mathrm{PB}_{t_3}}{r_{t_3}} \equiv \bar{\bar{D}} \quad \text{for} \quad t \geq t_3 \end{aligned} \qquad (15)$$

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 ($\overline{\overline{D}}$) is given by:

$$\overline{\overline{D}} = \frac{\mathrm{PB}_{t_3}}{r_{t_3}} = \frac{\mathrm{SPB}_{t_0} + \Delta PI_{t_3} + CC_{t_3} + S_2 - \Delta A_{t_3}}{r_{t_3}} \quad \text{for} \quad t \geq t_3 \tag{17}$$

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:

$$D_t + \sum_{i=t+1}^{\infty}\left(\frac{\Delta A_i}{(1+r)^{i-t}}\right) - \sum_{i=t+1}^{\infty}\left(\frac{\Delta PI_i + CC_i}{(1+r)^{i-t}}\right) = D_{t_0} + \sum_{i=t_0+1}^{\infty}\left(\frac{\Delta A_i}{(1+r)^{i-t_0}}\right) - \sum_{i=t_0+1}^{\infty}\left(\frac{\Delta PI_i + CC_i}{(1+r)^{i-t_0}}\right) \tag{18}$$

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 2060), holding only as an approximation during transitory phases (i.e. for time-varying interest rate differentials) ([122]).

A2.5 DERIVATION OF THE INW INDICATOR

The inter-temporal net worth (INW) indicator can be interpreted as a measure of government's net financial wealth, assuming unchanged policies and including projected/implicit future liabilities due to ageing.

INW is given by net worth (a_{t_0}) in the base year (t_0) minus the discounted sum of all future primary balances required to secure inter-temporal sustainability (i.e. S2). Net worth is the difference between government assets and liabilities i.e. the negative of net debt.

Accordingly, the inter-temporal net worth indicator is derived from S2 as:

$$\mathrm{INW}_{t_0} = a_{t_0} - S_2 \sum_{i=t_0+1}^{\infty}\left(\frac{1}{\alpha_{t_0;i}}\right) \tag{19}$$

For a constant discount factor, using (12) equation (19) simplifies to:

$$\mathrm{INW}_{t_0} = a_{t_0} - \frac{S_2}{r} \tag{20}$$

([122]) 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 A3

The Stability and Growth Pact scenario

In the SGP scenario, it is assumed that, for countries under EDP, a structural fiscal adjustment in compliance with the Council recommendations is maintained until the excessive deficit is corrected. Thereafter, a structural consolidation effort, determined according to the preventive arm of the Pact, as clarified by the January 2015 European Commission Communication regarding SGP flexibility and the February 2016 ECOFIN Commonly agreed position ([123]), is maintained until the MTO is reached. For countries that are not under EDP, the annual fiscal adjustment required to reach the MTO is determined according to the aforementioned documents ([124]) and applied as from 2018. More details are contained in the Table below.

Table A3.1: **SGP scenario: main features**

Date	Countries under EDP	Countries not under EDP (but whose SB < MTO in 2017)	Countries not under EDP (and whose SB >= MTO in 2017)
2017	fiscal consolidation (in terms of SB) fixed by Council recommandation	SB = forecast value	SB = forecast value (>= MTO)
2018 until excessive deficit (if any) corrected		fiscal consolidation (in terms of SB) determined by the matrix (for cyclical conditions), investment and structural reforms' clauses (flexibility communication)	SB constant (>= MTO)
excessive deficit (if any) corrected until MTO reached	fiscal consolidation (in terms of SB) determined by the matrix (for cyclical conditions), investment and structural reforms' clauses (flexibility communication)		
MTO reached until end of projections (2027)	SB constant (>= MTO)	SB constant (>= MTO)	

Source: Commission services

For Member States under EDP, the recommended fiscal adjustment is applied in 2017 (and 2018 in case) according to the Table below.

Table A3.2: **Required fiscal adjustment under EDP (change in structural balance, pps. of GDP)**

	2017	2018
ES	0.5	0.5
FR	0.9	-

Source: Commission services

For countries not under EDP and for countries under EDP, once the excessive deficit will have been corrected, the annual fiscal adjustment required to reach the MTO is determined according to the matrix defined in the flexibility Communication (see Table below). This matrix specifies the appropriate fiscal adjustment, required under the preventive arm of the SGP, taking better account of the cyclical situation of individual Member States. The level of requested fiscal effort is also modulated according to the level of the debt ratio (below or above 60% of GDP, and in case based on the presence of sustainability risks). It should be noted that the SGP scenario (that is built on the *Autumn forecasts* for the year t+1) does not take into account the possible further granting of flexibility (on top of the one granted in the European Semester 2016) to temporarily deviate from the MTO or adjustment path towards it, under the structural reform and/or investment clause (see the aforementioned flexibility Communication).

Table A3.3: **Matrix specifying fiscal adjustment towards MTO (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

The fiscal effort required for 2018 and onwards under the SGP preventive arm, taking into account the flexibility allowed by the SGP, is incorporated in our debt projections as reported in the Table below. In 2018, required fiscal adjustment ranges from 0 pps. of GDP for countries that would have already (over-)reached their MTO (e. g. DE or LU) to 1.0 pp. of GDP in the case of CY, HU and SI. By 2024, all countries will have reached their MTO in this scenario. Note that in the case of CY, because of negative actual growth rates projected for the period 2019-21, no fiscal adjustment would be required during these years (but thereafter).

([123]) Regulation 1466, as clarified by the Commission Communication regarding SGP flexibility. 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).

([124]) See previous footnote for more details.

Table A3.4: **Required fiscal adjustment under the SGP scenario (change in structural balance, pps. of GDP)**

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
BE	0.6	0.6	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0
BG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CZ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DK	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EE	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IE	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EL	:	:	:	:	:	:	:	:	:	:
ES	0.5	0.6	0.6	0.6	0.6	0.4	0.0	0.0	0.0	0.0
FR	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HR	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IT	0.6	0.6	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0
CY	1.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
LV	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LT	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HU	1.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AT	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PL	0.5	0.5	0.5	0.5	0.1	0.0	0.0	0.0	0.0	0.0
PT	0.6	0.6	0.6	0.6	0.3	0.0	0.0	0.0	0.0	0.0
RO	0.5	0.5	0.5	0.5	0.4	0.0	0.0	0.0	0.0	0.0
SI	1.0	0.6	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0
SK	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FI	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UK	0.6	0.6	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0

Source: Commission services

ANNEX A4

Stochastic debt projections based on the historical variance-covariance matrix and prudent debt targets

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 ([125]).

A4.1 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 (2017-21) 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 ([126]). 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 2017 to 2021), the annual shock to long-term interest rate in year t is defined as:

([125]) For more details see Berti (2013).

([126]) The implicit assumption is made here that long-term government bonds are issued at fixed interest rates only.

$$\varepsilon_t^{i^L} = \frac{1}{T}\sum_{q=1}^{4}\varepsilon_q^{i^L} \quad \text{if} \quad t = 2017$$

$$\varepsilon_t^{i^L} = \frac{2}{T}\sum_{q=-4}^{4}\varepsilon_q^{i^L} \quad \text{if} \quad t = 2018$$

$$\varepsilon_t^{i^L} = \frac{3}{T}\sum_{q=-8}^{4}\varepsilon_q^{i^L} \quad \text{if} \quad t = 2019$$

$$\varepsilon_t^{i^L} = \frac{4}{T}\sum_{q=-12}^{4}\varepsilon_q^{i^L} \quad \text{if} \quad t = 2020$$

$$\varepsilon_t^{i^L} = \frac{5}{T}\sum_{q=-16}^{4}\varepsilon_q^{i^L} \quad \text{if} \quad t = 2021$$

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 ([127]):

$$\varepsilon_t^{i^L} = \frac{1}{3}\sum_{q=1}^{4}\varepsilon_q^{i^L} \quad \text{if} \quad t = 2017$$

$$\varepsilon_t^{i^L} = \frac{2}{3}\sum_{q=-4}^{4}\varepsilon_q^{i^L} \quad \text{if} \quad t = 2018$$

$$\varepsilon_t^{i^L} = \sum_{q=-8}^{4}\varepsilon_q^{i^L} \quad \text{if} \quad t \geq 2019$$

([127]) 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:

$$\varepsilon_t^i = \alpha^S \varepsilon^{i^S} + \alpha^L \varepsilon^{i^L}$$

A4.2 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.

A4.3 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 ([128])

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 ([129])

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 2017-21, from which we extract the percentiles to construct the fan charts.

A4.4 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 ([130]). Shocks to the primary balance were simulated for all countries but three (Croatia, Estonia and Portugal), based on availability of sufficiently long time series of quarterly primary balances.

In general, data starting from the late 90s-early 2000s till the second quarter of 2016 were used to calculate the historical variance-covariance matrix.

([128]) 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).

([129]) Figures on age-related costs from the European Commission's 2015 Ageing Report were used.

([130]) 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 A5

Signals' approach and analysis of public debt structure, sovereign yield spreads and banking sector vulnerabilities

Table A5.1 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 A1). These variables are used in the heat maps on public debt structure and government contingent liability risks (Chapter 4), in the summary heat map (Chapter 5) and in the table with financial market information reported in the Statistical Annex.

Table A5.1: **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
Public debt structure variables					
Public debt by non-residents, share of total, %	<	49.01	0.30	0.36	0.33
Public debt in foreign currency, share of total, %	<	31.58	0.08	0.21	0.71
Short-term debt gen. gov., % of total debt	<	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

ANNEX A6

Estimating the potential impact of simulated bank losses on public finances based on the SYMBOL model

A6.1. DATA SAMPLE

SYMBOL approximates the probability distributions of individual bank's losses using publicly available information from banks' financial statements. In particular, the model estimates an average implied default probability of the individual banks' asset/loan portfolios by inverting the Basel FIRB formula for capital requirements ([131]).

The main data source on banks' financial statements is Bankscope, a commercial database of the private company Bureau van Dijk ([132]). For the reference year is 2015 unconsolidated data for commercial, saving and cooperatives banks is included. The database as provided by Bankscope lacks information on specific variables for some banks in the sample (e.g. capital, risk weighted assets, reserves ([133]), gross non-performing loans). In those cases, capital is imputed via a robust regression by common equity, while risk weighted assets are approximated using the total regulatory capital ratio (at bank or country level) ([134]). While gross losses are available for all banks, values for provisions and non-performing loans are available only for two thirds of the sample. Missing values for provisions have thus been estimated by country aggregates coming from EBA dashboard, while missing values for non-performing loans have been imputed by applying a robust regression with provisions as explanatory variable. Information on the sample is presented in Table A6.1. Note that the risk weighted assets and capital reported in the table have been adjusted by a correction coefficient to reflect the new definitions proposed in the CRDIV ([135]).

Similarly to past exercises the sample covers roughly 70% of all EU banking assets. Whenever the country sample ratio is low (i.e. the country-level aggregates are based on banks which represent less than 20% of the country's banking sector), or the number of banks is extremely small (less than 10), simulation results are deemed to be highly uncertain, since a minor change to any bank's data or the addition of a new bank could have large effects on results. This is marked by an asterisk near the country name.

Table A6.2 reports statistics at aggregated level per each Member State. ECB statistics ([136]) is the source for the aggregated total assets and for the share of collateralised loans in each Member State. Both ratios, non-performing loans (NPLs) over gross losses (GL) and Provisions over non-performing loans, come from the EBA risk dashboard ([137]). Recovery rates are available from World Bank in its 2016 Doing Business Report as country aggregates ([138]).

A6.2. COMPUTATION OF AGGREGATE BANKING LOSSES AND ESTIMATED IMPACT ON PUBLIC FINANCES

Starting from the estimated average probability of default of each individual bank's obligors, SYMBOL generates realizations for each individual bank's credit losses via Monte Carlo simulation using the Basel FIRB loss distribution function and assuming a correlation between simulated shocks hitting different banks in the system ([139]).

In the short-term scenario, losses from SYMBOL are added on top of losses due to non-performing

([131]) Refer to European Commission (2016a) Section 5.2.2 and Annex A7 for more detail on the Symbol model.
([132]) Refer to European Commission (2016a).
([133]) Considering the Bankscope definition "Reserves are the proportion of the total loan portfolio that has been provided for, but not charged off (a reserve for losses)." these are deemed to be in fact accumulated provisions. The term Provisions is thus used throughout the chapter.
([134]) The procedure for the imputation of missing values of capital and RWA is described in "SYMBOL database and simulations for 2013, P. Benczur, J. Cariboni, F. E. Di Girolamo, A. Pagano, M. Petracco, JRC European Commission, Technical Report, JRC9298".
([135]) To properly estimate the effects of these CRDIV improved definitions, the results of the Basel III monitoring exercise (Quantitative Impact Study, QIS), run by the European Banking Authority are used. Since Basel III definitions of RWA and capital reflect better banks' true risk and capital quality, SYMBOL adjusts inputs to reflect these definitions even in scenarios where CRDIV is not yet implemented. These decrease capital and increase RWA.
([136]) http://sdw.ecb.europa.eu/browse.do?node=9689685
([137]) http://www.eba.europa.eu/documents/10180/1426941/EBA+Dashboard+-+Q4+2015.pdf/0abf94bc-619a-4f22-b2f8-a0c831980744
([138]) www.doingbusiness.org/~/media/.../Doing%20Business/.../DB16-Full-Report.pdf
([139]) The correlation is assumed to be 0.5 for all banks in the current simulation. All EU banks are simulated together.

Table A6.1: **Descriptive statistics of samples used for SYMBOL simulations**

	Nr. of banks	Total assets, bn €	Capital, bn €	RWA, bn €	Cov. Dep, bn €	Gross Losses (GL), bn €	Provisions imputed by EBA Provision / GL ratio	NPL imputed by robust regression (via Provisions)	RWA / Total assets	Capital / RWA	NPL / Total assets	NPL / Capital
BE	18	610	37	198	177	296	5	9	32.41%	18.90%	1.49%	24.39%
BG	13	34	4	20	19	21	2	4	56.65%	20.10%	11.20%	98.36%
CY* (ł)	6	59	5	32	18	51	10	25	53.35%	15.66%	42.22%	505.18%
CZ	15	165	14	76	67	101	3	4	45.94%	18.00%	2.40%	29.03%
DK	66	651	51	251	105	380	10	17	38.59%	20.26%	2.59%	33.15%
DE	813	4,238	253	1,494	1,022	1,705	20	41	35.25%	16.96%	0.97%	16.23%
EE*	2	10	1	7	4	6	0	0	69.05%	22.62%	1.15%	7.37%
IE*	16	279	35	190	69	129	12	20	68.17%	18.56%	7.13%	56.39%
ES	24	1,596	141.5	1,044	391	805	43	77	65.39%	13.55%	4.83%	54.54%
FR	149	6,660	313	2,004	1,084	1,837	33	58	30.09%	15.62%	0.87%	18.58%
HR	23	51	6	32	19	36	4	6	61.81%	20.11%	11.76%	94.59%
IT	360	2,235	198	1,018	523	1,281	128	261	45.56%	19.45%	11.66%	131.63%
LV	16	28	3	14	8	12	1	1	49.65%	21.69%	4.06%	37.73%
LT*	6	20	2	10	11	13	0	1	49.14%	22.77%	3.65%	32.63%
LU	33	383	22	121	18	110	1	1	31.53%	18.48%	0.35%	6.09%
HU	14	41	4	21	11	14	1	2	51.37%	20.66%	5.22%	49.21%
MT*	7	18	1	9	8	9	0	1	48.31%	13.29%	3.84%	59.84%
NL	17	1,615	112	667	241	676	7	13	41.31%	16.73%	0.80%	11.61%
AT*	53	150	11	73	44	85	3	6	48.33%	15.28%	4.25%	57.49%
PL	26	222	22	143	98	153	7	10	64.40%	15.40%	4.68%	47.22%
PT	90	207	14	126	86	133	15	13	60.79%	11.45%	6.40%	92.02%
RO	15	52	5	27	20	32	4	5	51.19%	18.59%	10.10%	106.15%
SI	12	30	3	17	15	20	2	5	57.28%	19.88%	16.42%	144.24%
SK	10	55	5	30	22	38	1	2	55.20%	15.94%	3.76%	42.78%
FI	15	354	15	61	44	95	1	2	17.15%	23.96%	0.56%	13.73%
SE	72	618	41	169	138	276	1	3	27.34%	24.37%	0.41%	6.17%
UK	76	6,030	376	2,059	1,157	2,440	26	59	34.15%	18.26%	0.97%	15.59%
EU	1972	26,705	1,728	10,089	5,495	10,960	390	733	37.78%	17.13%	2.74%	42.41%

(1) 2015, unconsolidated data. Values in billion euros (where applicable).
(2) (*) Asterisks denote countries with sample representativeness issues i.e. when the country-level aggregates are based on banks representing less than 20% of the country's banking sector or when the number of banks is extremely small (less than 10).
(3) (ł) Two banks of Cyprus are based on consolidated data (Bank of Cyprus Public Company Limited and Co-operative Central Bank Limited).
Source: Commission services

loans as coming from Equation 1 (see Chapter 4, Box 4.1).

Individual bank losses are then transformed into excess losses and recapitalization needs to be covered and finally aggregated at country and system level. Based on the bank-level balance sheet data and losses simulation, the model can then implement the loss allocation cascade (e.g, capital, bail-in, RF interventions…), distinguishing between excess losses and recapitalization needs. Excess losses are losses in excess of available total capital of a bank, while recapitalization needs are the funds necessary to restore the bank's minimum level of capitalization given by the regulatory scenario under consideration ([140]).

Throughout the cascade of safety net intervention, it can then be traced how much of these two types of financing needs are picked up by the different tools. If a bank is failing or if it is left under-capitalized with respect to the minimum level established in the scenarios, the bail-in tool is applied at individual bank level up to 8% of its total assets. Where an RF is available, it is then assumed to intervene up to 5% of the total assets of each bank. Given that the sample coverage in terms of the number and total assets of banks in the sample is not complete, the RF is equipped with an ex-ante fund equal to the appropriate percentage of covered deposits of the banks in the sample. Any leftover losses or recapitalization needs not covered after all available tools have intervened are finally assumed to be covered by the government, taking into account the ratio between the sample and the population TA of all banks.

Banks are divided into two groups: those assumed to be systemic which in case of distress go into resolution and thus are recapitalized, and those assumed to be non-systemic which can be liquidated ([141]).

([140]) European Commission (2016a) Annex A7.

([141]) European Commission (2016a) Annex A7.

Table A6.2: **Aggregated statistics at country level**

	GDP	Population Total Assets	Sample Ratio	Provisions / NPL	NPL / Gross Losses	Recovery Rate	Collateral Share
BE	410	831	73.40%	42.70%	3.90%	89.30%	48.00%
BG	44	47	73.82%	55.80%	13.70%	34.00%	53.00%
CY (ł)	17	87	68.51%	38.00%	48.90%	71.40%	66.00%
CZ	164	187	87.87%	59.90%	3.30%	66.00%	22.00%
DK	266	983	66.27%	31.20%	3.60%	87.80%	73.00%
DE	3,026	7,358	57.59%	37.20%	3.00%	83.70%	38.00%
EE	20	17	55.90%	***45.39%***	1.86%	40.00%	33.00%
IE	215	990	28.14%	38.80%	18.50%	87.70%	71.00%
ES	1,081	2,729	58.49%	46.10%	6.40%	71.20%	54.00%
FR	2,184	7,985	83.41%	51.70%	4.00%	77.50%	29.00%
HR	44	58	88.44%	57.80%	12.50%	30.50%	17.00%
IT	1,636	3,653	61.17%	45.50%	16.80%	63.10%	42.00%
LV	24	29	96.49%	30.90%	4.00%	48.10%	45.00%
LT	37	21	93.94%	31.70%	5.10%	42.80%	***51.01%***
LU	52	844	45.33%	45.40%	1.20%	43.80%	38.00%
HU	109	106	38.27%	60.00%	13.90%	41.70%	55.00%
MT	9	47	38.77%	35.90%	7.40%	39.60%	***51.01%***
NL	679	2,400	67.29%	37.70%	2.80%	88.90%	55.00%
AT	337	840	17.92%	55.60%	6.90%	82.70%	52.00%
PL	428	386	57.54%	58.60%	6.70%	58.30%	69.00%
PT	179	425	48.71%	39.40%	19.10%	73.40%	67.00%
RO	160	83	62.85%	65.50%	14.60%	32.70%	***51.01%***
SI	39	41	74.40%	62.70%	21.50%	88.20%	42.00%
SK	78	59	92.69%	58.20%	4.10%	54.70%	***56.13%***
FI	207	520	68.14%	30.90%	1.60%	90.10%	66.00%
SE	444	1,169	52.86%	29.50%	1.20%	76.60%	62.00%
UK	2,569	6,176	97.64%	30.40%	2.50%	88.60%	***51.01%***
EU	14,635	38,452	69.45%				

(1) The percentages in bold and italic signal missing country-specific data which have been replaced by average values across the available EU countries; (2) Collateral share is a proxy calculated at country level by summing up the share of loans collateralised by immovable property (i.e. the share of loans for housing purposes) and the share of other collateralized loans; (3) (ł) For Cyprus the collateral share is calculated using the average ratios of collateral for non performing exposures (NPE) to NPEs for Bank of Cyprus Public Company Limited and Co-operative Central Bank Limited as reported in the EBA 2015 transparency exercise.
Source: Commission services. Provisions/NPL and NPL/Gross losses come from the EBA; Collateral share comes from the ECB; Recovery Rates from the World Bank.

Individual bank losses are then transformed into excess losses and recapitalization needs to be covered and finally aggregated at country and system level. Based on the bank-level balance sheet data and losses simulation, the model can then implement the loss allocation cascade (e.g, capital, bail-in, RF interventions…), distinguishing between excess losses and recapitalization needs. Excess losses are losses in excess of available total capital of a bank, while recapitalization needs are the funds necessary to restore the bank's minimum level of capitalization given by the regulatory scenario under consideration ([142]).

Throughout the cascade of safety net intervention, it can then be traced how much of these two types of financing needs are picked up by the different tools. If a bank is failing or if it is left under-capitalized with respect to the minimum level established in the scenarios, the bail-in tool is applied at individual bank level up to 8% of its total assets. Where an RF is available, it is then assumed to intervene up to 5% of the total assets of each bank. Given that the sample coverage in terms of the number and total assets of banks in the sample is not complete, the RF is equipped with an ex-ante fund equal to the appropriate percentage of covered deposits of the banks in the sample. Any leftover losses or recapitalization needs not covered after all available tools have intervened

([142]) European Commission (2016a) Annex A7.

are finally assumed to be covered by the government, taking into account the ratio between the sample and the population TA of all banks.

Banks are divided into two groups: those assumed to be systemic which in case of distress go into resolution and thus are recapitalized, and those assumed to be non-systemic which can be liquidated ([143]).

Results give an estimate of the implicit contingent liabilities - banking losses and recapitalization needs - that would be faced in case of a financial crisis similar to the one started in 2008 ([144]). For the EU as a whole, a loss of similar magnitude would correspond to the 99.95th percentile of the distribution of aggregate losses including recapitalization needs based on 2009 data and regulatory framework, so this exercise focuses on this percentile of the distribution. It is important to highlight that focussing on the 99.95th percentile does not mean that the event happens with a probability of at most 0.05 percent. SYMBOL probabilities are more appropriately seen as "theoretical probabilities" which cannot be taken literally as frequencies: their magnitudes, however, inform on the relative risks among banks or countries ([145]).

A6.3. CALIBRATING THE HEAT MAP

The model allows estimating the probability distribution of the amount of public funds needed to cover losses after exhausting the protection provided by the financial safety net. To obtain the input for the heat map on government's implicit contingent liability risks, a minimum size of government's contingent liabilities is fixed, and the theoretical probability of the materialization of the event is assessed.

([143]) European Commission (2016a) Annex A7.

([144]) Bank losses and recapitalization needs triggered by the last crisis are proxied by state aid data, in particular the total recapitalization and asset relief provided to banks over 2008-12 (around 615 bn euro), see European Commission (2014b) and Benczur et al. (2015).

([145]) According to Basel II an institution would suffer losses exceeding its capital once in a thousand years on average (99.9% confidence level). (See Basel Committee on Banking Supervision, (2005)). While Laeven and Valencia (2013) identify 17 systemic banking crisis episodes during 2008-2011 worldwide and 147 episodes since 1970, the Basel model seems to under-predict the actual frequency of bank failures, affecting also SYMBOL estimates.

The heat map illustrates the relative riskiness of countries in terms of public finances being hit by at least 3% of GDP. The colour coding reflects the relative magnitude of the theoretical probabilities of such an event. The allocation of the colours is based on a procedure that was fixed in 2014 (as reported in European Commission, (2014c)), based on simulations using 2012 bank balance sheet data ([146]).

([146]) European Commission (2016a) Annex A7.

ANNEX A7

Decomposing debt dynamics and projecting the interest rate on public debt

A7.1 DECOMPOSING THE DEBT DYNAMICS

Deterministic public debt projections are based on a general identity characterizing the evolution of the stock of debt. In a simplified version, the evolution of the public 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 public debt to GDP ratio in year t

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

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

i_t represents the implicit interest rate on public debt ([147])

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.

([147]) By simplicity, it is assumed that this interest rate is the same for public 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 ([148]).

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).

([148]) This presentation, based on the public debt ratio identity equation, allows grasping the impact of real GDP growth and inflation on the debt motion coming from direct valuation effects (as public 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 public debt) contribute to the debt dynamic ([149]). 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 (see Box 2.2 of the report for more details).

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 public debt denominated in euros

α^{usd} represents the share of total public 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 public debt not only in non-euro area countries, but also in euro area countries (among which public debt issued in USD can be significant, see Box 2.2 of the report).

([149]) 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).

A7.2 PROJECTING THE IMPLICIT INTEREST RATE ON PUBLIC DEBT

As seen from equation (1), a key driver of the debt motion is the implicit interest rate on public debt. Projecting the implicit interest rate on public 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 public debt (between short-term and long-term public debt, and between maturing, rolled-over or not, and non-maturing public 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 ([150])

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 public debt (and $(1 - \alpha_{t-1})$ is the share of long-term debt in total public debt) ([151]).

Our model considers two types of public 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, public debt can be decomposed between new debt (debt issued to cover new financing requirements) ([152]), maturing debt (i.e. existing debt that is maturing within the year ([153]) and that needs to be repaid), rolled-over (i.e. whose repayment is

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

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 public debt in year $t-1$

D_{t-1}^{STR} is the maturing and rolled-over short-term public 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 public debt

D_{t-1}^{LTR} is the maturing and rolled-over long-term public 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 public 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 public debt in year $t-1$ (and $(1-\beta_{t-1})$ is the share of outstanding long-term debt in total long-term public debt)

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

The share of newly issued long-term debt (respectively outstanding debt) in total long-term public 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 public 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 public debt, an increase of market interest rates will transmit more or less quickly to the implicit interest rate on public debt.

In the projections, the following assumptions are made:

- i_t^{LT} is supposed to converge linearly to 5% in nominal terms (3% 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 0.83) 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 public debt, based on the shares given by Estat (of short-term and long-term public debt) ([154]), whenever public debt is projected to increase ([155]);

- 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 public debt, based on the share of short-term public debt given by Estat, whenever public debt is projected to increase ([156]);

([154]) More precisely, we use the average shares over the last 3 years available.
([155]) Otherwise, in the cases where public debt is projected to decrease, for instance, in case of a budgetary surplus, no new debt needs to be issued.
([156]) Otherwise, in the cases where public 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 public

- 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 public debt is projected to increase ([157]). This fraction is estimated based on the Estat data on the share of long-term public debt and on the ECB data on the share of existing long-term debt maturing within the year ([158]).

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.

The Table below reports the main parameters used to project public debt composition and the implicit interest rate. From this table, it can be seen that there is an important variability within the EU in terms of public debt maturity structure: indeed, if the share of short-term public debt was below 10% in the majority of MSs (20), it was above 20% in SE and BG, and around 15% in IT and HU in 2016. The share of long-term debt maturing within the year was the lowest in LU, LV, UK and BG in 2016 (around 5% at the most), while it reached the highest values in RO and DE (respectively close to 19% and 16%).

Table A7.1: **Debt maturity structure: key parameters used in the projections (%), by country**

	3-year average, 2014-16		2016	5-year average, 2012-16
	Share of ST debt	Share of LT debt	Share of LT debt maturing every year	Share of LT debt maturing every year
BE	8.7	91.3	7.7	10.4
BG	22.4	77.6	5.7	9.6
CZ	6.8	93.2	12.1	10.5
DK	5.3	94.7	11.5	11.5
DE	8.2	91.8	16.0	16.5
EE	:	:	:	:
IE	0.2	99.8	6.8	5.2
EL	:	:	:	:
ES	9.1	90.9	11.9	15.2
FR	12.3	87.7	9.2	9.4
HR	9.2	90.8	7.6	10.2
IT	14.6	85.4	13.5	12.9
CY	9.6	90.4	12.8	13.8
LV	2.5	97.5	3.7	6.4
LT	6.6	93.4	10.3	10.2
LU	6.5	93.5	0.1	5.0
HU	13.6	86.4	9.6	11.5
MT	4.2	95.8	8.3	6.8
NL	10.6	89.4	8.2	11.0
AT	5.7	94.3	7.2	7.6
PL	0.2	99.8	11.7	12.4
PT	13.4	86.6	9.0	11.1
RO	6.8	93.2	19.8	15.8
SI	4.0	96.0	13.4	8.6
SK	0.6	99.4	11.9	11.0
FI	7.7	92.3	10.2	10.2
SE	27.6	72.4	13.3	12.2
UK	13.2	86.8	5.5	5.3

(1) For EE, no data are provided. For the projections, we use (as a starting value), the average of other Baltic countries.
Source: Estat, ECB

debt is assumed to strongly decrease, for example, when a large budgetary surplus allows repaying past maturing debt).
([157]) See previous footnote.
([158]) More precisely, the starting point (currently 2017) is calculated based on the 2016 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 (2016) to the country-specific historical (5-year) average by the end of the T+10 projection horizon.

ANNEX A8

Assessment of fiscal sustainability challenges: criteria used

A8.1. THE OVERALL LOGIC FOLLOWED IN FISCAL SUSTAINABILITY ASSESSMENTS

The logic followed in fiscal sustainability assessments presented in the Fiscal Sustainability Report (2015) differs from that used in the previous editions in that the debt sustainability analysis (DSA) has now been fully integrated in the approach used to analyse medium-term sustainability challenges. An overview of the overall logic followed in the new approach and the elements that feature in it is provided in Graph A8.1.

In the remainder of this annex, the renewed approach to reach an overall assessment of medium-term sustainability challenges is described in more detail. A summary overview of the thresholds used in fiscal sustainability assessment (and in particular in the summary heat map in Chapter 5) is provided in Section A8.3.

A8.2. THE APPROACH USED IN THE ASSESSMENT OF MEDIUM-TERM SUSTAINABILITY CHALLENGES

The assessment of medium-term sustainability challenges is now based on S1 (under the baseline no-fiscal policy change scenario) *and* an overall conclusion on the country's DSA. 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 A8.2).

The overall assessment of the country's DSA is reached by looking at debt projection results under three different scenarios (baseline no-fiscal policy change scenario; historical SPB scenario; SGP scenario) and a series of negative sensitivity tests (on nominal growth, interest rates and primary balance) around the baseline no-fiscal policy change projections ([159]). Synthetic stochastic debt projection results are also brought into the picture to reach the overall risk assessment on DSA.

The decision tree that is followed in this respect can be visualised in Graph A8.3. Practically, a country's DSA is deemed to highlight potential high risks if the baseline no-fiscal policy change 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 ([160]).

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 A8.4. The variables used to summarise deterministic debt projection results are the following:

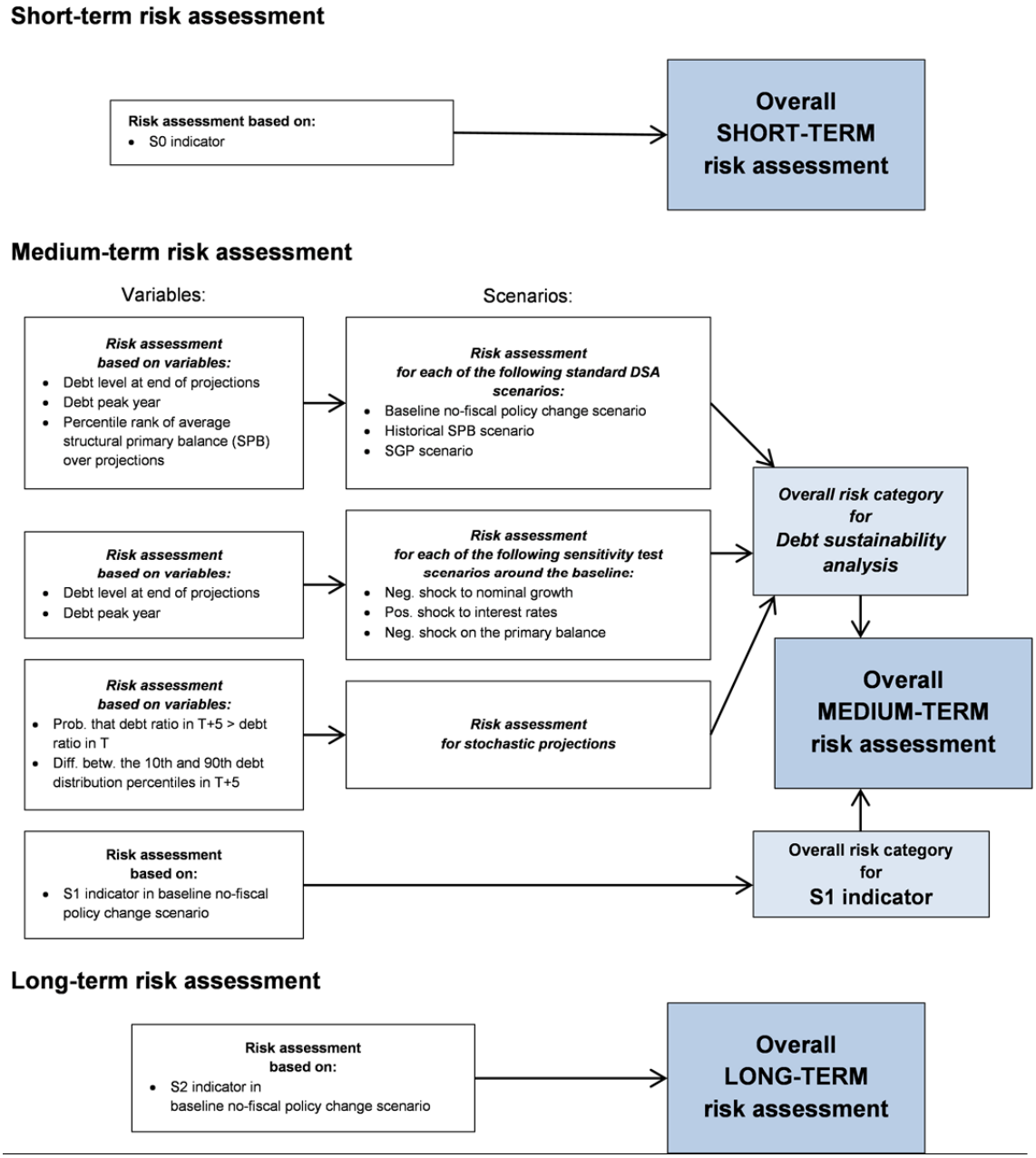
- The level of the debt ratio at the end of projections (2027);
- The year in which the debt ratio peaks over the 10-year projection horizon (providing a synthetic indication of debt dynamics);
- The percentile rank of the average SPB assumed over the projection horizon in the specific scenario (giving a sense of how common/uncommon the fiscal stance assumed in the projections is, relative to the SPB distribution for all EU countries over 1980-2016) ([161]).

([159]) Positive sensitivity tests are neglected in the overall assessment as the idea is rather to stress test baseline debt projections against upward risks.

([160]) 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 no-fiscal policy change 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 A8.3. 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).

([161]) 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 (see Graph A8.4). The reason is that these sensitivity tests are all run around the baseline no-fiscal policy change scenario, for which the

Graph A8.1: **The logic followed in the multi-dimensional approach to the assessment of fiscal sustainability challenges**



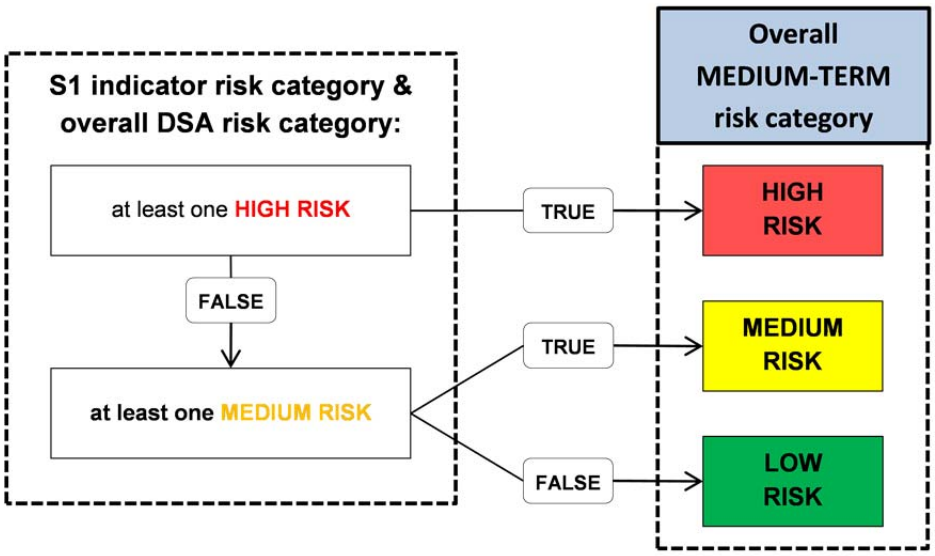
Source: Commission services.

Stochastic debt projections are summarized using the following two indicators (as indicated in Chapter 6):

- The probability of a debt ratio at the end of the 5-year stochastic projection horizon (2021) greater than the initial (2016) debt ratio (capturing the probability of a higher debt ratio due to the joint effects of macroeconomic and fiscal shocks);

variable percentile rank of the average SPB is already used in the assessment.

Graph A8.2: **Decision tree for the renewed approach to the assessment of medium-term sustainability challenges**



Source: Commission services.

- 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 A8.4, 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 A8.1 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 A8.1 for precise thresholds) ([162]).

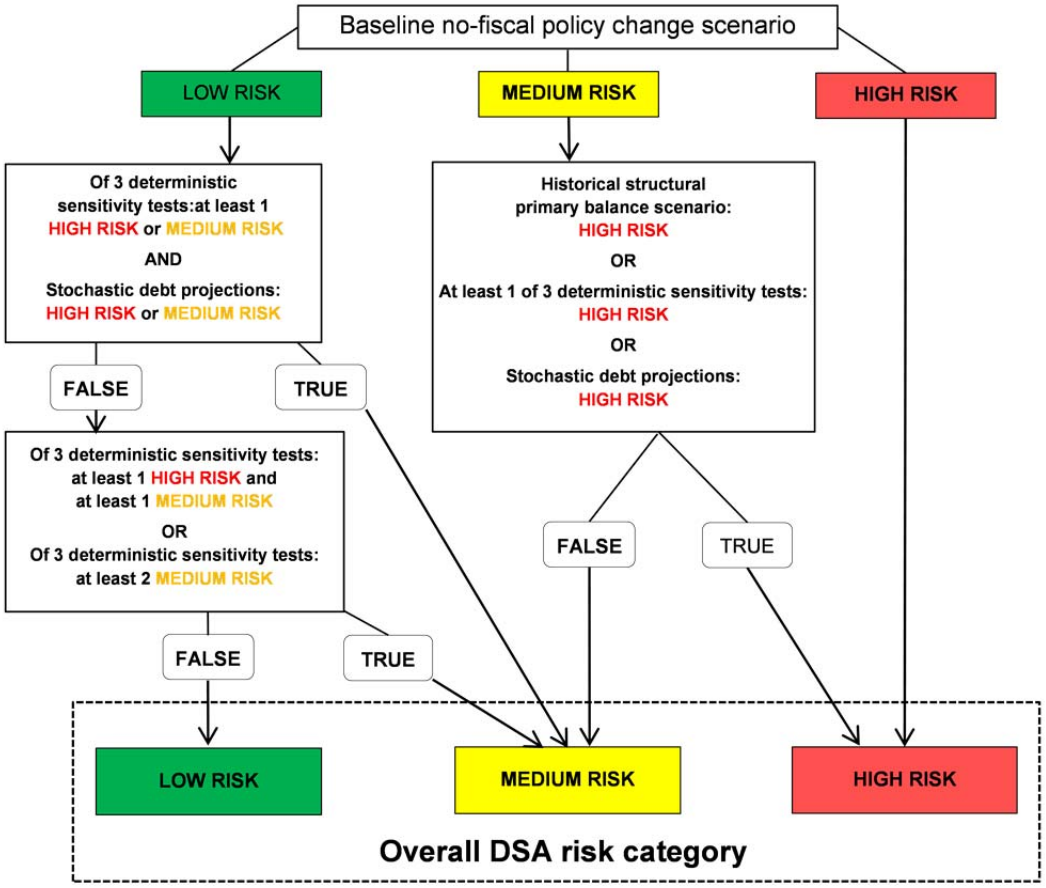
A sensitivity test (on growth, interest rate or the primary balance) is highlighted as high risk if it leads to a debt ratio at the end of projections above 90% (red), or if the end-of-projection debt ratio is between 70% and 90% (thus already significantly above the 60% Treaty reference value) and the 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 A8.1). On the contrary, the fact of having a high level of estimated uncertainty around baseline projections is in itself considered 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 no-fiscal policy change scenario) as indicated in Graph A8.2.

([162]) As indicated in Table A8.1, 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 1980-16), which corresponds to an SPB of 3.3% of GDP, while the 30% percentile rank corresponds to the 70th distribution percentile, which is an SPB of 1.6% of GDP.

Graph A8.3: **Decision tree for country risk assessment based on debt sustainability analysis**



Source: Commission services.

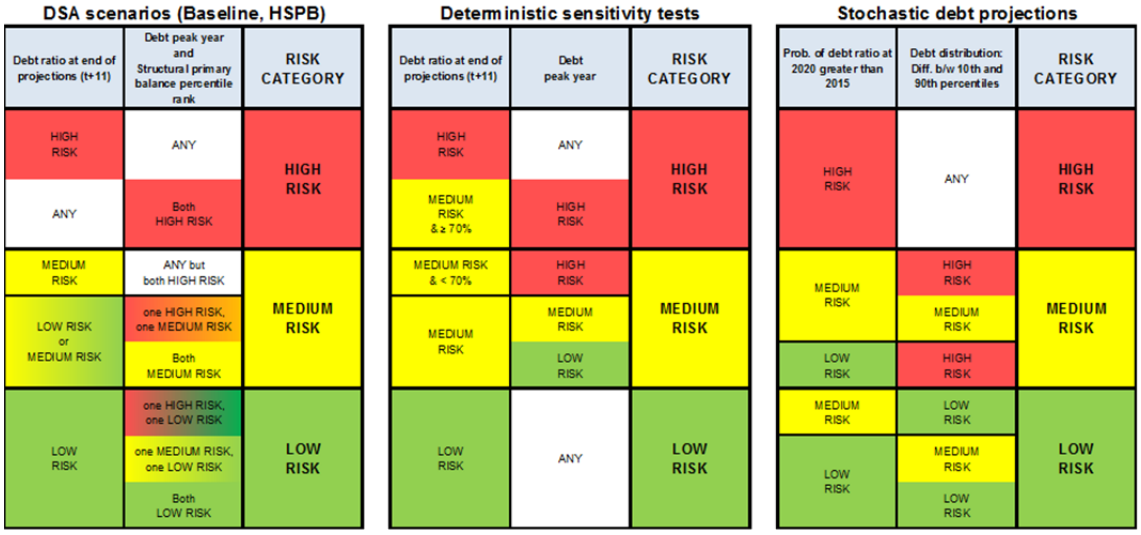
A8.3. A SUMMARY OVERVIEW OF THRESHOLDS USED IN FISCAL SUSTAINABILITY ASSESSMENT

In this section we provide a summary overview of thresholds used to identify fiscal sustainability challenges (with the only exception of thresholds used for DSA variables that have already been discussed and reported in the previous section – see Table A8.1).

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 (Chapter 1, Annexes A1 and A6). Here the purpose is to provide a quick reference for the identification of fiscal sustainability challenges reported in the summary heat map of Chapter 6.

As explained in Chapter 1, 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 A1 for details), and are reported in Table A8.2.

Graph A8.4: **Assessment criteria used for debt projection scenarios, sensitivity tests and stochastic debt projections**



Source: Commission services.

Table A8.1: **Thresholds used for DSA variables**

Variable	*Threshold*	
Debt ratio at the end of projections (2027)	***Red:*** above 90% ***Yellow:*** between 60% and 90% ***Green:*** below 60%	
Debt peak year	***Red:*** peak year btw. T+7 and end projections (2023-27), or still increasing at end projections ***Yellow:*** peak year between end of forecasts (T+3) and T+6 (2019-22) ***Green:*** peak year within forecast horizon (2016-18)	
Percentile rank of average SPB over projection period (2018-27)	***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 (2021) greater than initial (2016) debt ratio	Initial (2016) 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 (2016) debt ratio at or above 55% and below 90%:	***Red:*** if probability above 60% ***Yellow:*** if probability between 30% and 60% ***Green:*** if probability below 30%
	Initial (2016) debt ratio below 55%:	***Yellow:*** if probability above 70% ***Green:*** if probability at or below 70%
Difference between 10^{th} and 90^{th} 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 A8.2: **Thresholds used in fiscal sustainability assessment**

	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			
Primary balance (% of GDP)	>	0.23	0.19
Change in gross debt (% of GDP)	<	8.06	6.45
Share of short-term public debt (% of GDP)	<	13.20	10.56
Gross financing needs (% of GDP)	<	15.95	12.76
Fiscal risks from macro-financial context			
Private debt (% of GDP)	<	164.70	131.76
Private credit flow (% of GDP)	<	11.70	9.36
Net international investment position (% of GDP)	>	-19.80	-15.84
Change in share of non-performing loans (p.p.)	<	0.30	0.24
Fiscal risks from financial market developments			
Sovereign yield spreads (bp) - 10 year	<	231.00	184.80
MEDIUM-TERM RISKS			
S1 indicator (baseline, historical SPB, AWG risk scenarios)	<	2.5	0.0
Cost of ageing sub-component	<	0.5	:
RSPB related to S1 - Percentile rank	>	15%	30%
LONG-TERM RISKS			
S2 indicator (baseline, historical SPB, AWG risk scenarios)	<	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%

Source: Commission services.

For all other variables used to identify short-term risks (see Tables 6.1-6.2, Chapter 6), the upper thresholds of risk (above which values are highlighted in red) have also been derived using the signals' approach (see Chapter 1 and Annex A6), while lower thresholds of risk (above which values are highlighted in yellow, till when they remain below the upper threshold of risk) have *generally* been set at around 80% of the original signals' approach thresholds, for prudential reasons (see Table A8.2) ([163]).

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 reported in Table A8.2.

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 A8.2). 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 A8.1).

([163]) 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.

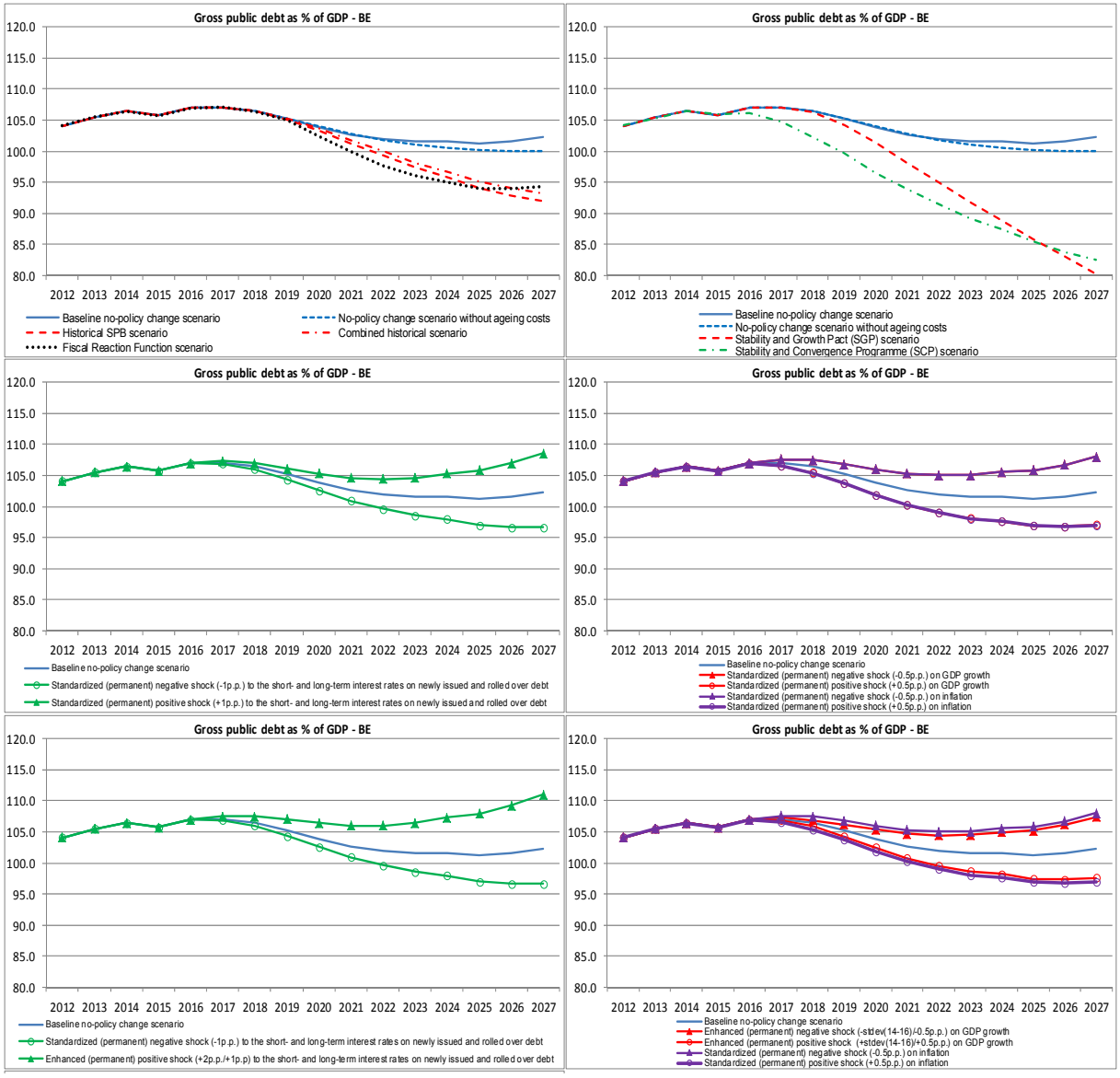
ANNEX A9

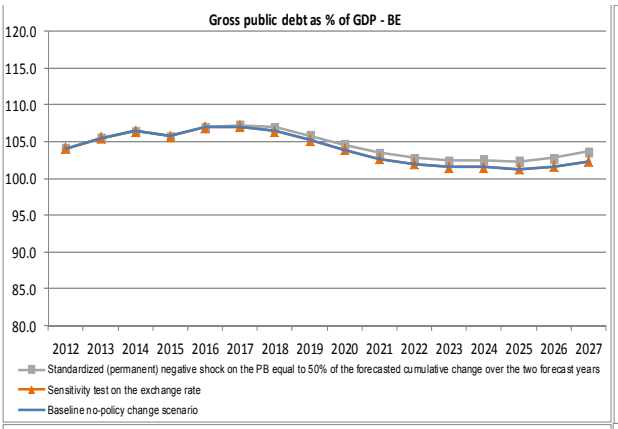
Statistical annex: Country-specific data

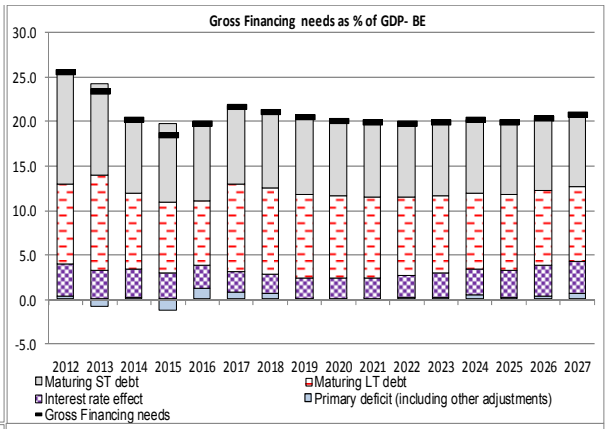
1. Belgium

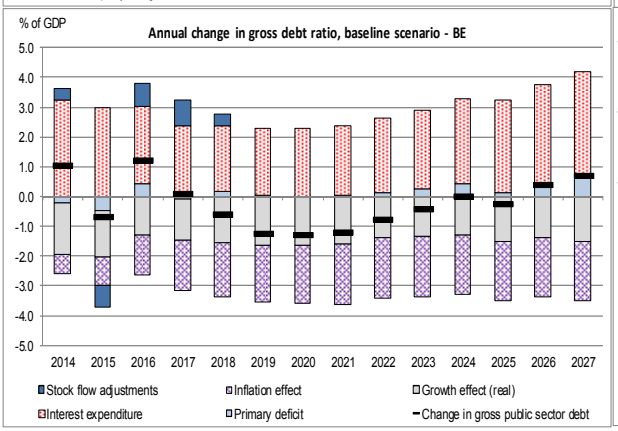
Public debt projections under baseline and alternative scenarios and sensitivity tests

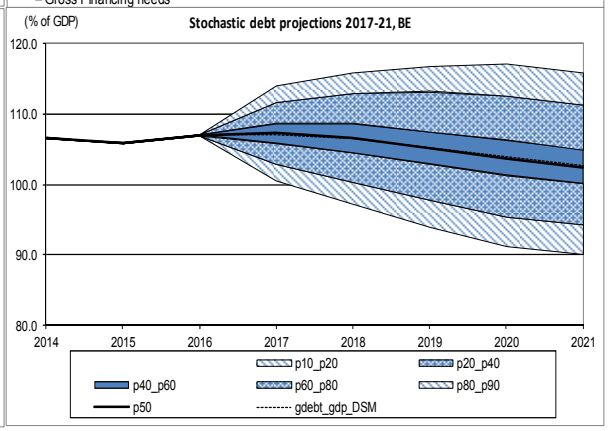
BE - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**106.5**	**105.8**	**107.0**	**107.1**	**106.4**	**105.2**	**103.9**	**102.7**	**101.9**	**101.5**	**101.5**	**101.3**	**101.6**	**102.3**
Changes in the ratio (-1+2+3)	*1.0*	*-0.7*	*1.2*	*0.1*	*-0.6*	*-1.2*	*-1.3*	*-1.2*	*-0.8*	*-0.4*	*0.0*	*-0.3*	*0.4*	*0.7*
of which														
(1) Primary balance (1.1+1.2+1.3)	**0.2**	**0.5**	**-0.5**	**0.1**	**-0.2**	**-0.1**	**0.0**	**0.0**	**-0.1**	**-0.3**	**-0.4**	**-0.1**	**-0.4**	**-0.6**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***0.4***	***0.4***	***-0.2***	***0.4***	***0.0***	***0.1***	***0.1***	***0.0***	***-0.1***	***-0.3***	***-0.4***	***-0.1***	***-0.4***	***-0.6***
(1.1.1) Structural Primary Balance (before CoA)	*0.4*	*0.4*	*-0.2*	*0.4*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.1.2) Cost of ageing						*-0.1*	*0.0*	*0.1*	*0.2*	*0.4*	*0.6*	*0.2*	*0.5*	*0.8*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.0*	*0.1*	*0.1*
(1.2) Cyclical component	***-0.5***	***-0.2***	***-0.2***	***-0.3***	***-0.2***	***-0.1***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.3***	***0.3***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**0.9**	**0.5**	**-0.1**	**-0.6**	**-1.2**	**-1.3**	**-1.3**	**-1.2**	**-0.9**	**-0.7**	**-0.4**	**-0.4**	**0.0**	**0.1**
(2.1) Interest expenditure	*3.3*	*3.0*	*2.6*	*2.4*	*2.2*	*2.2*	*2.3*	*2.4*	*2.5*	*2.7*	*2.9*	*3.1*	*3.4*	*3.6*
(2.2) Growth effect	*-1.7*	*-1.6*	*-1.3*	*-1.4*	*-1.6*	*-1.6*	*-1.6*	*-1.6*	*-1.4*	*-1.3*	*-1.3*	*-1.5*	*-1.4*	*-1.5*
(2.3) Inflation effect	*-0.7*	*-0.9*	*-1.4*	*-1.7*	*-1.8*	*-1.9*	*-2.0*	*-2.0*	*-2.0*	*-2.0*	*-2.0*	*-2.0*	*-2.0*	*-2.0*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock flow adjustments	**0.4**	**-0.7**	**0.8**	**0.8**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*0.4*	*-0.7*	*0.8*	*0.8*	*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*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-2.9	-2.6	-2.7	-2.0	-2.2	-2.2	-2.2	-2.4	-2.6	-2.9	-3.3	-3.2	-3.8	-4.2











Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	27.5	27.7	27.7	27.6	27.6	27.5	27.5	27.5	27.8	28.2
Revenues from pensions taxation	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6
Property incomes	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.48**	**0.42**	**0.46**
Fiscal sub-index	0.88	0.57	0.36
Financial competitiveness sub-index	0.27	0.35	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**4.3**	**4.5**	**4.7**	**2.2**	**3.8**
of which *Initial Budgetary position*	*-0.4*	*-1.5*	*-0.4*	*-2.4*	*-0.7*
*Cost of delaying adjustment***	*0.7*	*1.0*	*0.7*	*0.4*	*0.6*
*Debt requirement****	*3.6*	*4.4*	*3.6*	*3.7*	*3.6*
Ageing costs	*0.4*	*0.6*	*0.8*	*0.5*	*0.3*
Required structural primary balance related to S1	**4.4**	**6.0**	**4.8**	**4.0**	**4.4**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**3.1**	**1.7**	**4.4**	**1.4**	**2.5**
of which Initial Budgetary position	1.0	-0.5	1.0	-0.8	0.5
Long term component	2.2	2.2	3.4	2.2	2.1
of which Pensions	*1.0*	*1.0*	*1.2*	*1.0*	*1.0*
Health care	*0.2*	*0.2*	*0.5*	*0.2*	*0.1*
Long-term care	*1.1*	*1.1*	*1.9*	*1.1*	*1.1*
Others	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*
Required structural primary balance related to S2	**3.2**	**3.7**	**4.4**	**3.2**	**3.1**

Risks related to the structure of public debt financing

Public debt structure - BE (2015):	Share of short-term public debt (p.p.) out of total debt	Share of public debt by non-residents (%):	Share of public debt in foreign currency (%):
	7.6	53.8	0

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015		BE	EU
State guarantees (% GDP) (2014)		11.6	9.2
of which One-off guarantees		*11.1*	*8.8*
Standardised guarantees		*0.5*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee *	7.68	2.74
	Securities issued under liquidity schemes	0.00	0.07
	Special purpose entity	0.00	0.48
	Total	7.68	3.29

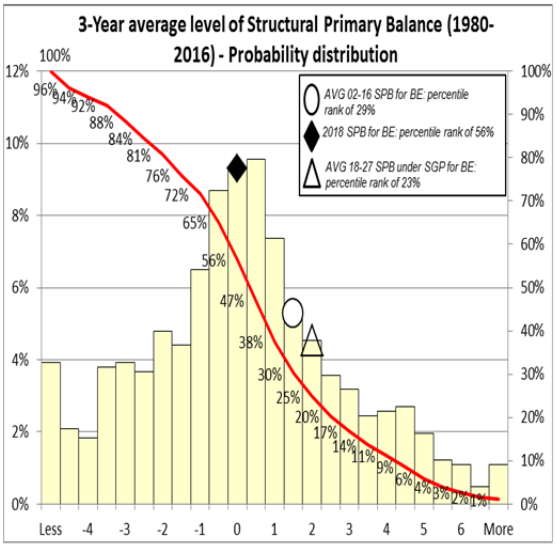
Government's contingent liability risks from banking sector - BE (2015):	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	Change in nominal house price index:	NPL coverage ratio	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):	
							bank recap. at 8%	bank recap. at 10.5%
	4.6	111	3.9	-0.3	1.6	42.7	0.00%	0.00%

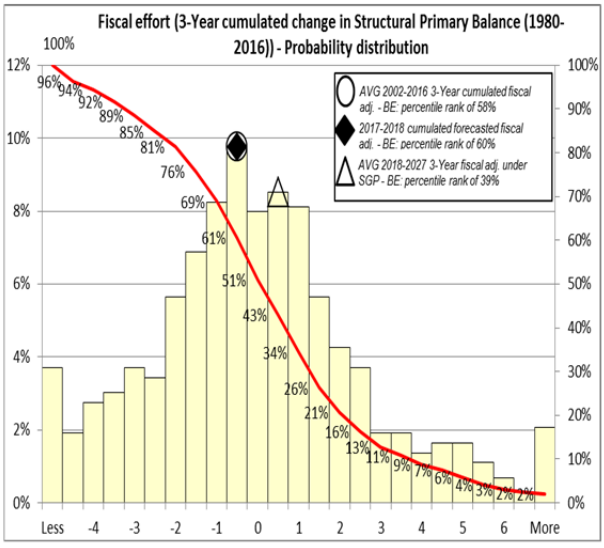
Financial market information

Sovereign Ratings as of Nov 15 2016, BE	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aa3	P-1	Aa3	
S&P	AA-	A-1+	AA-	A-1+
Fitch	AA		AA	F1+

Financial market information as of November 2016, BE		
Sovereign yield spreads(bp)*	10-year	38
CDS (bp)	5-year	29.4

Realism of baseline assumptions





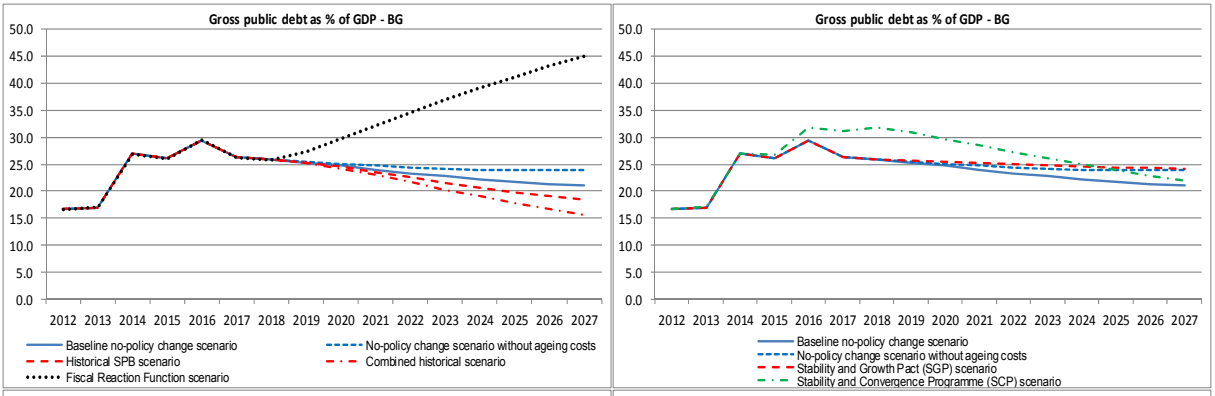
Underlying macro-fiscal assumptions

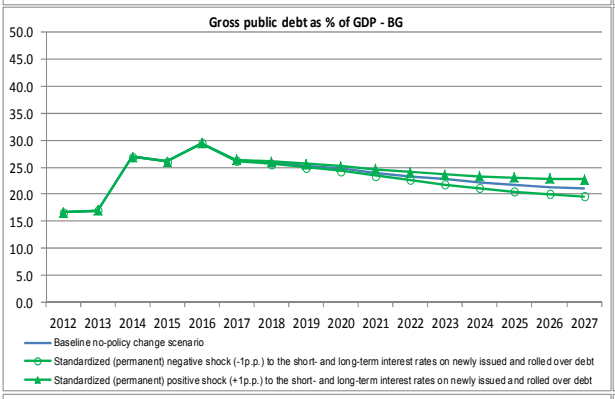
Macro-fiscal assumptions, Belgium													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.5	-0.5	0.1	-0.2	-0.1	0.0	0.0	-0.1	-0.3	-0.4	-0.1	-0.4	-0.6
Structural primary balance (before CoA)	0.4	-0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Real GDP growth	1.5	1.2	1.3	1.5	1.6	1.6	1.6	1.4	1.4	1.3	1.5	1.4	1.5
Potential GDP growth	1.0	1.3	1.4	1.3	1.5	1.5	1.4	1.4	1.4	1.3	1.5	1.4	1.5
Inflation rate	0.9	1.3	1.6	1.7	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.9	2.5	2.3	2.1	2.2	2.2	2.4	2.5	2.7	2.9	3.2	3.4	3.6
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.5	-0.5	0.1	-0.2	1.1	1.4	1.3	1.1	0.8	0.5	0.2	-0.1	-0.4
Structural primary balance (before CoA)	0.4	-0.2	0.4	0.0	1.2	1.4	1.4	1.3	1.1	1.0	0.3	0.3	0.3
Real GDP growth	1.5	1.2	1.3	1.5	0.7	1.4	1.6	1.5	1.5	1.4	2.0	1.4	1.6
Potential GDP growth	1.0	1.3	1.4	1.3	0.6	1.3	1.5	1.5	1.5	1.4	2.0	1.4	1.6
Inflation rate	0.9	1.3	1.6	1.7	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.9	2.5	2.3	2.1	2.2	2.2	2.3	2.5	2.7	2.9	3.1	3.4	3.6
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.5	-0.5	0.1	0.6	1.3	2.0	2.3	2.4	2.4	2.5	2.6	2.7	2.7
Structural primary balance (before CoA)	0.4	-0.2	0.4	0.8	1.4	2.0	2.3	2.4	2.4	2.5	2.6	2.7	2.7
Real GDP growth	1.5	1.2	1.3	0.9	1.1	1.1	1.4	1.4	1.3	1.3	1.5	1.3	1.5
Potential GDP growth	1.0	1.3	1.4	0.7	1.0	1.0	1.3	1.4	1.3	1.3	1.5	1.3	1.5
Inflation rate	0.9	1.3	1.6	1.7	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.9	2.5	2.3	2.1	2.2	2.2	2.3	2.5	2.6	2.8	3.0	3.3	3.4
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.3	0.2	1.0	1.8	1.9	1.8	1.7	1.6	1.5	1.3	1.6	1.3	1.1
Structural primary balance (before CoA)	0.3	0.7	1.2	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Real GDP growth	1.4	1.2	1.5	1.6	1.5	1.5	1.3	1.3	1.3	1.2	1.5	1.6	1.6
Potential GDP growth	1.1	1.3	1.4	1.3	1.1	1.3	1.3	1.3	1.3	1.2	1.5	1.6	1.6
Inflation rate	0.9	1.6	1.5	1.4	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.7	2.5	2.3	2.2	2.2	2.2	2.3	2.3	2.4	2.8	3.0	3.1	3.3
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.5	-0.5	0.1	-0.2	0.3	0.8	1.1	1.4	1.3	1.1	1.4	1.1	0.9
Structural primary balance (before CoA)	0.4	-0.2	0.4	0.0	0.4	0.8	1.2	1.5	1.5	1.5	1.5	1.5	1.5
Real GDP growth	1.5	1.2	1.3	1.5	1.3	1.3	1.3	1.1	1.4	1.3	1.5	1.4	1.5
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.5	-0.5	0.1	-0.2	0.3	0.8	1.1	1.4	1.3	1.1	1.4	1.1	0.9
Structural primary balance (before CoA)	0.4	-0.2	0.4	0.0	0.4	0.8	1.2	1.5	1.5	1.5	1.5	1.5	1.5
Real GDP growth	1.5	1.2	1.3	1.5	1.2	1.2	1.2	1.2	1.5	1.5	1.5	1.5	1.5
Implicit interest rate (nominal)	2.9	2.5	2.3	2.1	2.2	2.3	2.5	2.8	3.0	3.1	3.3	3.5	3.6
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.9	2.5	2.5	2.4	2.6	2.7	2.9	3.1	3.3	3.6	3.9	4.2	4.4
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.9	2.5	2.1	1.8	1.8	1.8	1.8	1.9	2.1	2.2	2.4	2.7	2.8
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.9	2.5	2.7	2.7	2.9	3.0	3.1	3.3	3.5	3.8	4.1	4.3	4.6
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.5	1.2	1.8	2.0	2.1	2.1	2.1	1.9	1.9	1.8	2.0	1.9	2.0
Potential GDP growth	1.0	1.3	1.9	1.8	2.0	2.0	1.9	1.9	1.9	1.8	2.0	1.9	2.0
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.5	1.2	0.8	1.0	1.1	1.1	1.1	0.9	0.9	0.8	1.0	0.9	1.0
Potential GDP growth	1.0	1.3	0.9	0.8	1.0	1.0	0.9	0.9	0.9	0.8	1.0	0.9	1.0
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.5	1.2	1.5	1.7	2.1	2.1	2.1	1.9	1.9	1.8	2.0	1.9	2.0
Potential GDP growth	1.0	1.3	1.7	1.5	2.0	2.0	1.9	1.9	1.9	1.8	2.0	1.9	2.0
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.5	1.2	1.1	1.3	1.1	1.1	1.1	0.9	0.9	0.8	1.0	0.9	1.0
Potential GDP growth	1.0	1.3	1.2	1.1	1.0	1.0	0.9	0.9	0.9	0.8	1.0	0.9	1.0
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.9	1.3	2.1	2.2	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.9	1.3	1.1	1.2	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.5	-0.5	-0.4	-0.3	-0.2	-0.1	-0.1	-0.2	-0.3	-0.5	-0.2	-0.5	-0.7
Structural primary balance (before CoA)	0.4	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Real GDP growth	1.5	1.2	1.7	1.2	1.6	1.6	1.6	1.4	1.4	1.3	1.5	1.4	1.5
Potential GDP growth	1.0	1.3	1.8	1.0	1.5	1.5	1.4	1.4	1.4	1.3	1.5	1.4	1.5
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	2.9	2.5	2.3	2.1	2.2	2.2	2.4	2.5	2.7	2.9	3.2	3.4	3.6

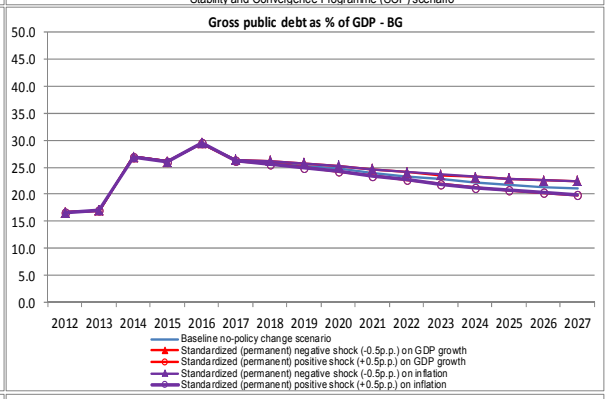
2. Bulgaria

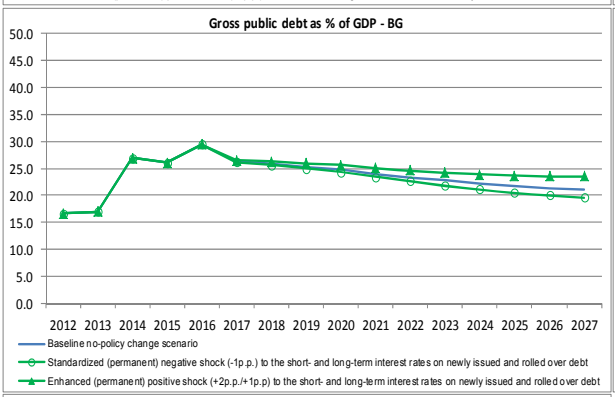
Public debt projections under baseline and alternative scenarios and sensitivity tests

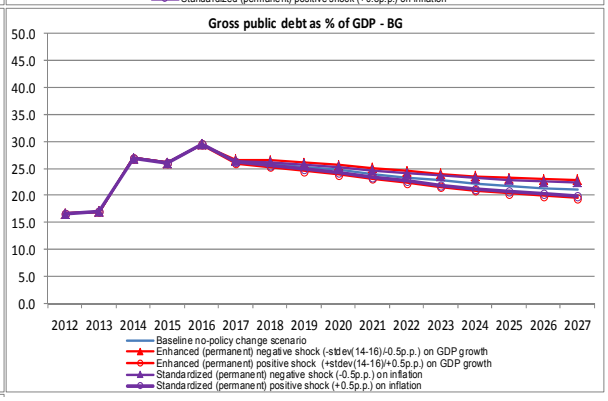
BG - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**27.0**	**26.0**	**29.4**	**26.3**	**25.9**	**25.3**	**24.7**	**24.0**	**23.4**	**22.7**	**22.2**	**21.7**	**21.4**	**21.1**
Changes in the ratio (-1+2+3)	*10.0*	*-0.9*	*3.4*	*-3.2*	*-0.4*	*-0.6*	*-0.6*	*-0.7*	*-0.7*	*-0.6*	*-0.5*	*-0.4*	*-0.4*	*-0.3*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-4.6**	**-0.8**	**0.0**	**0.0**	**0.1**	**0.2**	**0.3**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.4**	**0.4**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***-1.0***	***-0.5***	***0.1***	***0.1***	***0.1***	***0.3***	***0.4***	***0.5***	***0.5***	***0.5***	***0.5***	***0.5***	***0.4***	***0.4***
(1.1.1) Structural Primary Balance (before CoA)	*-1.0*	*-0.5*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
(1.1.2) Cost of ageing						*-0.1*	*-0.2*	*-0.3*	*-0.4*	*-0.4*	*-0.4*	*-0.3*	*-0.3*	*-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	***-0.4***	***-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***
(1.3) One-off and other temporary measures	***-3.2***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**0.6**	**-0.6**	**0.1**	**-0.3**	**-0.3**	**-0.3**	**-0.3**	**-0.2**	**-0.2**	**-0.1**	**0.0**	**0.0**	**0.1**	**0.1**
(2.1) Interest expenditure	*0.9*	*0.9*	*0.9*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.9*	*0.9*
(2.2) Growth effect	*-0.2*	*-0.9*	*-0.8*	*-0.8*	*-0.7*	*-0.7*	*-0.6*	*-0.5*	*-0.5*	*-0.4*	*-0.4*	*-0.4*	*-0.4*	*-0.3*
(2.3) Inflation effect	*-0.1*	*-0.6*	*0.0*	*-0.3*	*-0.4*	*-0.4*	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-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	**4.8**	**-1.1**	**3.3**	**-2.8**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*4.8*	*-1.1*	*3.3*	*-2.8*	*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*
Per memo														
Structural balance	-1.8	-1.4	-0.8	-0.8	-0.6	-0.5	-0.4	-0.3	-0.3	-0.3	-0.3	-0.4	-0.4	-0.5

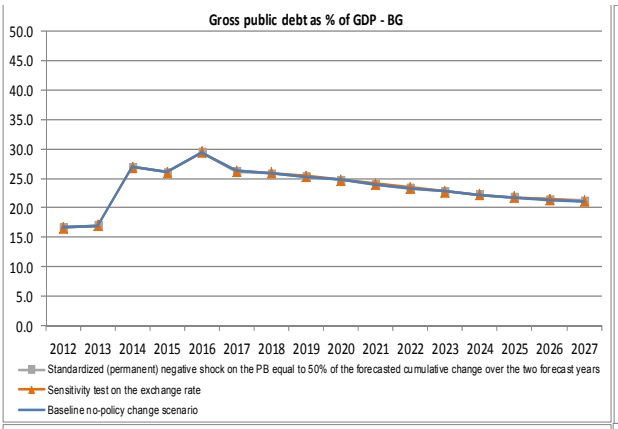


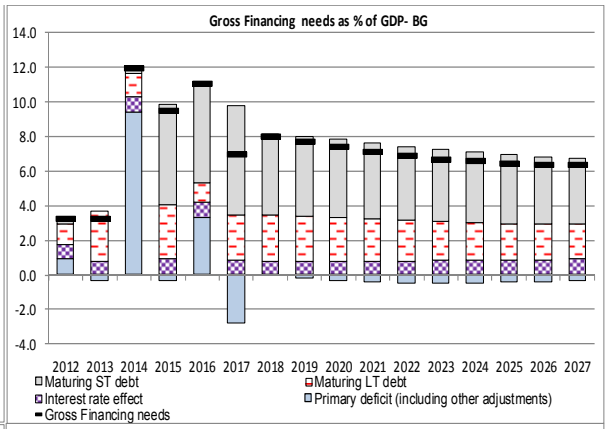


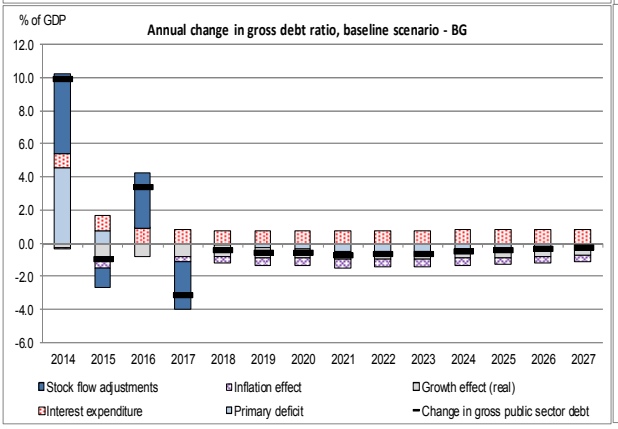


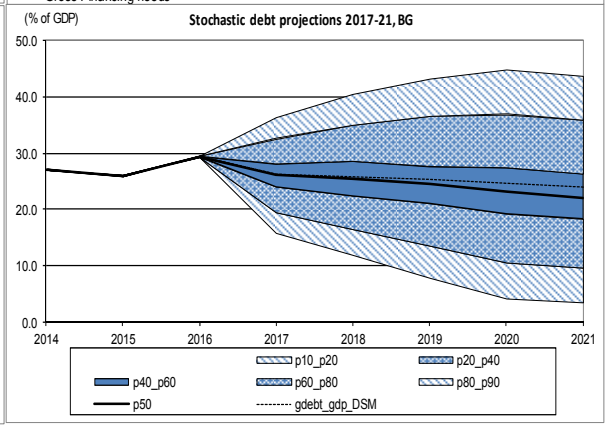












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	17.8	17.8	17.6	17.2	17.0	16.8	16.6	16.5	16.4	16.6
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.65**	**0.28**	**0.46**
Fiscal sub-index	0.33	0.08	0.36
Financial competitiveness sub-index	0.82	0.39	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**-3.5**	**-6.2**	**-3.1**	**-4.5**	**-1.2**
of which *Initial Budgetary position*	*-0.1*	*-0.5*	*-0.1*	*-0.8*	*1.5*
*Cost of delaying adjustment***	*-0.5*	*-1.4*	*-0.5*	*-0.8*	*-0.2*
*Debt requirement****	*-2.5*	*-4.1*	*-2.5*	*-2.6*	*-1.9*
Ageing costs	*-0.3*	*-0.3*	*0.1*	*-0.3*	*-0.6*
Required structural primary balance related to S1	**-3.3**	**-5.7**	**-2.9**	**-3.8**	**-2.5**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**1.4**	**1.1**	**3.4**	**0.7**	**2.4**
of which Initial Budgetary position	0.3	-0.1	0.3	-0.2	1.9
Long term component	1.1	1.2	3.1	0.9	0.5
of which Pensions	*0.7*	*0.8*	*0.9*	*0.5*	*0.0*
Health care	*0.3*	*0.3*	*0.8*	*0.2*	*0.3*
Long-term care	*0.1*	*0.1*	*1.4*	*0.1*	*0.1*
Others	*0.0*	*0.0*	*0.0*	*0.1*	*0.1*
Required structural primary balance related to S2	**1.5**	**1.9**	**3.5**	**1.4**	**1.1**

Risks related to the structure of public debt financing

Public debt structure - BG (2015):	Share of short-term public debt (p.p.) out of total debt 1.1	Share of public debt by non-residents (%): 47.8	**Share of public debt in foreign currency (%):** 79.1

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		BG	**EU**
State guarantees (% GDP) (2014)		0.6	9.2
of which One-off guarantees		*0.5*	*8.8*
Standardised guarantees		*0.1*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** *	:	**2.74**
	Securities issued under liquidity schemes	:	**0.07**
	Special purpose entity	:	**0.48**
	Total	**0.00**	**3.29**

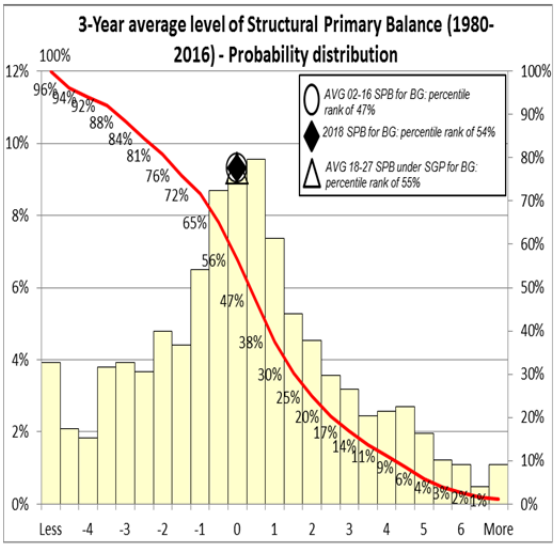
Government's contingent liability risks from banking sector - BG (2015):	Private sector credit flow (% GDP): -0.3	Bank loans-to-deposits ratio (%): 75.1	**Share of non-performing loans (%):** 13.7	Change in share of non-performing loans (p.p): -0.2	Change in nominal house price index: 2.8	NPL coverage ratio 55.8	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8% 0.00%	bank recap. at 10.5% 0.00%

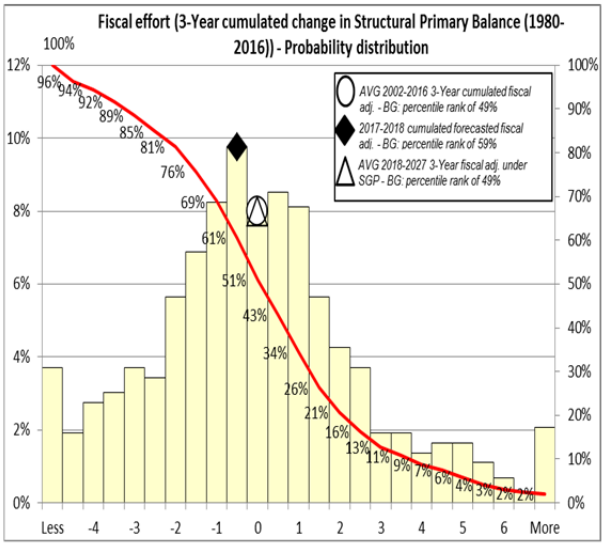
Financial market information

Sovereign Ratings as of Nov 15 2016, BG	**Local currency**		**Foreign currency**	
	long term	**short term**	**long term**	**short term**
Moody's	Baa2		Baa2	
S&P	BB+	B	BB+	B
Fitch	BBB-		BBB-	F3

Financial market information as of November 2016, BG		
Sovereign yield spreads (bp)*	**10-year**	230
CDS (bp)	**5-year**	142.9

Realism of baseline assumptions





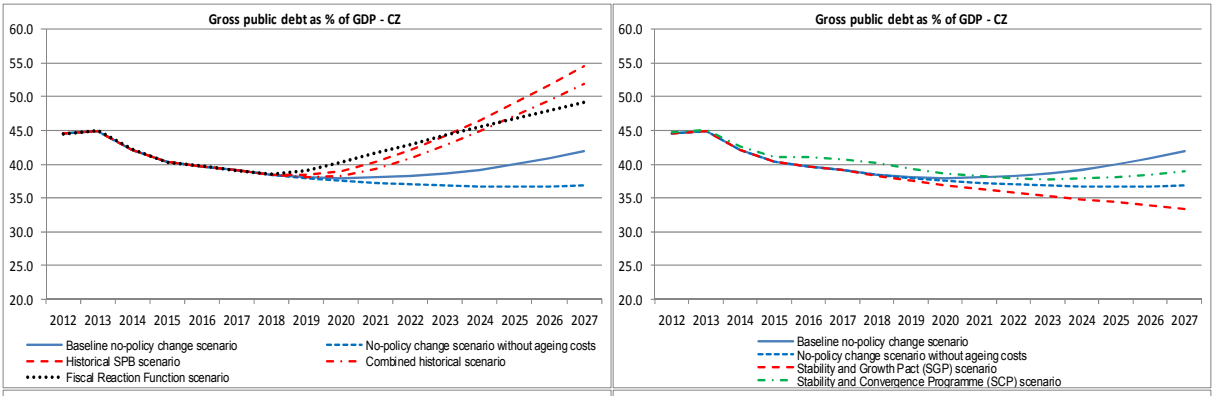
Underlying macro-fiscal assumptions

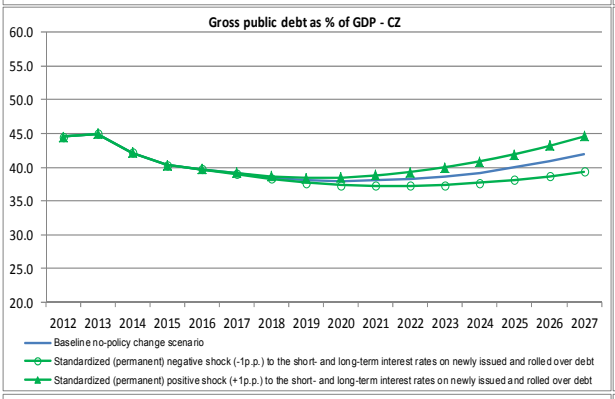
Macro-fiscal assumptions, Bulgaria													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.8	0.0	0.0	0.1	0.2	0.3	0.5	0.5	0.5	0.5	0.5	0.4	0.4
Structural primary balance (before CoA)	-0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Real GDP growth	3.6	3.1	2.9	2.8	2.6	2.3	2.2	2.1	2.0	1.9	1.8	1.8	1.7
Potential GDP growth	2.9	2.7	2.8	2.8	2.6	2.3	2.2	2.1	2.0	1.9	1.8	1.8	1.7
Inflation rate	2.2	-0.1	1.1	1.4	1.6	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.6	2.9	3.0	3.1	3.1	3.2	3.4	3.5	3.7	3.9	4.1	4.2
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.8	0.0	0.0	0.1	-2.2	-2.7	-2.8	-2.6	-2.4	-2.2	-2.0	-1.8	-1.6
Structural primary balance (before CoA)	-0.5	0.1	0.1	0.1	-2.3	-2.9	-3.1	-2.9	-2.8	-2.5	-2.3	-2.0	-1.8
Real GDP growth	3.6	3.1	2.9	2.8	4.4	2.8	2.3	2.0	1.8	1.7	1.6	1.6	1.5
Potential GDP growth	2.9	2.7	2.8	2.8	4.4	2.8	2.3	2.0	1.8	1.7	1.6	1.6	1.5
Inflation rate	2.2	-0.1	1.1	1.4	1.6	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.6	2.9	3.0	3.1	3.2	3.3	3.5	3.6	3.8	4.0	4.3	4.4
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.8	0.0	0.0	-0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2
Structural primary balance (before CoA)	-0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2
Real GDP growth	3.6	3.1	2.9	2.9	2.6	2.3	2.2	2.0	2.0	1.9	1.8	1.7	1.6
Potential GDP growth	2.9	2.7	2.8	2.9	2.6	2.2	2.2	2.0	2.0	1.9	1.8	1.7	1.6
Inflation rate	2.2	-0.1	1.1	1.4	1.6	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.6	2.9	3.0	3.1	3.1	3.3	3.4	3.5	3.7	3.9	4.1	4.2
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.0	-0.9	0.2	0.6	0.8	0.8	0.9	1.0	1.0	1.0	1.0	1.0	1.0
Structural primary balance (before CoA)	-0.9	-0.7	0.4	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Real GDP growth	3.0	2.1	2.5	2.7	2.7	2.1	1.7	1.6	1.6	1.5	1.5	1.4	1.4
Potential GDP growth	2.7	2.4	2.5	2.5	2.6	1.9	1.7	1.6	1.6	1.5	1.5	1.4	1.4
Inflation rate	0.3	1.2	1.1	1.1	1.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.9	3.4	3.2	2.7	2.8	2.9	2.8	2.8	3.0	3.1	3.2	3.4	3.4
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.8	0.0	0.0	0.1	0.3	0.5	0.7	0.8	0.9	0.8	0.8	0.8	0.7
Structural primary balance (before CoA)	-0.5	0.1	0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.5	0.5	0.5	0.5
Real GDP growth	3.6	3.1	2.9	2.8	2.6	2.3	2.2	2.0	2.0	1.9	1.8	1.8	1.7
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.8	0.0	0.0	0.1	0.3	0.5	0.7	0.8	0.9	0.8	0.8	0.8	0.7
Structural primary balance (before CoA)	-0.5	0.1	0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.5	0.5	0.5	0.5
Real GDP growth	3.6	3.1	2.9	2.8	2.9	3.0	3.2	3.3	3.4	3.4	3.4	3.4	3.4
Implicit interest rate (nominal)	3.6	3.6	2.9	3.0	3.1	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.2
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.6	3.6	3.3	3.4	3.6	3.7	3.9	4.1	4.3	4.5	4.7	4.9	5.1
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.6	3.6	2.5	2.6	2.6	2.6	2.6	2.7	2.8	2.9	3.1	3.3	3.3
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.6	3.6	3.6	3.8	4.1	4.0	4.1	4.3	4.4	4.6	4.8	5.1	5.2
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.6	3.1	3.4	3.3	3.1	2.8	2.7	2.6	2.5	2.4	2.3	2.3	2.2
Potential GDP growth	2.9	2.7	3.3	3.3	3.1	2.8	2.7	2.6	2.5	2.4	2.3	2.3	2.2
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.6	3.1	2.4	2.3	2.1	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2
Potential GDP growth	2.9	2.7	2.3	2.3	2.1	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.6	3.1	4.1	4.0	3.1	2.8	2.7	2.6	2.5	2.4	2.3	2.3	2.2
Potential GDP growth	2.9	2.7	4.0	4.0	3.1	2.8	2.7	2.6	2.5	2.4	2.3	2.3	2.2
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.6	3.1	1.7	1.6	2.1	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2
Potential GDP growth	2.9	2.7	1.6	1.6	2.1	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	2.2	-0.1	1.6	1.9	2.1	2.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	2.2	-0.1	0.6	0.9	1.1	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.8	0.0	0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.5	0.4	0.4	0.4
Structural primary balance (before CoA)	-0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Real GDP growth	3.6	3.1	2.8	2.8	2.6	2.3	2.2	2.1	2.0	1.9	1.8	1.8	1.7
Potential GDP growth	2.9	2.7	2.8	2.9	2.6	2.3	2.2	2.1	2.0	1.9	1.8	1.8	1.7
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	3.6	3.6	2.9	3.0	3.1	3.1	3.2	3.4	3.5	3.7	3.9	4.1	4.2

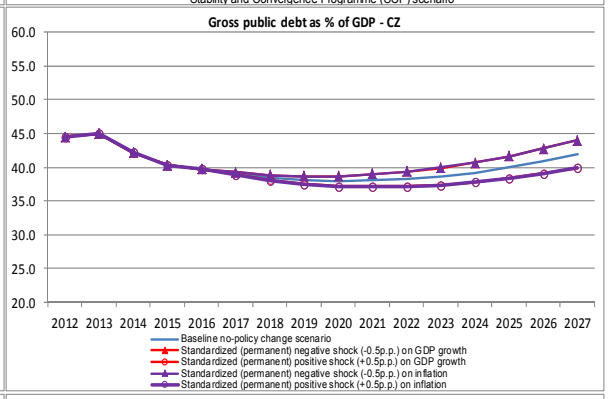
3. Czech Republic

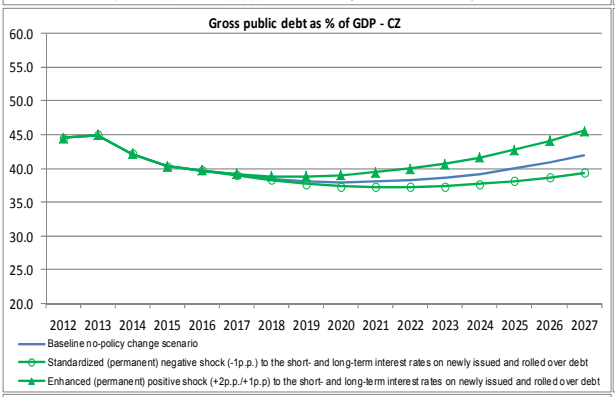
Public debt projections under baseline and alternative scenarios and sensitivity tests

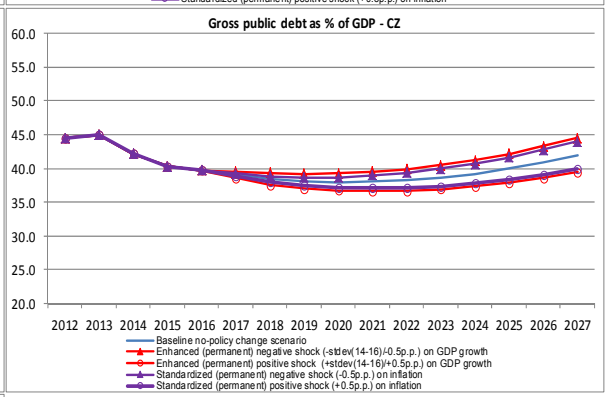
CZ - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**42.2**	**40.3**	**39.7**	**39.1**	**38.5**	**38.1**	**37.9**	**38.0**	**38.2**	**38.6**	**39.2**	**40.0**	**40.9**	**41.9**
Changes in the ratio (-1+2+3)	*-2.7*	*-1.9*	*-0.6*	*-0.7*	*-0.6*	*-0.4*	*-0.1*	*0.1*	*0.2*	*0.4*	*0.6*	*0.8*	*0.9*	*1.0*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-0.6**	**0.4**	**0.7**	**0.4**	**0.2**	**0.0**	**-0.3**	**-0.5**	**-0.6**	**-0.7**	**-0.8**	**-0.9**	**-1.0**	**-1.0**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***0.5***	***0.4***	***0.7***	***0.2***	***-0.1***	***-0.3***	***-0.4***	***-0.5***	***-0.6***	***-0.7***	***-0.8***	***-0.9***	***-1.0***	***-1.0***
(1.1.1) Structural Primary Balance (before CoA)	*0.5*	*0.4*	*0.7*	*0.2*	*-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						*0.1*	*0.3*	*0.4*	*0.5*	*0.6*	*0.7*	*0.8*	*0.8*	*0.9*
(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***	***0.0***	***0.1***	***0.2***	***0.4***	***0.2***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-0.2***	***0.0***	***0.0***	***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**	**-1.2**	**0.0**	**-0.6**	**-0.7**	**-0.4**	**-0.4**	**-0.4**	**-0.4**	**-0.3**	**-0.2**	**-0.2**	**-0.1**	**0.0**
(2.1) Interest expenditure	*1.3*	*1.1*	*1.0*	*0.9*	*0.9*	*0.9*	*0.9*	*0.9*	*1.0*	*1.1*	*1.2*	*1.3*	*1.4*	*1.5*
(2.2) Growth effect	*-1.2*	*-1.8*	*-0.9*	*-1.0*	*-1.0*	*-0.7*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.7*	*-0.7*	*-0.7*	*-0.7*
(2.3) Inflation effect	*-1.1*	*-0.4*	*-0.1*	*-0.5*	*-0.6*	*-0.6*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.8*	*-0.8*	*-0.8*	*-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	**-2.4**	**-0.2**	**0.2**	**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	*-2.9*	*-0.2*	*0.2*	*0.3*	*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	*0.4*	*-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*
Per memo														
Structural balance	-0.4	-0.7	-0.2	-0.8	-1.0	-1.2	-1.3	-1.4	-1.6	-1.8	-2.0	-2.2	-2.4	-2.6

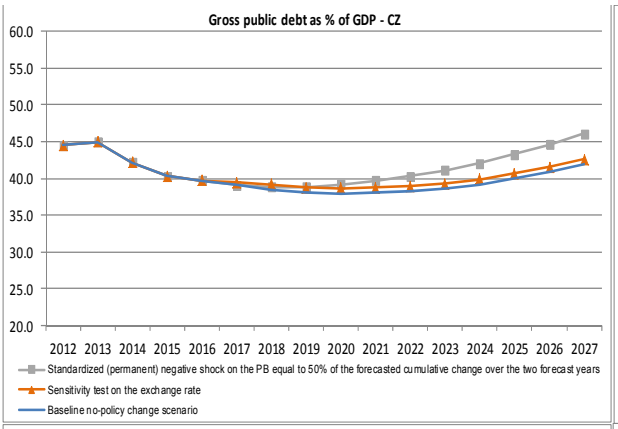


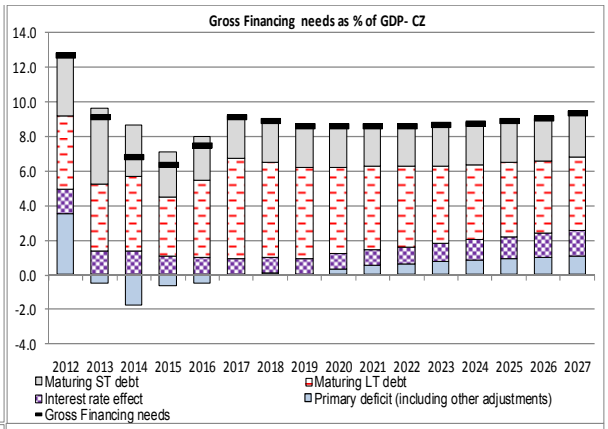


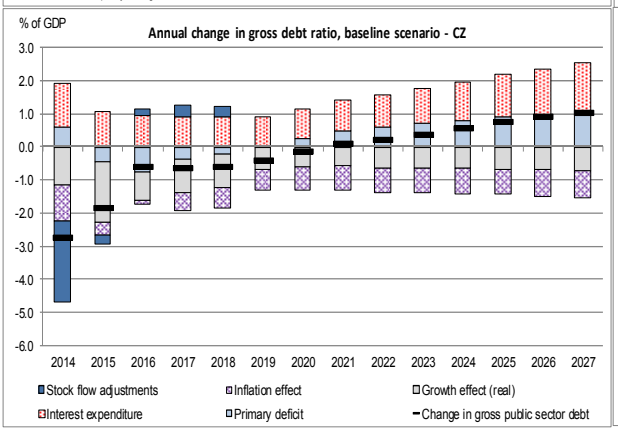


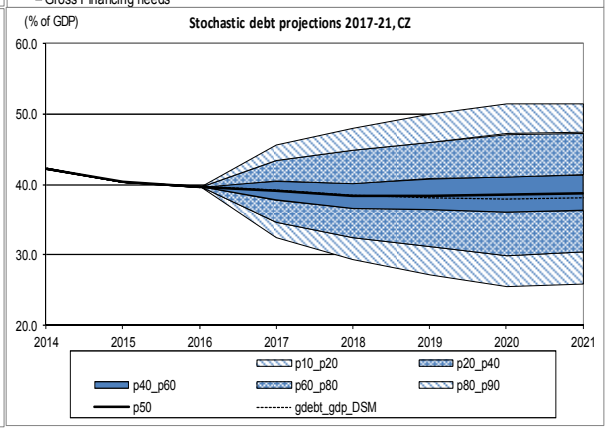












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	19.1	19.1	19.1	19.1	19.2	19.3	19.5	19.6	20.1	20.3
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.34**	**0.19**	**0.46**
Fiscal sub-index	0.42	0.00	0.36
Financial competitiveness sub-index	0.31	0.28	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**-1.2**	**1.0**	**-0.7**	**-2.1**	**-0.6**
of which *Initial Budgetary position*	*0.0*	*1.9*	*0.0*	*-0.5*	*0.3*
*Cost of delaying adjustment***	*-0.2*	*0.2*	*-0.1*	*-0.4*	*-0.1*
*Debt requirement****	*-1.7*	*-2.0*	*-1.7*	*-1.9*	*-1.5*
Ageing costs	*0.7*	*0.8*	*1.1*	*0.6*	*0.7*
Required structural primary balance related to S1	**-1.3**	**-0.9**	**-0.9**	**-1.7**	**-0.9**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**2.9**	**4.8**	**6.6**	**2.3**	**3.2**
of which Initial Budgetary position	0.6	2.4	0.6	0.1	0.8
Long term component	2.3	2.4	6.0	2.2	2.4
of which Pensions	*0.6*	*0.6*	*0.6*	*0.6*	*0.6*
Health care	*0.8*	*0.8*	*1.3*	*0.7*	*0.8*
Long-term care	*0.5*	*0.5*	*3.7*	*0.5*	*0.5*
Others	*0.4*	*0.5*	*0.4*	*0.4*	*0.5*
Required structural primary balance related to S2	**2.8**	**2.6**	**6.5**	**2.7**	**2.9**

Risks related to the structure of public debt financing

Public debt structure - CZ (2015):	Share of short-term public debt (p.p.) out of total debt	Share of public debt by non-residents (%):	Share of public debt in foreign currency (%):
	5.4	21.1	16.3

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015		CZ	EU
State guarantees (% GDP) (2014)		0.5	9.2
of which One-off guarantees		*0.5*	*8.8*
Standardised guarantees		*0.0*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee *	:	2.74
	Securities issued under liquidity schemes	0.01	0.07
	Special purpose entity	:	0.48
	Total	0.01	3.29

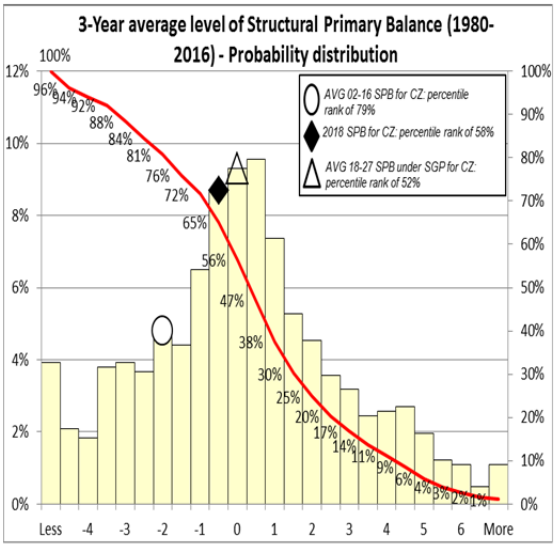
Government's contingent liability risks from banking sector - CZ (2015):	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	Change in nominal house price index:	NPL coverage ratio	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):	
							bank recap. at 8%	bank recap. at 10.5%
	0.9	82.3	3.3	-1.1	4	59.9	0.00%	0.00%

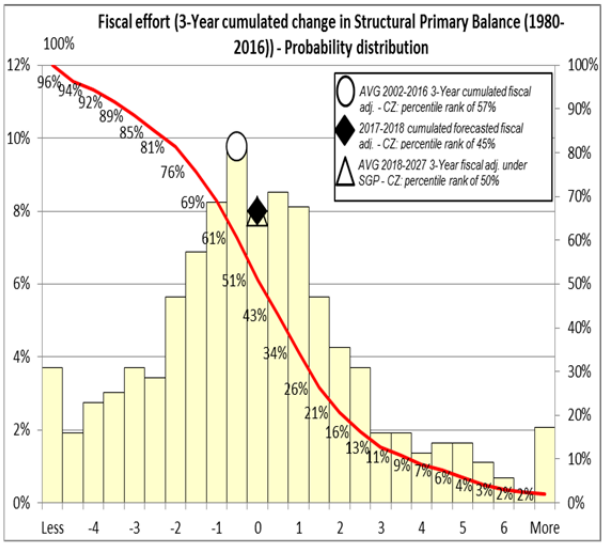
Financial market information

Sovereign Ratings as of Nov 15 2016, CZ	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	A1		A1	P-1
S&P	AA	A-1+	AA-	A-1+
Fitch	A+		A+	F1+

Financial market information as of November 2016, CZ		
Sovereign yield spreads (bp)*	10-year	27
CDS (bp)	5-year	43.3

Realism of baseline assumptions





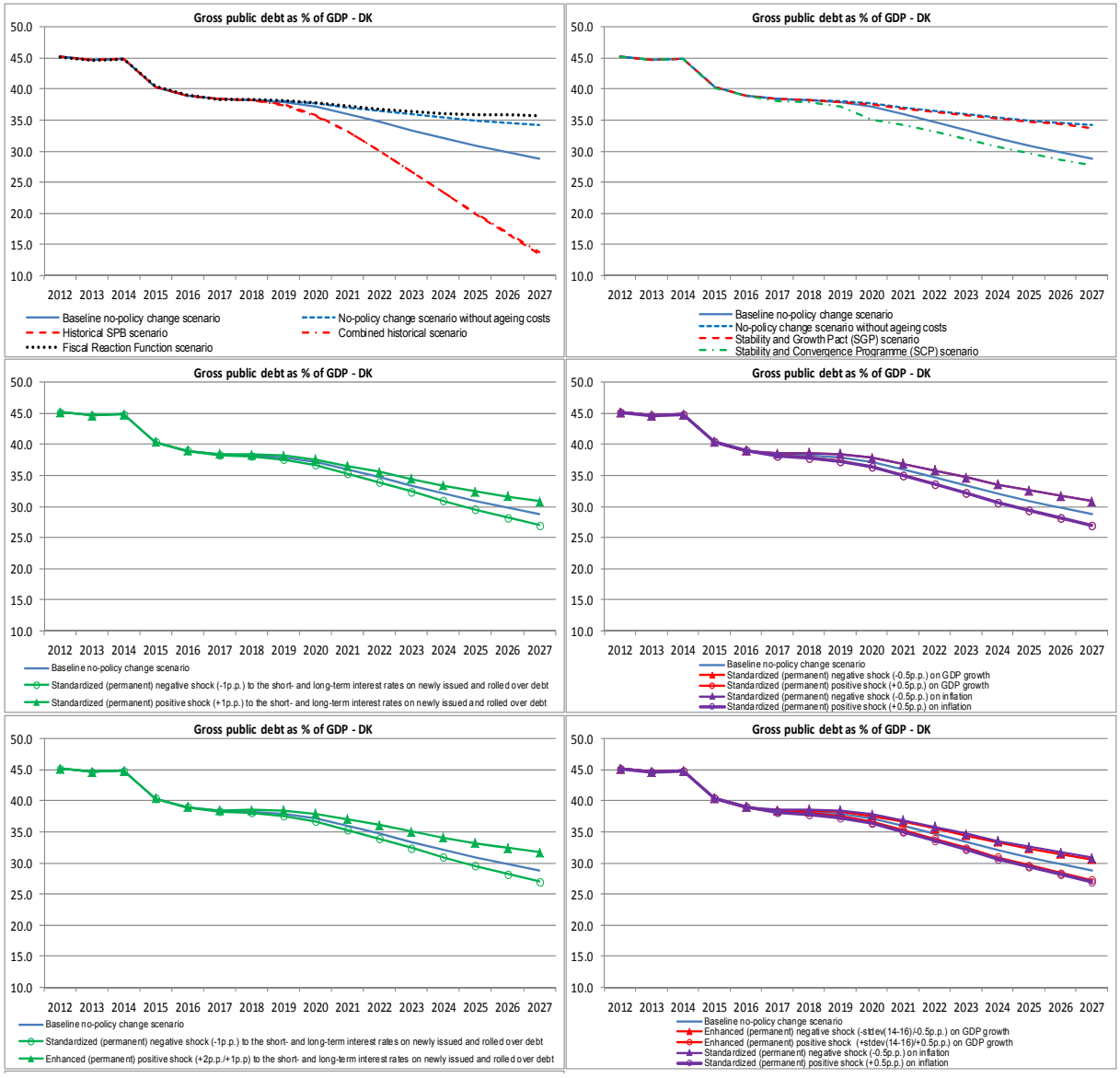
Underlying macro-fiscal assumptions

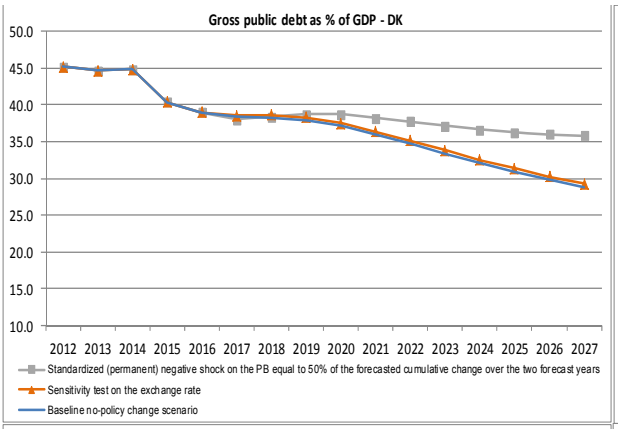
Macro-fiscal assumptions, Czech Republic													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.4	0.7	0.4	0.2	0.0	-0.3	-0.5	-0.6	-0.7	-0.8	-0.9	-1.0	-1.0
Structural primary balance (before CoA)	0.4	0.7	0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Real GDP growth	4.5	2.2	2.6	2.7	1.8	1.6	1.6	1.7	1.7	1.8	1.8	1.8	1.8
Potential GDP growth	2.3	2.2	2.2	2.3	2.1	1.9	1.8	1.7	1.7	1.8	1.8	1.8	1.8
Inflation rate	1.0	0.3	1.4	1.6	1.7	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.7	2.4	2.4	2.4	2.4	2.4	2.5	2.7	2.9	3.1	3.4	3.7	3.9
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.4	0.7	0.4	0.2	-1.3	-1.7	-1.8	-1.7	-1.6	-1.4	-1.3	-1.2	-1.1
Structural primary balance (before CoA)	0.4	0.7	0.2	-0.1	-1.4	-1.6	-1.4	-1.2	-1.0	-0.7	-0.5	-0.4	-0.2
Real GDP growth	4.5	2.2	2.6	2.7	2.7	1.8	1.4	1.6	1.6	1.6	1.6	1.7	1.7
Potential GDP growth	2.3	2.2	2.2	2.3	3.0	2.1	1.7	1.6	1.6	1.6	1.6	1.7	1.7
Inflation rate	1.0	0.3	1.4	1.6	1.7	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.7	2.4	2.4	2.4	2.4	2.4	2.5	2.7	2.9	3.2	3.4	3.7	3.9
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.4	0.7	0.4	0.5	0.3	0.2	0.1	0.2	0.2	0.3	0.3	0.4	0.4
Structural primary balance (before CoA)	0.4	0.7	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.4
Real GDP growth	4.5	2.2	2.6	2.5	1.8	1.6	1.5	1.7	1.7	1.7	1.7	1.7	1.8
Potential GDP growth	2.3	2.2	2.2	2.1	2.1	1.9	1.8	1.7	1.7	1.7	1.7	1.7	1.8
Inflation rate	1.0	0.3	1.4	1.6	1.7	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.7	2.4	2.4	2.4	2.4	2.4	2.5	2.7	2.9	3.1	3.3	3.6	3.8
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.7	0.5	0.4	0.4	0.6	0.3	0.2	0.1	0.0	-0.2	-0.2	-0.3	-0.4
Structural primary balance (before CoA)	0.7	0.5	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Real GDP growth	4.2	2.5	2.6	2.4	2.4	1.4	1.6	1.5	1.5	1.5	1.5	1.7	1.8
Potential GDP growth	1.8	2.1	2.1	2.3	2.3	1.7	1.6	1.5	1.5	1.5	1.5	1.7	1.8
Inflation rate	0.7	1.0	1.3	1.6	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.6	2.5	2.5	2.5	2.5	2.5	2.7	2.9	3.2	3.3	3.5	4.0	4.2
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.4	0.7	0.4	0.2	-0.5	-1.1	-1.8	-2.3	-2.5	-2.6	-2.7	-2.7	-2.8
Structural primary balance (before CoA)	0.4	0.7	0.2	-0.1	-0.6	-1.0	-1.4	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9
Real GDP growth	4.5	2.2	2.6	2.7	2.1	2.0	1.9	2.1	1.7	1.8	1.8	1.8	1.8
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.4	0.7	0.4	0.2	-0.5	-1.1	-1.8	-2.3	-2.5	-2.6	-2.7	-2.7	-2.8
Structural primary balance (before CoA)	0.4	0.7	0.2	-0.1	-0.6	-1.0	-1.4	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9
Real GDP growth	4.5	2.2	2.6	2.7	3.0	3.0	3.0	3.0	2.6	2.6	2.6	2.6	2.6
Implicit interest rate (nominal)	2.7	2.4	2.4	2.4	2.4	2.5	2.7	3.1	3.3	3.5	3.7	3.8	3.9
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.7	2.4	2.6	2.8	2.8	3.0	3.2	3.4	3.7	3.9	4.2	4.6	4.8
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.7	2.4	2.3	2.1	1.9	1.9	1.9	2.0	2.1	2.3	2.6	2.8	3.0
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.7	2.4	2.8	3.1	3.3	3.3	3.4	3.6	3.8	4.1	4.4	4.7	4.9
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	4.5	2.2	3.1	3.2	2.3	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.3
Potential GDP growth	2.3	2.2	2.7	2.8	2.6	2.4	2.3	2.2	2.2	2.3	2.3	2.3	2.3
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	4.5	2.2	2.1	2.2	1.3	1.1	1.1	1.2	1.2	1.3	1.3	1.3	1.3
Potential GDP growth	2.3	2.2	1.7	1.8	1.6	1.4	1.3	1.2	1.2	1.3	1.3	1.3	1.3
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	4.5	2.2	3.8	3.9	2.3	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.3
Potential GDP growth	2.3	2.2	3.5	3.5	2.6	2.4	2.3	2.2	2.2	2.3	2.3	2.3	2.3
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	4.5	2.2	1.4	1.4	1.3	1.1	1.1	1.2	1.2	1.3	1.3	1.3	1.3
Potential GDP growth	2.3	2.2	1.0	1.1	1.6	1.4	1.3	1.2	1.2	1.3	1.3	1.3	1.3
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	1.0	0.3	1.9	2.1	2.2	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	1.0	0.3	0.9	1.1	1.2	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.4	0.7	0.3	-0.2	-0.5	-0.7	-0.9	-1.0	-1.1	-1.2	-1.3	-1.4	-1.4
Structural primary balance (before CoA)	0.4	0.7	0.1	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
Real GDP growth	4.5	2.2	2.7	2.9	1.8	1.6	1.6	1.7	1.7	1.8	1.8	1.8	1.8
Potential GDP growth	2.3	2.2	2.3	2.6	2.1	1.9	1.8	1.7	1.7	1.8	1.8	1.8	1.8
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	6.0%	6.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	2.7	2.4	2.4	2.4	2.4	2.4	2.5	2.7	2.9	3.1	3.4	3.7	3.9

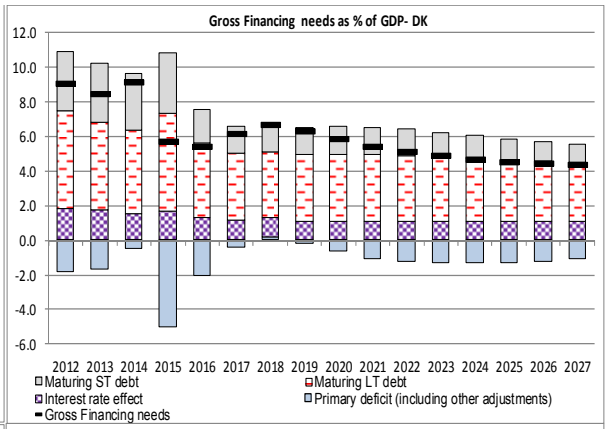
4. Denmark

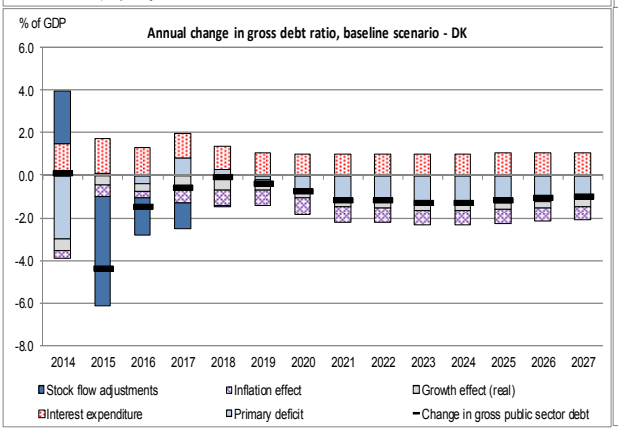
Public debt projections under baseline and alternative scenarios and sensitivity tests

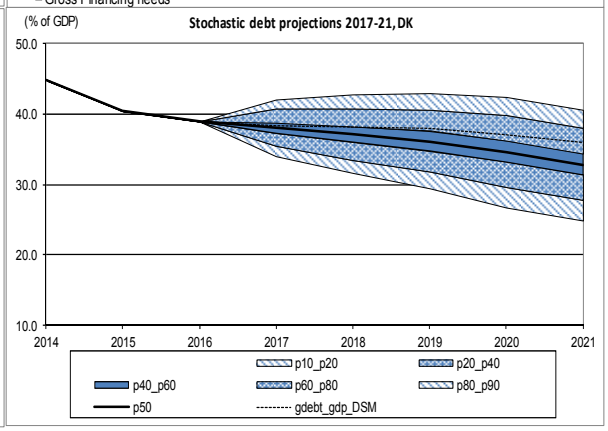
DK - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**44.8**	**40.4**	**38.9**	**38.3**	**38.2**	**37.9**	**37.1**	**35.9**	**34.7**	**33.4**	**32.1**	**30.9**	**29.8**	**28.9**
Changes in the ratio (-1+2+3)	*0.1*	*-4.4*	*-1.5*	*-0.6*	*-0.1*	*-0.4*	*-0.8*	*-1.2*	*-1.2*	*-1.3*	*-1.3*	*-1.2*	*-1.1*	*-1.0*
of which														
(1) Primary balance (1.1+1.2+1.3)	**3.0**	**-0.1**	**0.4**	**-0.8**	**-0.3**	**0.2**	**0.6**	**1.1**	**1.2**	**1.4**	**1.4**	**1.3**	**1.3**	**1.1**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***1.6***	***0.1***	***1.9***	***0.4***	***0.5***	***0.7***	***0.9***	***1.1***	***1.2***	***1.4***	***1.4***	***1.3***	***1.3***	***1.1***
(1.1.1) Structural Primary Balance (before CoA)	*1.6*	*0.1*	*1.9*	*0.4*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
(1.1.2) Cost of ageing						*-0.2*	*-0.4*	*-0.6*	*-0.7*	*-0.8*	*-0.7*	*-0.7*	*-0.6*	*-0.5*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.2*	*0.2*	*0.2*
(1.2) Cyclical component	***-1.8***	***-1.6***	***-1.6***	***-1.2***	***-0.7***	***-0.5***	***-0.2***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***3.2***	***1.4***	***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)	**0.6**	**0.7**	**0.6**	**-0.1**	**-0.3**	**-0.2**	**-0.1**	**-0.1**	**0.0**	**0.0**	**0.1**	**0.1**	**0.2**	**0.2**
(2.1) Interest expenditure	*1.5*	*1.6*	*1.3*	*1.1*	*1.1*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.1*	*1.1*	*1.1*
(2.2) Growth effect	*-0.6*	*-0.4*	*-0.4*	*-0.6*	*-0.7*	*-0.5*	*-0.4*	*-0.4*	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.3*
(2.3) Inflation effect	*-0.3*	*-0.5*	*-0.3*	*-0.6*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-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	**2.5**	**-5.2**	**-1.7**	**-1.2**	**-0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*2.5*	*-5.5*	*-1.7*	*-1.3*	*-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*	*0.4*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	0.0	-1.1	0.6	-0.8	-0.6	-0.4	-0.1	0.1	0.2	0.3	0.3	0.2	0.2	0.1











Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	29.8	29.6	29.5	29.1	28.8	28.4	28.2	28.1	27.8	28.2
Revenues from pensions taxation	4.8	4.8	4.6	4.7	4.7	4.6	4.7	4.7	4.6	4.4
Property incomes	2.0	1.6	1.7	1.7	1.7	1.7	1.8	1.8	1.9	1.7

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.42**	**0.19**	**0.46**
Fiscal sub-index	0.28	0.00	0.36
Financial competitiveness sub-index	0.50	0.29	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**-2.9**	**-8.2**	**-2.6**	**-4.2**	**-3.3**
of which *Initial Budgetary position*	*-0.4*	*-2.7*	*-0.4*	*-0.8*	*-0.4*
*Cost of delaying adjustment***	*-0.5*	*-1.8*	*-0.4*	*-0.9*	*-0.5*
*Debt requirement****	*-1.6*	*-3.3*	*-1.6*	*-2.4*	*-1.6*
Ageing costs	*-0.4*	*-0.4*	*-0.2*	*-0.1*	*-0.8*
Required structural primary balance related to S1	**-2.5**	**-5.6**	**-2.1**	**-3.3**	**-3.1**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**0.9**	**-1.2**	**2.0**	**0.9**	**1.2**
of which Initial Budgetary position	0.7	-1.5	0.7	0.3	1.3
Long term component	0.3	0.3	1.4	0.7	0.0
of which Pensions	*-1.3*	*-1.3*	*-1.2*	*-1.0*	*-1.5*
Health care	*0.5*	*0.6*	*1.2*	*0.5*	*0.6*
Long-term care	*1.5*	*1.6*	*2.0*	*1.5*	*1.6*
Others	*-0.6*	*-0.6*	*-0.6*	*-0.4*	*-0.7*
Required structural primary balance related to S2	**1.4**	**1.4**	**2.5**	**1.8**	**1.4**

Risks related to the structure of public debt financing

Public debt structure - DK (2015):	Share of short-term public debt (p.p.) out of total debt 9.7	Share of public debt by non-residents (%): 34.5	Share of public debt in foreign currency (%): 4.2

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		DK	EU
State guarantees (% GDP) (2014)		9.2	9.2
of which One-off guarantees		*9.1*	*8.8*
Standardised guarantees		*0.1*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** [a]	**0.00**	**2.74**
	Securities issued under liquidity schemes	**0.00**	**0.07**
	Special purpose entity	**0.00**	**0.48**
	Total	**0.00**	**3.29**

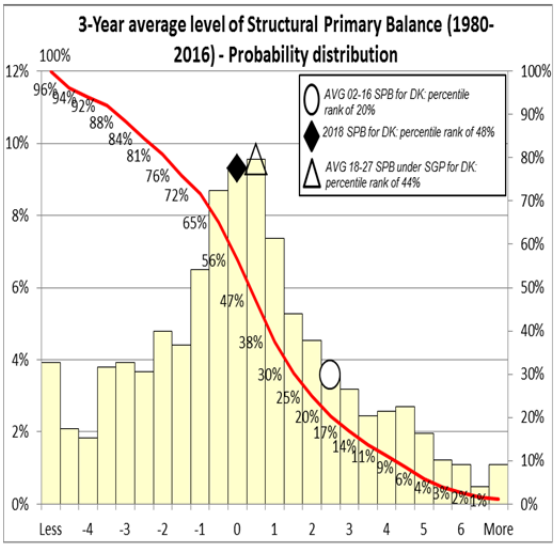
Government's contingent liability risks from banking sector - DK (2015):	Private sector credit flow (% GDP): -3.3	Bank loans-to-deposits ratio (%): 358.4	Share of non-performing loans (%): 3.6	Change in share of non-performing loans (p.p): -0.3	Change in nominal house price index: 7	NPL coverage ratio 31.2	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8% 0.00%	bank recap. at 10.5% 0.01%

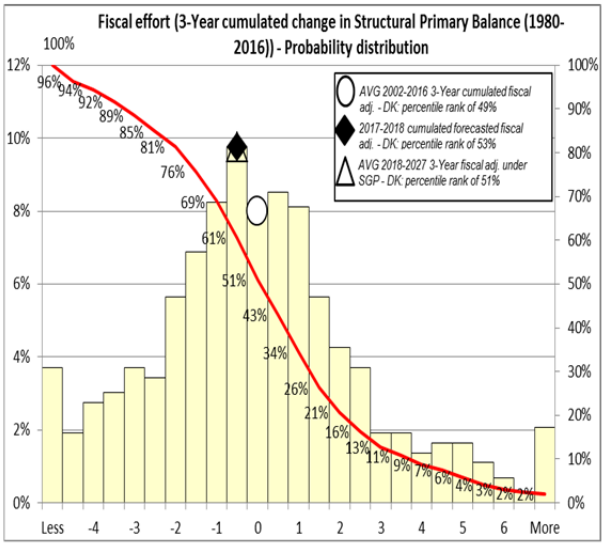
Financial market information

Sovereign Ratings as of Nov 15 2016, DK	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+

Financial market information as of November 2016, DK		
Sovereign yield spreads(bp)*	10-year	10
CDS (bp)	5-year	24.5

Realism of baseline assumptions





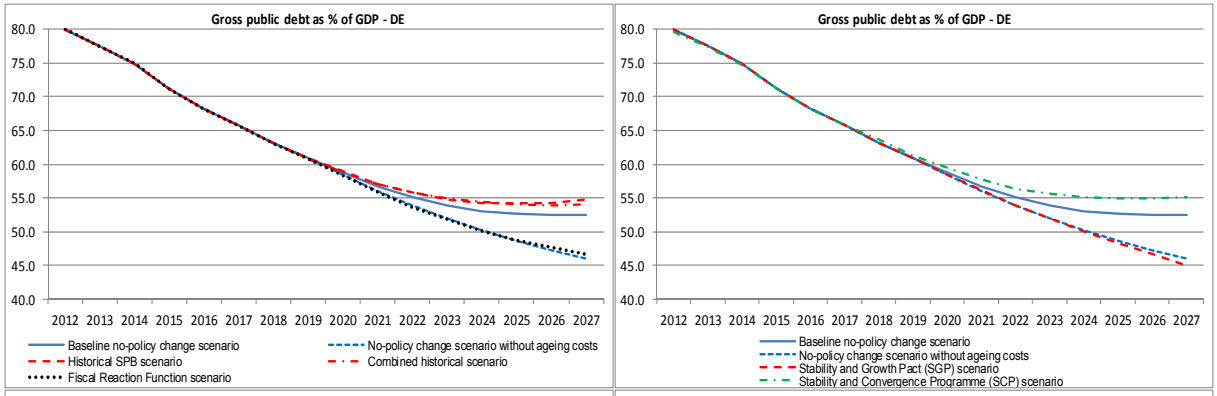
Underlying macro-fiscal assumptions

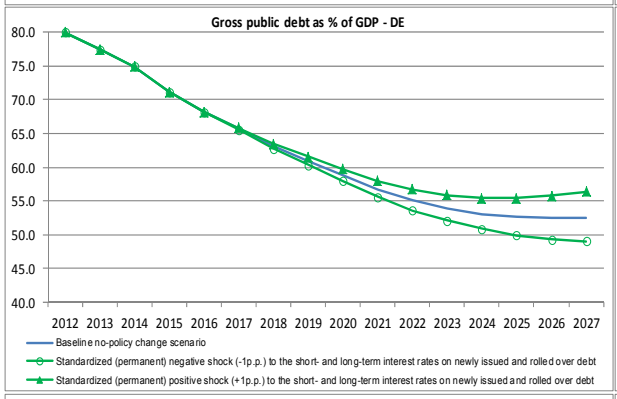
Macro-fiscal assumptions, Denmark													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.1	0.4	-0.8	-0.3	0.2	0.6	1.1	1.2	1.4	1.4	1.3	1.3	1.1
Structural primary balance (before CoA)	0.1	1.9	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Real GDP growth	1.0	1.0	1.7	1.8	1.3	1.2	1.1	0.8	0.9	0.9	1.0	1.0	1.2
Potential GDP growth	0.8	0.9	1.0	1.0	0.9	0.8	0.7	0.8	0.9	0.9	1.0	1.0	1.2
Inflation rate	1.2	0.7	1.7	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.7	3.3	3.1	2.9	2.8	2.8	2.8	2.9	3.0	3.2	3.4	3.6	3.7
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.1	0.4	-0.8	-0.3	-0.1	0.1	0.3	0.4	0.4	0.4	0.4	0.4	0.3
Structural primary balance (before CoA)	0.1	1.9	0.4	0.5	0.2	0.0	-0.3	-0.4	-0.5	-0.5	-0.5	-0.5	-0.3
Real GDP growth	1.0	1.0	1.7	1.8	1.5	1.3	1.3	0.9	1.0	0.9	0.9	0.9	1.1
Potential GDP growth	0.8	0.9	1.0	1.0	1.1	0.9	0.9	0.9	1.0	0.9	0.9	0.9	1.1
Inflation rate	1.2	0.7	1.7	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.7	3.3	3.1	2.9	2.8	2.8	2.8	2.9	3.1	3.2	3.4	3.7	3.9
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.1	0.4	-0.8	-0.1	0.1	0.3	0.5	0.5	0.6	0.6	0.7	0.7	0.8
Structural primary balance (before CoA)	0.1	1.9	0.4	0.6	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.8
Real GDP growth	1.0	1.0	1.7	1.7	1.3	1.2	1.1	0.8	0.9	0.9	0.9	0.9	1.2
Potential GDP growth	0.8	0.9	1.0	0.9	0.9	0.8	0.7	0.8	0.9	0.9	0.9	0.9	1.2
Inflation rate	1.2	0.7	1.7	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.7	3.3	3.1	2.9	2.8	2.8	2.8	2.9	3.1	3.2	3.4	3.7	3.8
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.5	-0.3	0.1	0.5	1.0	1.2	1.1	1.3	1.4	1.4	1.3	1.3	1.2
Structural primary balance (before CoA)	-0.2	1.2	1.2	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Real GDP growth	1.2	1.1	1.7	2.2	2.2	1.9	1.0	1.1	1.2	1.2	1.2	1.4	1.6
Potential GDP growth	0.8	0.9	1.3	1.8	1.8	1.9	1.0	1.1	1.2	1.2	1.2	1.4	1.6
Inflation rate	1.0	1.1	1.7	2.0	2.0	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.1	3.0	3.0	3.3	3.4	3.5	3.7	3.8	4.1	4.1	4.2	4.2
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.1	0.4	-0.8	-0.3	0.7	1.7	2.6	3.3	3.4	3.4	3.4	3.3	3.2
Structural primary balance (before CoA)	0.1	1.9	0.4	0.5	1.0	1.5	2.0	2.5	2.5	2.5	2.5	2.5	2.5
Real GDP growth	1.0	1.0	1.7	1.8	0.9	0.8	0.7	0.4	0.9	0.9	1.0	1.0	1.2
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.1	0.4	-0.8	-0.3	0.7	1.7	2.6	3.3	3.4	3.4	3.4	3.3	3.2
Structural primary balance (before CoA)	0.1	1.9	0.4	0.5	1.0	1.5	2.0	2.5	2.5	2.5	2.5	2.5	2.5
Real GDP growth	1.0	1.0	1.7	1.8	1.2	1.0	0.8	0.6	1.0	1.0	1.0	1.0	1.0
Implicit interest rate (nominal)	3.7	3.3	3.1	2.9	2.8	2.9	3.0	3.2	3.4	3.4	3.5	3.5	3.5
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.7	3.3	3.2	3.2	3.2	3.3	3.4	3.5	3.7	3.9	4.1	4.4	4.6
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.7	3.3	2.9	2.7	2.5	2.4	2.3	2.4	2.4	2.5	2.7	2.8	3.0
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.7	3.3	3.4	3.4	3.6	3.5	3.6	3.7	3.8	4.0	4.2	4.5	4.7
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.0	1.0	2.2	2.3	1.8	1.7	1.6	1.3	1.4	1.4	1.5	1.5	1.7
Potential GDP growth	0.8	0.9	1.5	1.5	1.4	1.3	1.2	1.3	1.4	1.4	1.5	1.5	1.7
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.0	1.0	1.2	1.3	0.8	0.7	0.6	0.3	0.4	0.4	0.5	0.5	0.7
Potential GDP growth	0.8	0.9	0.5	0.5	0.4	0.3	0.2	0.3	0.4	0.4	0.5	0.5	0.7
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.0	1.0	1.8	1.9	1.8	1.7	1.6	1.3	1.4	1.4	1.5	1.5	1.7
Potential GDP growth	0.8	0.9	1.1	1.2	1.4	1.3	1.2	1.3	1.4	1.4	1.5	1.5	1.7
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.0	1.0	1.5	1.6	0.8	0.7	0.6	0.3	0.4	0.4	0.5	0.5	0.7
Potential GDP growth	0.8	0.9	0.8	0.8	0.4	0.3	0.2	0.3	0.4	0.4	0.5	0.5	0.7
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	1.2	0.7	2.2	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	1.2	0.7	1.2	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.1	0.4	-0.4	-1.0	-0.5	-0.1	0.4	0.5	0.6	0.6	0.6	0.5	0.4
Structural primary balance (before CoA)	0.1	1.9	0.8	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
Real GDP growth	1.0	1.0	1.3	2.7	1.3	1.2	1.1	0.8	0.9	0.9	1.0	1.0	1.2
Potential GDP growth	0.8	0.9	0.6	1.9	0.9	0.8	0.7	0.8	0.9	0.9	1.0	1.0	1.2
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	3.7	3.3	3.1	2.9	2.8	2.8	2.8	2.9	3.0	3.2	3.4	3.6	3.7

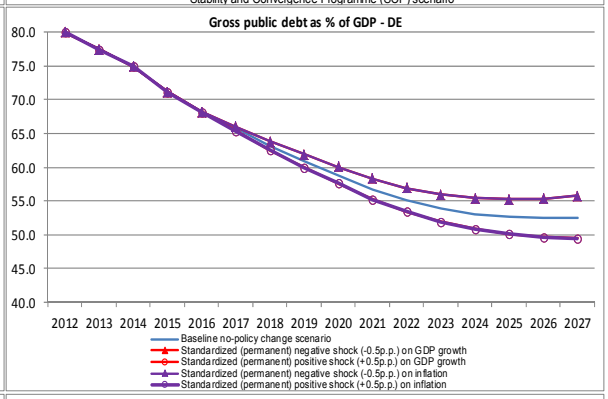
5. Germany

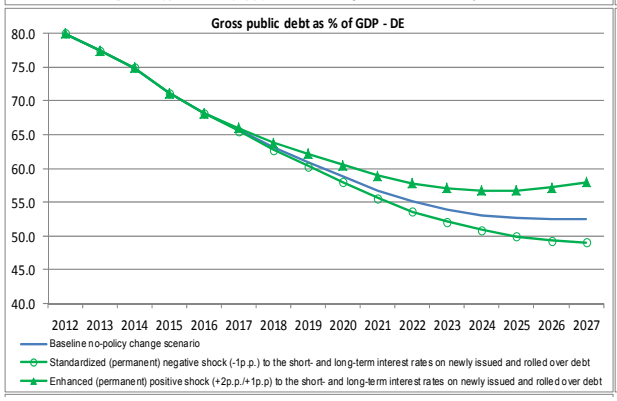
Public debt projections under baseline and alternative scenarios and sensitivity tests

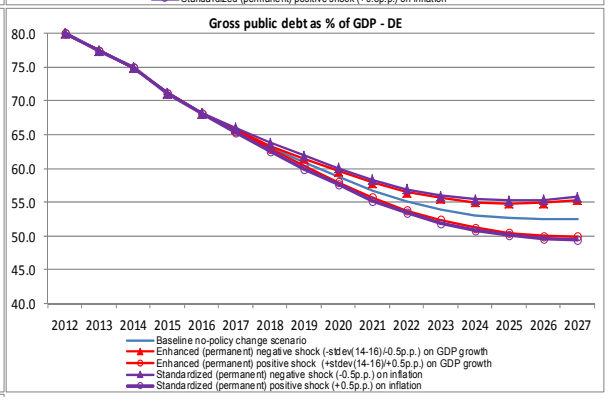
DE - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**74.9**	**71.2**	**68.1**	**65.7**	**63.1**	**60.9**	**58.8**	**56.8**	**55.1**	**53.9**	**53.1**	**52.6**	**52.4**	**52.6**
Changes in the ratio (-1+2+3)	*-2.6*	*-3.7*	*-3.0*	*-2.5*	*-2.6*	*-2.2*	*-2.1*	*-2.0*	*-1.6*	*-1.2*	*-0.8*	*-0.5*	*-0.2*	*0.1*
of which														
(1) Primary balance (1.1+1.2+1.3)	**2.1**	**2.2**	**2.0**	**1.6**	**1.4**	**1.4**	**1.3**	**1.2**	**1.1**	**0.9**	**0.8**	**0.7**	**0.6**	**0.4**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***2.6***	***2.4***	***2.0***	***1.7***	***1.5***	***1.4***	***1.3***	***1.2***	***1.1***	***0.9***	***0.8***	***0.7***	***0.6***	***0.4***
(1.1.1) Structural Primary Balance (before CoA)	*2.6*	*2.4*	*2.0*	*1.7*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*
(1.1.2) Cost of ageing						*0.1*	*0.3*	*0.4*	*0.6*	*0.8*	*1.0*	*1.2*	*1.3*	*1.5*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.1*	*0.1*	*0.1*	*0.2*	*0.2*	*0.3*	*0.3*	*0.3*
(1.2) Cyclical component	***-0.2***	***-0.1***	***0.0***	***-0.2***	***-0.1***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-0.3***	***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***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-0.8**	**-1.1**	**-1.0**	**-0.8**	**-1.2**	**-0.9**	**-0.8**	**-0.8**	**-0.5**	**-0.3**	**0.0**	**0.2**	**0.4**	**0.5**
(2.1) Interest expenditure	*1.8*	*1.6*	*1.4*	*1.2*	*1.1*	*1.1*	*1.1*	*1.2*	*1.2*	*1.3*	*1.5*	*1.6*	*1.8*	*1.9*
(2.2) Growth effect	*-1.2*	*-1.2*	*-1.3*	*-1.0*	*-1.1*	*-0.8*	*-0.8*	*-0.8*	*-0.7*	*-0.5*	*-0.4*	*-0.4*	*-0.3*	*-0.3*
(2.3) Inflation effect	*-1.4*	*-1.4*	*-1.1*	*-1.1*	*-1.1*	*-1.1*	*-1.1*	*-1.2*	*-1.1*	*-1.1*	*-1.1*	*-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	**0.3**	**-0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*0.3*	*-0.8*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.4*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	0.8	1.2	0.6	0.4	0.5	0.4	0.2	0.1	-0.1	-0.4	-0.7	-0.9	-1.2	-1.5

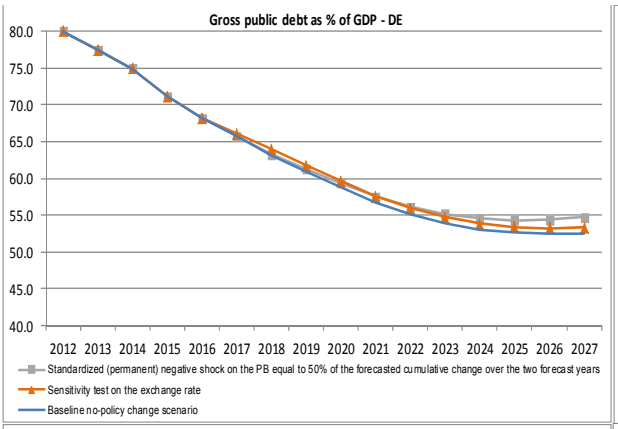


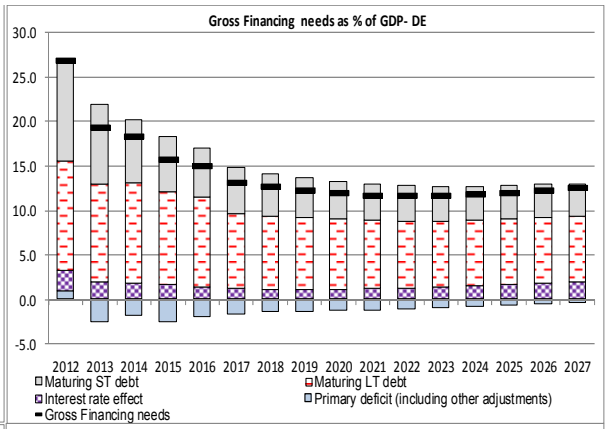


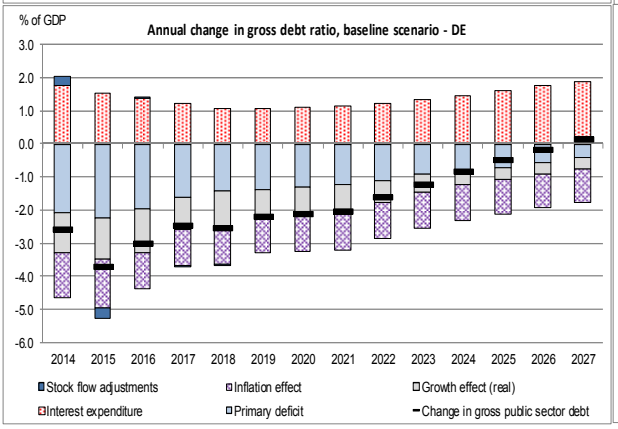


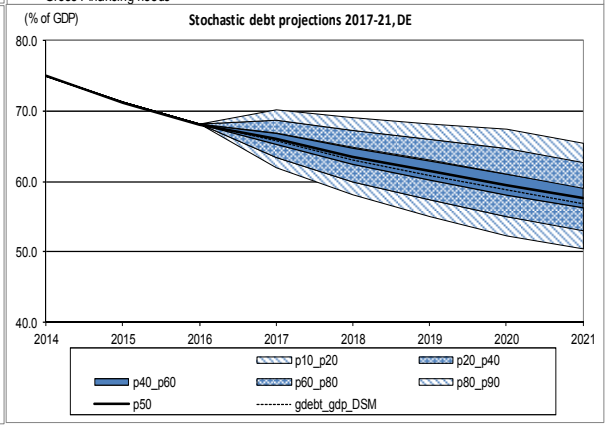












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	23.9	23.8	24.0	23.9	24.0	24.0	24.1	24.3	25.2	26.1
Revenues from pensions taxation	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.1
Property incomes	0.7	0.8	0.9	0.9	0.9	0.9	0.9	1.0	1.1	1.0

Sustainability indicators

S0 indicator	**2009**	**2016**	**Critical threshold**
Overall index	**0.19**	**0.08**	**0.46**
Fiscal sub-index	0.35	0.00	0.36
Financial competitiveness sub-index	0.10	0.12	0.49

S1 indicator	**COM no-policy change scenario**	**Historical SPB scenario**	**AWG risk scenario**	**SCP scenario**	**2015 Sustainability Report**
Overall index	**-0.4**	**-0.1**	**0.2**	**-0.3**	**-0.8**
of which *Initial Budgetary position*	*-1.5*	*-0.9*	*-1.5*	*-1.0*	*-2.0*
*Cost of delaying adjustment***	*-0.1*	*0.0*	*0.0*	*-0.1*	*-0.1*
*Debt requirement****	*0.2*	*-0.4*	*0.2*	*-0.1*	*0.4*
Ageing costs	*1.0*	*1.3*	*1.5*	*0.8*	*0.9*
Required structural primary balance related to S1	**1.2**	**1.2**	**1.8**	**1.0**	**1.1**

S2 indicator	**COM no-policy change scenario**	**Historical SPB scenario**	**AWG risk scenario**	**SCP scenario**	**2015 Sustainability Report**
Overall index	**2.0**	**2.5**	**4.4**	**2.2**	**1.7**
of which Initial Budgetary position	-0.5	-0.2	-0.5	-0.2	-0.8
Long term component	2.5	2.6	4.9	2.3	2.5
of which Pensions	*1.6*	*1.7*	*1.6*	*1.5*	*1.7*
Health care	*0.3*	*0.3*	*0.8*	*0.3*	*0.4*
Long-term care	*0.0*	*0.0*	*1.9*	*0.0*	*0.0*
Others	*0.6*	*0.6*	*0.6*	*0.5*	*0.5*
Required structural primary balance related to S2	**3.6**	**3.5**	**5.9**	**3.5**	**3.6**

Risks related to the structure of public debt financing

Public debt structure - DE (2015):	Share of short-term public debt (p.p.) out of total debt	Share of public debt by non-residents (%):	Share of public debt in foreign currency (%):
	8.8	52.8	4.2

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015		DE	EU
State guarantees (% GDP) (2014)		16.4	9.2
of which One-off guarantees		*16.4*	*8.8*
Standardised guarantees		:	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee [x]	0.33	2.74
	Securities issued under liquidity schemes	:	0.07
	Special purpose entity	:	0.48
	Total	0.33	3.29

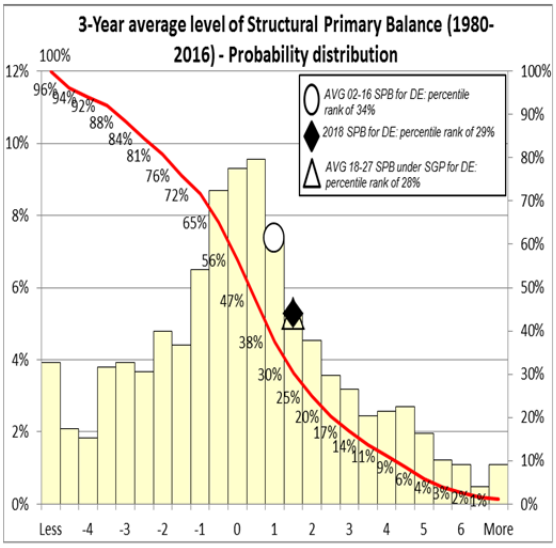
Government's contingent liability risks from banking sector - DE (2015):	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	Change in nominal house price index:	NPL coverage ratio	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):	
							bank recap. at 8%	bank recap. at 10.5%
	3	139.7	3	-0.7	4.7	37.2	0.00%	0.00%

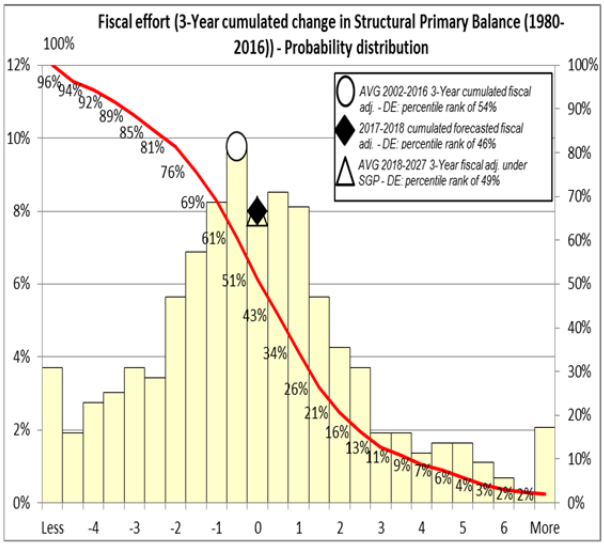
Financial market information

Sovereign Ratings as of Nov 15 2016, DE	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+

Financial market information as of November 2016, DE		
Sovereign yield spreads(bp)*	10-year	n.a.
CDS (bp)	5-year	22.8

Realism of baseline assumptions





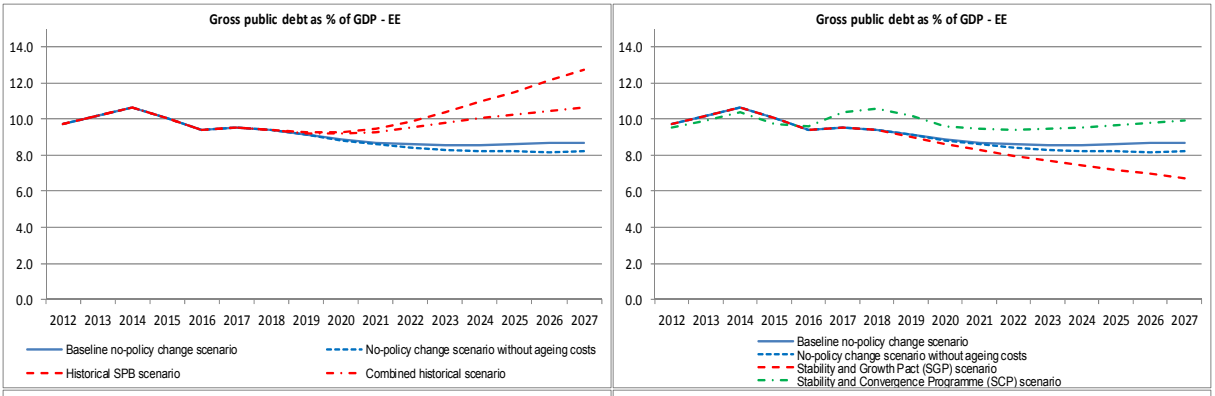
Underlying macro-fiscal assumptions

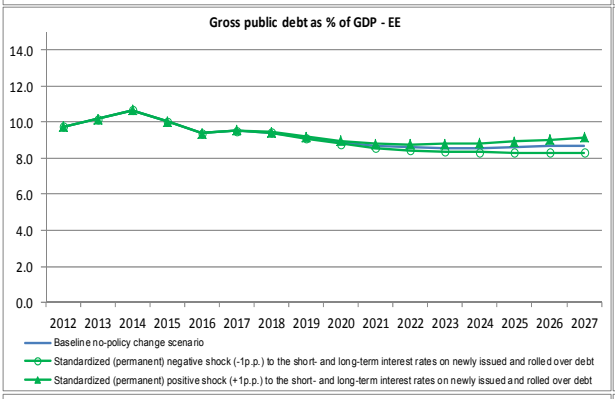
Macro-fiscal assumptions, Germany													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	2.2	2.0	1.6	1.4	1.4	1.3	1.2	1.1	0.9	0.8	0.7	0.6	0.4
Structural primary balance (before CoA)	2.4	2.0	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Real GDP growth	1.7	1.9	1.5	1.7	1.3	1.3	1.4	1.2	1.0	0.9	0.7	0.6	0.7
Potential GDP growth	1.6	1.7	1.7	1.7	1.2	1.3	1.4	1.2	1.0	0.9	0.7	0.6	0.7
Inflation rate	2.0	1.5	1.6	1.8	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.2	2.0	1.9	1.7	1.8	1.9	2.0	2.2	2.5	2.8	3.1	3.5	3.7
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	2.2	2.0	1.6	1.4	1.6	1.7	1.7	1.7	1.6	1.6	1.6	1.5	1.5
Structural primary balance (before CoA)	2.4	2.0	1.7	1.5	1.8	1.9	2.0	2.1	2.3	2.4	2.4	2.5	2.7
Real GDP growth	1.7	1.9	1.5	1.7	1.1	1.3	1.4	1.1	0.9	0.8	0.6	0.6	0.6
Potential GDP growth	1.6	1.7	1.7	1.7	1.0	1.2	1.3	1.1	0.9	0.8	0.6	0.6	0.6
Inflation rate	2.0	1.5	1.6	1.8	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.2	2.0	1.9	1.7	1.8	1.9	2.0	2.2	2.5	2.7	3.0	3.4	3.6
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	2.2	2.0	1.6	1.4	1.4	1.5	1.6	1.7	1.7	1.8	1.9	2.0	2.1
Structural primary balance (before CoA)	2.4	2.0	1.7	1.5	1.5	1.6	1.6	1.7	1.7	1.8	1.9	2.0	2.1
Real GDP growth	1.7	1.9	1.5	1.7	1.3	1.3	1.4	1.1	1.0	0.8	0.6	0.6	0.6
Potential GDP growth	1.6	1.7	1.7	1.7	1.2	1.2	1.3	1.1	1.0	0.8	0.6	0.6	0.6
Inflation rate	2.0	1.5	1.6	1.8	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.2	2.0	1.9	1.7	1.8	1.9	2.0	2.2	2.5	2.7	3.0	3.4	3.6
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	2.3	1.3	1.3	1.2	1.3	1.3	1.2	1.1	0.9	0.7	0.7	0.5	0.4
Structural primary balance (before CoA)	2.5	1.6	1.6	1.5	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Real GDP growth	1.7	1.7	1.5	1.6	1.6	1.6	1.2	1.1	0.9	0.7	0.7	0.7	0.7
Potential GDP growth	1.5	1.6	1.7	1.6	1.5	1.6	1.2	1.1	0.9	0.7	0.7	0.7	0.7
Inflation rate	2.1	1.7	1.8	1.6	1.6	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.2	2.0	2.0	2.0	2.0	2.2	2.4	2.6	3.1	3.4	3.5	3.7	3.8
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	2.2	2.0	1.6	1.4	1.3	1.1	1.0	0.8	0.6	0.5	0.4	0.3	0.1
Structural primary balance (before CoA)	2.4	2.0	1.7	1.5	1.5	1.4	1.3	1.2	1.2	1.2	1.2	1.2	1.2
Real GDP growth	1.7	1.9	1.5	1.7	1.4	1.4	1.5	1.2	1.0	0.9	0.7	0.6	0.7
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	2.2	2.0	1.6	1.4	1.3	1.1	1.0	0.8	0.6	0.5	0.4	0.3	0.1
Structural primary balance (before CoA)	2.4	2.0	1.7	1.5	1.5	1.4	1.3	1.2	1.2	1.2	1.2	1.2	1.2
Real GDP growth	1.7	1.9	1.5	1.7	1.7	1.5	1.4	1.3	1.3	1.3	1.3	1.3	1.3
Implicit interest rate (nominal)	2.2	2.0	1.9	1.7	1.8	2.0	2.2	2.6	2.9	3.1	3.3	3.5	3.7
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.2	2.0	2.1	2.0	2.2	2.4	2.6	2.9	3.2	3.5	3.9	4.3	4.6
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.2	2.0	1.6	1.4	1.4	1.4	1.5	1.6	1.8	2.0	2.3	2.6	2.8
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.2	2.0	2.3	2.4	2.6	2.7	2.9	3.1	3.4	3.7	4.1	4.4	4.7
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.7	1.9	2.0	2.2	1.8	1.8	1.9	1.7	1.5	1.4	1.2	1.1	1.2
Potential GDP growth	1.6	1.7	2.2	2.2	1.7	1.8	1.9	1.7	1.5	1.4	1.2	1.1	1.2
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.7	1.9	1.0	1.2	0.8	0.8	0.9	0.7	0.5	0.4	0.2	0.1	0.2
Potential GDP growth	1.6	1.7	1.2	1.2	0.7	0.8	0.9	0.7	0.5	0.4	0.2	0.1	0.2
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.7	1.9	1.6	1.9	1.8	1.8	1.9	1.7	1.5	1.4	1.2	1.1	1.2
Potential GDP growth	1.6	1.7	1.9	1.8	1.7	1.8	1.9	1.7	1.5	1.4	1.2	1.1	1.2
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.7	1.9	1.3	1.5	0.8	0.8	0.9	0.7	0.5	0.4	0.2	0.1	0.2
Potential GDP growth	1.6	1.7	1.6	1.5	0.7	0.8	0.9	0.7	0.5	0.4	0.2	0.1	0.2
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	2.0	1.5	2.1	2.3	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	2.0	1.5	1.1	1.3	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	2.2	2.0	1.6	1.2	1.1	1.1	1.0	0.9	0.7	0.6	0.5	0.4	0.2
Structural primary balance (before CoA)	2.4	2.0	1.7	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Real GDP growth	1.7	1.9	1.5	1.9	1.3	1.3	1.4	1.2	1.0	0.9	0.7	0.6	0.7
Potential GDP growth	1.6	1.7	1.8	1.8	1.2	1.3	1.4	1.2	1.0	0.9	0.7	0.6	0.7
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	2.2	2.0	1.9	1.7	1.8	1.9	2.0	2.2	2.5	2.8	3.1	3.5	3.7

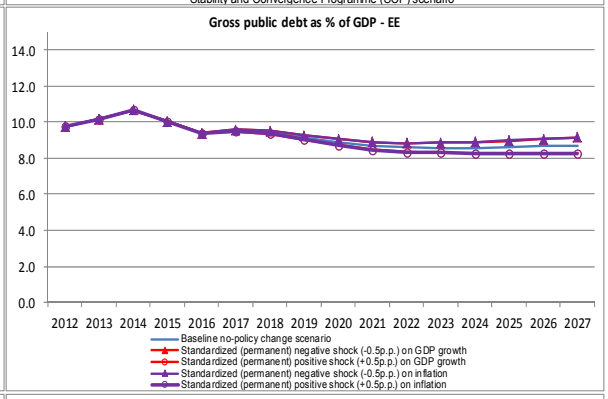
6. Estonia

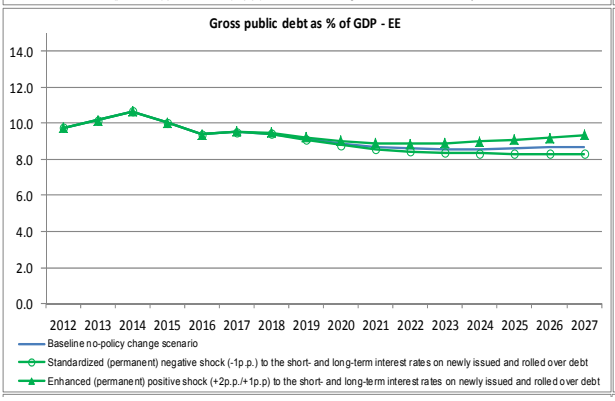
Public debt projections under baseline and alternative scenarios and sensitivity tests

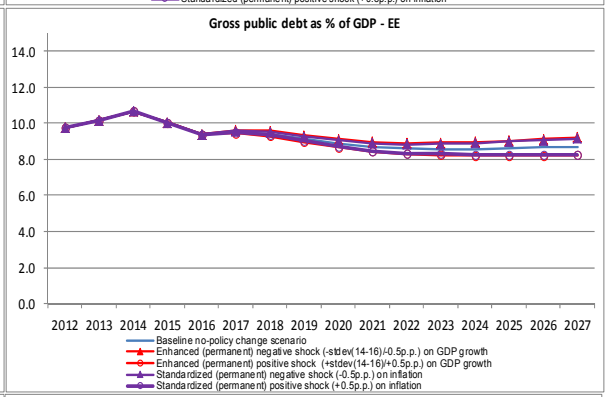
EE - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**10.7**	**10.1**	**9.4**	**9.5**	**9.4**	**9.1**	**8.9**	**8.7**	**8.6**	**8.6**	**8.6**	**8.6**	**8.6**	**8.7**
Changes in the ratio (-1+2+3)	*0.5*	*-0.6*	*-0.7*	*0.1*	*-0.1*	*-0.3*	*-0.3*	*-0.2*	*-0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*
of which														
(1) Primary balance (1.1+1.2+1.3)	**0.8**	**0.2**	**0.6**	**-0.3**	**-0.1**	**-0.1**	**-0.1**	**0.0**	**-0.1**	**-0.1**	**-0.1**	**-0.1**	**-0.1**	**-0.1**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***0.0***	***0.0***	***0.7***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***-0.1***	***-0.1***	***-0.1***	***-0.1***	***-0.1***	***-0.1***
(1.1.1) Structural Primary Balance (before CoA)	*0.0*	*0.0*	*0.7*	*-0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.0*	*0.0*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*-0.1*	*-0.1*	*-0.1*
(1.2) Cyclical component	***0.9***	***0.5***	***0.0***	***-0.2***	***-0.1***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-0.1***	***-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***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-0.3**	**-0.2**	**-0.4**	**-0.4**	**-0.5**	**-0.4**	**-0.3**	**-0.2**	**-0.2**	**-0.1**	**-0.1**	**-0.1**	**0.0**	**0.0**
(2.1) Interest expenditure	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.2*	*0.2*	*0.2*	*0.3*
(2.2) Growth effect	*-0.3*	*-0.2*	*-0.1*	*-0.2*	*-0.2*	*-0.2*	*-0.2*	*-0.2*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*
(2.3) Inflation effect	*-0.2*	*-0.1*	*-0.4*	*-0.3*	*-0.3*	*-0.3*	*-0.2*	*-0.2*	*-0.2*	*-0.2*	*-0.2*	*-0.2*	*-0.2*	*-0.2*
(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	**1.6**	**-0.2**	**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	*1.6*	*-0.2*	*0.3*	*0.3*	*0.3*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) 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*
Per memo														
Structural balance	-0.1	-0.1	0.6	-0.2	0.0	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.4

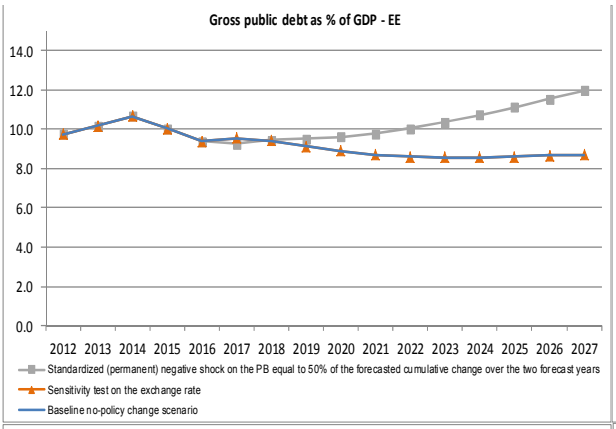


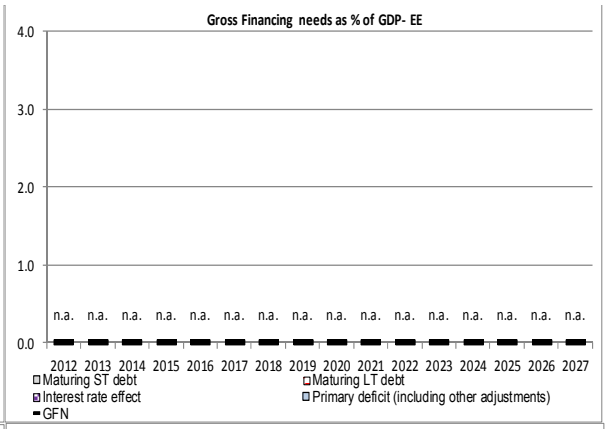


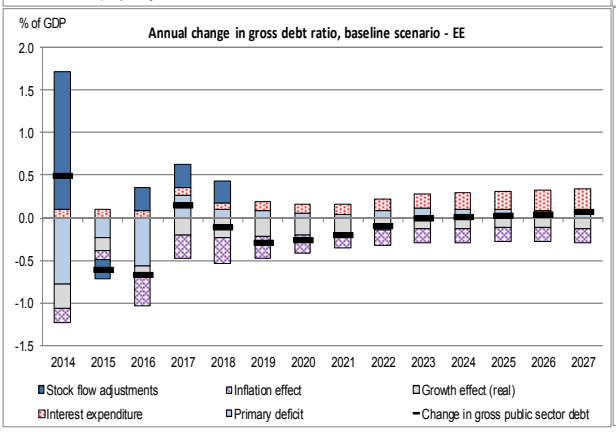


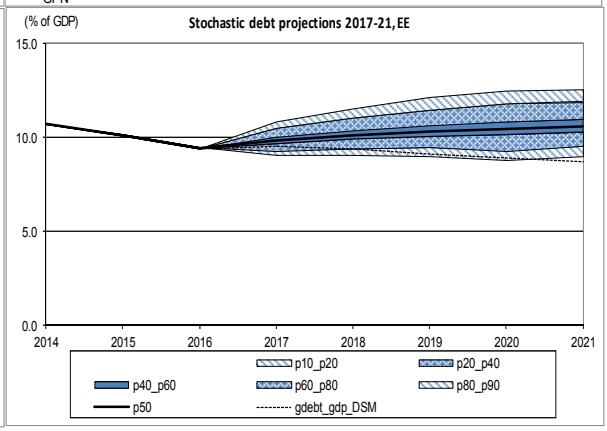












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	17.1	17.2	17.1	17.3	17.5	17.6	17.7	17.7	17.7	17.6
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	1.1	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.48**	**0.25**	**0.46**
Fiscal sub-index	0.27	0.00	0.36
Financial competitiveness sub-index	0.57	0.37	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**-4.5**	**-6.2**	**-4.1**	**-6.0**	**-4.0**
of which *Initial Budgetary position*	*0.0*	*0.6*	*0.0*	*0.0*	*0.2*
*Cost of delaying adjustment***	*-0.7*	*-1.4*	*-0.6*	*-1.2*	*-0.6*
*Debt requirement****	*-3.8*	*-5.4*	*-3.8*	*-4.9*	*-3.8*
Ageing costs	*0.0*	*0.0*	*0.4*	*0.0*	*0.2*
Required structural primary balance related to S1	**-4.4**	**-6.7**	**-4.0**	**-6.0**	**-4.1**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**0.2**	**0.8**	**2.4**	**0.3**	**0.7**
of which Initial Budgetary position	0.2	0.7	0.2	0.2	0.5
Long term component	0.1	0.1	2.2	0.0	0.2
of which Pensions	*-1.2*	*-1.3*	*-1.2*	*-1.0*	*-1.1*
Health care	*0.4*	*0.4*	*0.8*	*0.3*	*0.4*
Long-term care	*0.4*	*0.5*	*2.0*	*0.4*	*0.4*
Others	*0.5*	*0.5*	*0.5*	*0.4*	*0.5*
Required structural primary balance related to S2	**0.3**	**0.2**	**2.4**	**0.3**	**0.6**

Risks related to the structure of public debt financing

Public debt structure - EE (2015):	Share of short-term public debt (p.p.) out of total debt	Share of public debt by non-residents (%):	Share of public debt in foreign currency (%):
	0.0	66.5	0

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		EE	EU
State guarantees (% GDP) (2014)		1.6	9.2
of which One-off guarantees		*0.0*	*8.8*
Standardised guarantees		*1.6*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** *	:	**2.74**
	Securities issued under liquidity schemes	:	**0.07**
	Special purpose entity	:	**0.48**
	Total	**0.00**	**3.29**

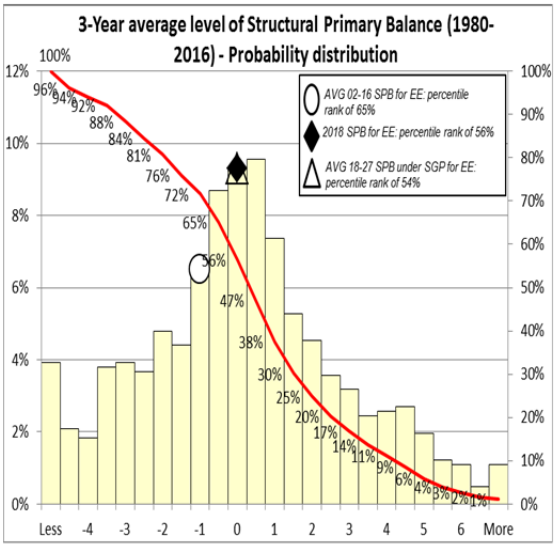
Government's contingent liability risks from banking sector - EE (2015):	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	Change in nominal house price index:	**NFL coverage ratio**	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8%	bank recap. at 10.5%
	3.3	107.7	1.9	-0.8	6.9	**n.a.**	0.00%	0.00%

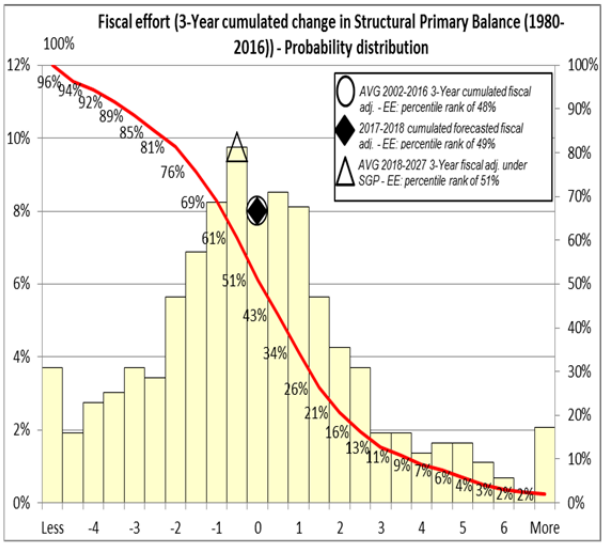
Financial market information

Sovereign Ratings as of Nov 15 2016, EE	**Local currency**		**Foreign currency**	
	long term	**short term**	**long term**	**short term**
Moody's			**WR**	
S&P	**AA-**	**A-1+**	**AA-**	**A-1+**
Fitch	**A+**		**A+**	**F1+**

Financial market information as of November 2016, EE		
Sovereign yield spreads(bp)*	**10-year**	**n.a.**
CDS (bp)	**5-year**	**68.0**

Realism of baseline assumptions





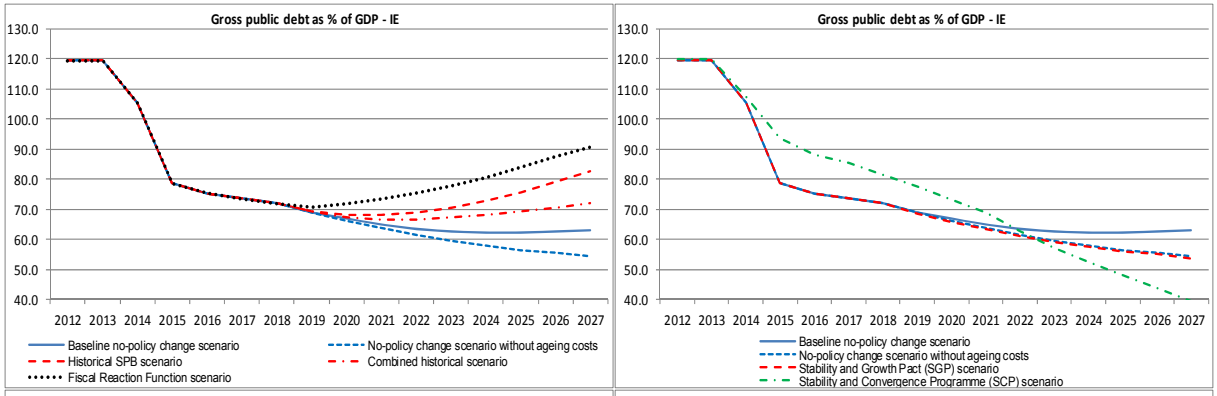
Underlying macro-fiscal assumptions

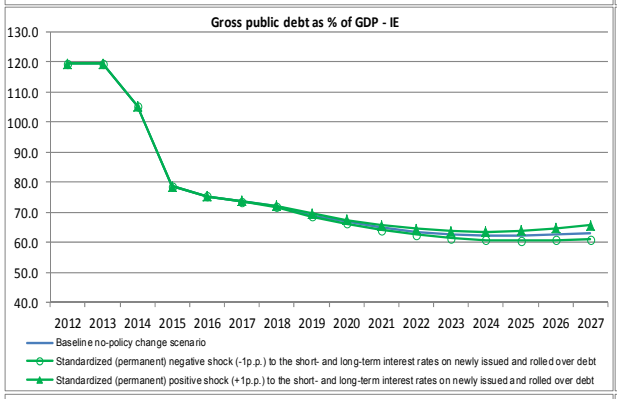
Macro-fiscal assumptions, Estonia													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.2	0.6	-0.3	-0.1	-0.1	-0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Structural primary balance (before CoA)	0.0	0.7	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Real GDP growth	1.4	1.1	2.3	2.6	2.4	2.3	2.1	1.8	1.6	1.4	1.3	1.3	1.4
Potential GDP growth	2.4	2.4	2.6	2.5	2.3	2.2	2.0	1.8	1.6	1.4	1.3	1.3	1.4
Inflation rate	1.0	3.7	3.0	3.3	2.9	2.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	0.9	0.9	1.0	0.8	1.0	1.2	1.5	1.7	2.0	2.2	2.5	2.8	3.1
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.2	0.6	-0.3	-0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
Structural primary balance (before CoA)	0.0	0.7	-0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
Real GDP growth	1.4	1.1	2.3	2.6	2.4	2.3	2.1	1.7	1.6	1.4	1.3	1.3	1.4
Potential GDP growth	2.4	2.4	2.6	2.5	2.3	2.2	2.0	1.7	1.6	1.4	1.3	1.3	1.4
Inflation rate	1.0	3.7	3.0	3.3	2.9	2.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	0.9	0.9	1.0	0.8	1.0	1.2	1.4	1.6	1.8	2.1	2.3	2.5	2.8
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.6	-0.1	-0.1	0.0	0.1	0.2	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Structural primary balance (before CoA)	0.8	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Real GDP growth	1.1	2.0	3.0	3.3	3.0	2.8	1.7	1.6	1.5	1.5	1.6	1.6	1.6
Potential GDP growth	2.8	3.0	2.7	2.9	2.7	2.7	1.7	1.6	1.5	1.5	1.6	1.6	1.6
Inflation rate	1.4	2.1	2.9	3.0	2.9	2.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	0.9	0.8	0.8	0.8	1.0	1.4	2.1	2.2	2.7	3.2	3.9	4.0	4.2
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.2	0.6	-0.3	-0.1	-0.2	-0.3	-0.4	-0.6	-0.7	-0.6	-0.6	-0.6	-0.6
Structural primary balance (before CoA)	0.0	0.7	-0.1	0.0	-0.1	-0.2	-0.4	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Real GDP growth	1.4	1.1	2.3	2.6	2.5	2.4	2.2	1.9	1.6	1.4	1.3	1.3	1.4
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.2	0.6	-0.3	-0.1	-0.2	-0.3	-0.4	-0.6	-0.7	-0.6	-0.6	-0.6	-0.6
Structural primary balance (before CoA)	0.0	0.7	-0.1	0.0	-0.1	-0.2	-0.4	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Real GDP growth	1.4	1.1	2.3	2.6	2.8	2.9	3.1	3.2	3.1	3.1	3.1	3.1	3.1
Implicit interest rate (nominal)	0.9	0.9	1.0	0.8	1.0	1.2	1.2	1.1	1.1	1.0	1.0	0.9	0.9
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	0.9	0.9	1.0	1.0	1.3	1.6	1.9	2.2	2.5	2.9	3.3	3.6	3.9
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	0.9	0.9	0.9	0.6	0.7	0.9	1.0	1.2	1.4	1.6	1.8	2.1	2.3
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	0.9	0.9	1.1	1.2	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.8	4.1
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.4	1.1	2.8	3.1	2.9	2.8	2.6	2.3	2.1	1.9	1.8	1.8	1.9
Potential GDP growth	2.4	2.4	3.1	3.0	2.8	2.7	2.5	2.3	2.1	1.9	1.8	1.8	1.9
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.4	1.1	1.8	2.1	1.9	1.8	1.6	1.3	1.1	0.9	0.8	0.8	0.9
Potential GDP growth	2.4	2.4	2.1	2.0	1.8	1.7	1.5	1.3	1.1	0.9	0.8	0.8	0.9
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.4	1.1	3.2	3.5	2.9	2.8	2.6	2.3	2.1	1.9	1.8	1.8	1.9
Potential GDP growth	2.4	2.4	3.5	3.4	2.8	2.7	2.5	2.3	2.1	1.9	1.8	1.8	1.9
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.4	1.1	1.4	1.7	1.9	1.8	1.6	1.3	1.1	0.9	0.8	0.8	0.9
Potential GDP growth	2.4	2.4	1.7	1.6	1.8	1.7	1.5	1.3	1.1	0.9	0.8	0.8	0.9
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	1.0	3.7	3.5	3.8	3.4	2.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	1.0	3.7	2.5	2.8	2.4	1.9	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.2	0.6	0.0	-0.5	-0.4	-0.4	-0.4	-0.4	-0.5	-0.5	-0.4	-0.4	-0.4
Structural primary balance (before CoA)	0.0	0.7	0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
Real GDP growth	1.4	1.1	2.0	3.1	2.4	2.3	2.1	1.8	1.6	1.4	1.3	1.3	1.4
Potential GDP growth	2.4	2.4	2.3	3.0	2.3	2.2	2.0	1.8	1.6	1.4	1.3	1.3	1.4
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.9	0.9	1.0	0.8	1.0	1.2	1.5	1.7	2.0	2.2	2.5	2.8	3.1

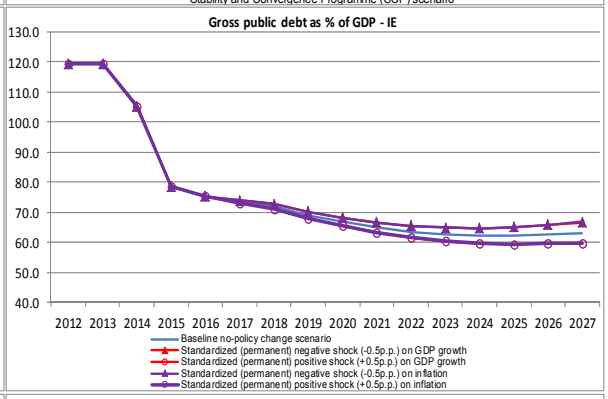
7. Ireland

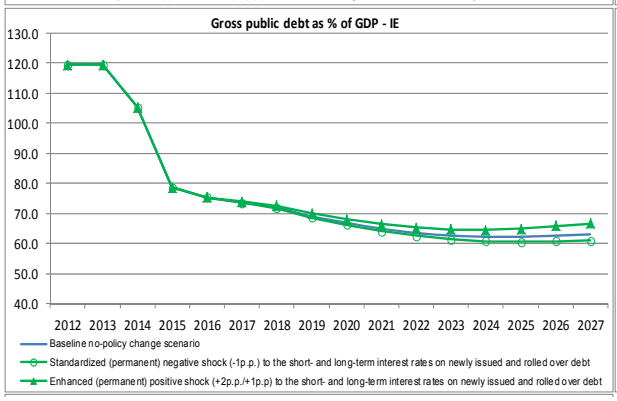
Public debt projections under baseline and alternative scenarios and sensitivity tests

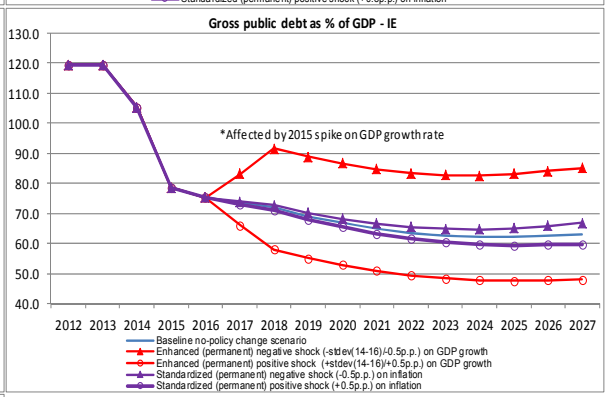
IE - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**105.2**	**78.6**	**75.4**	**73.6**	**71.9**	**69.1**	**66.8**	**64.9**	**63.4**	**62.5**	**62.1**	**62.1**	**62.7**	**63.2**
Changes in the ratio (-1+2+3)	*-14.2*	*-26.6*	*-3.3*	*-1.8*	*-1.6*	*-2.9*	*-2.2*	*-1.9*	*-1.5*	*-0.9*	*-0.5*	*0.1*	*0.5*	*0.5*
of which														
(1) Primary balance (1.1+1.2+1.3)	**0.1**	**0.7**	**1.5**	**1.7**	**1.7**	**1.3**	**1.0**	**0.8**	**0.6**	**0.3**	**0.2**	**0.0**	**-0.2**	**-0.3**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***0.3***	***0.9***	***0.6***	***1.2***	***1.4***	***1.2***	***0.9***	***0.8***	***0.6***	***0.3***	***0.2***	***0.0***	***-0.2***	***-0.3***
(1.1.1) Structural Primary Balance (before CoA)	*0.3*	*0.9*	*0.6*	*1.2*	*1.4*	*1.4*	*1.4*	*1.4*	*1.4*	*1.4*	*1.4*	*1.4*	*1.4*	*1.4*
(1.1.2) Cost of ageing						*0.2*	*0.5*	*0.6*	*0.8*	*1.1*	*1.1*	*1.3*	*1.4*	*1.5*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.0*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.2*	*-0.2*
(1.2) Cyclical component	***0.0***	***0.7***	***0.9***	***0.6***	***0.2***	***0.1***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-0.1***	***-0.8***	***-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)	**-4.2**	**-23.1**	**-0.4**	**-1.2**	**-1.5**	**-1.6**	**-1.2**	**-1.1**	**-0.9**	**-0.6**	**-0.3**	**0.1**	**0.3**	**0.3**
(2.1) Interest expenditure	*3.9*	*2.6*	*2.3*	*2.2*	*2.0*	*2.0*	*2.0*	*1.9*	*1.9*	*1.9*	*2.0*	*2.1*	*2.2*	*2.2*
(2.2) Growth effect	*-9.4*	*-20.9*	*-3.1*	*-2.6*	*-2.5*	*-2.4*	*-1.9*	*-1.7*	*-1.6*	*-1.3*	*-1.0*	*-0.8*	*-0.6*	*-0.8*
(2.3) Inflation effect	*1.4*	*-4.9*	*0.4*	*-0.9*	*-1.1*	*-1.2*	*-1.3*	*-1.3*	*-1.3*	*-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	**-9.9**	**-2.7**	**-1.4**	**1.2**	**1.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-9.9*	*-3.1*	*-1.4*	*1.2*	*1.6*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.4*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-3.6	-1.4	-1.7	-1.0	-0.6	-0.8	-1.1	-1.1	-1.3	-1.7	-1.8	-2.1	-2.3	-2.5

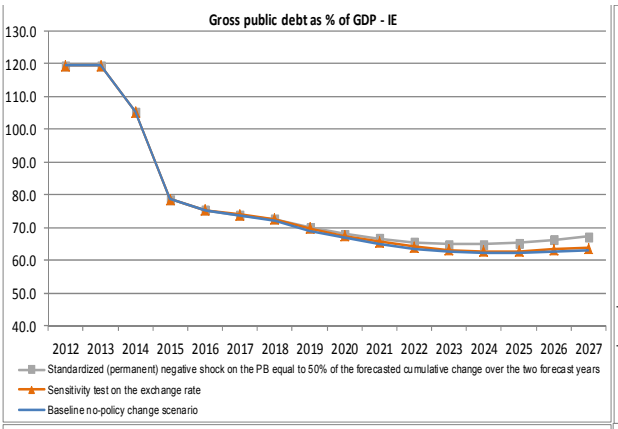


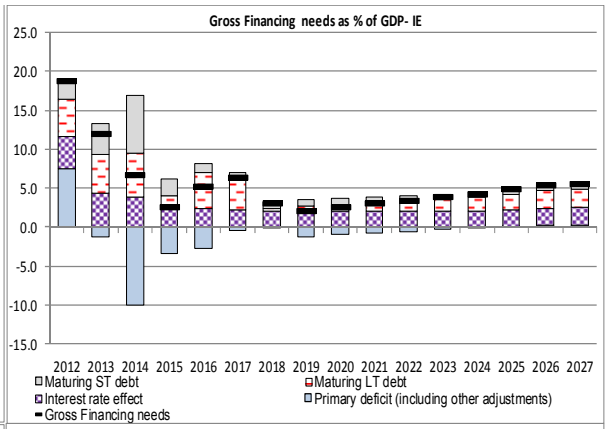


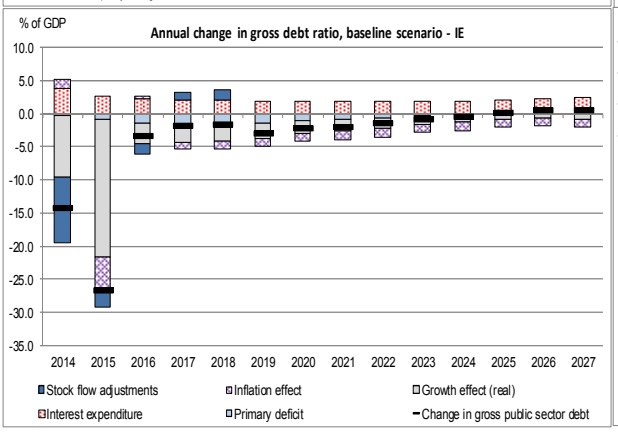


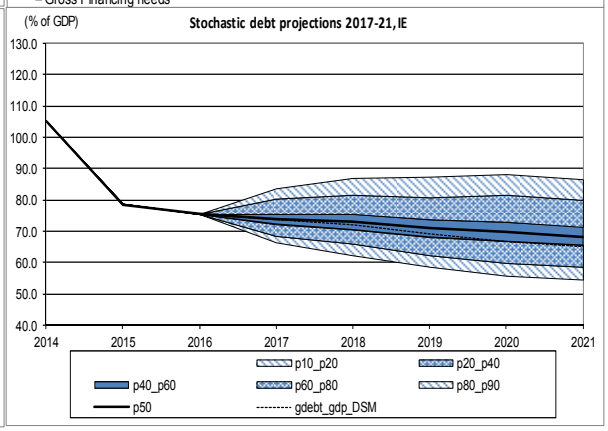












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	22.1	21.6	21.6	21.7	22.1	22.4	22.6	22.9	23.7	23.9
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	1.7	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.3	1.2

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.74**	**0.28**	**0.46**
Fiscal sub-index	0.81	0.19	0.36
Financial competitiveness sub-index	0.70	0.32	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**0.4**	**5.3**	**0.8**	**-5.1**	**2.7**
of which *Initial Budgetary position*	*-1.7*	*1.7*	*-1.7*	*-5.7*	*-1.6*
*Cost of delaying adjustment***	*0.1*	*1.2*	*0.1*	*-1.1*	*0.4*
*Debt requirement****	*0.9*	*1.0*	*0.9*	*1.0*	*2.6*
Ageing costs	*1.1*	*1.4*	*1.4*	*0.7*	*1.3*
Required structural primary balance related to S1	**1.9**	**4.0**	**2.2**	**0.0**	**4.1**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**0.5**	**3.2**	**2.6**	**-4.5**	**1.0**
of which Initial Budgetary position	-1.1	1.7	-1.1	-5.3	-0.9
Long term component	1.6	1.6	3.7	0.8	1.9
of which Pensions	*0.8*	*0.8*	*0.8*	*0.1*	*1.0*
Health care	*1.0*	*1.0*	*1.6*	*0.8*	*1.0*
Long-term care	*0.7*	*0.7*	*2.2*	*0.7*	*0.7*
Others	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.8*
Required structural primary balance related to S2	**2.0**	**2.0**	**4.0**	**0.6**	**2.3**

Risks related to the structure of public debt financing

Public debt structure - IE (2015):	Share of short-term public debt (p.p.) out of total debt: 11.4	Share of public debt by non-residents (%): 63.0	Share of public debt in foreign currency (%): 5.1

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		IE	EU
State guarantees (% GDP) (2014)		13.3	9.2
of which One-off guarantees		*13.3*	*8.8*
Standardised guarantees		*0.0*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** [k]	**1.25**	**2.74**
	Securities issued under liquidity schemes	**0.00**	**0.07**
	Special purpose entity	**3.16**	**0.48**
	Total	**4.42**	**3.29**

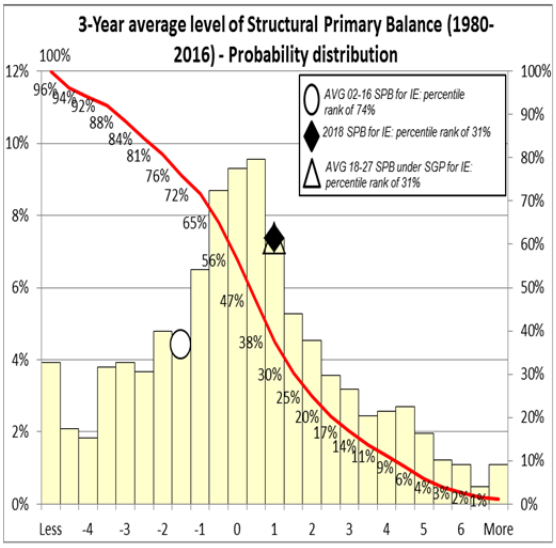
Government's contingent liability risks from banking sector - IE (2015):	Private sector credit flow (% GDP): 13.4 (2014)	Bank loans-to-deposits ratio (%): 123.1	Share of non-performing loans (%): 18.5	Change in share of non-performing loans (p.p): -4.7	Change in nominal house price index: 10.5	NPL coverage ratio: 38.8	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8%: 0.02%	bank recap. at 10.5%: 0.07%

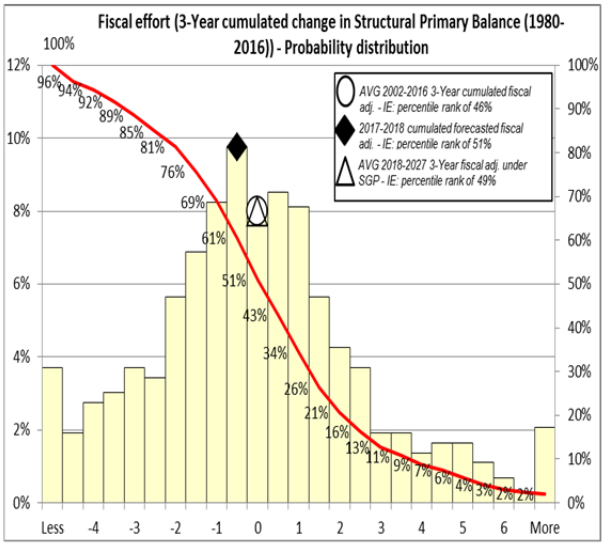
Financial market information

Sovereign Ratings as of Nov 15 2016, IE	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	A3		A3	P-2
S&P	A+	A-1	A+	A-1
Fitch	A		A	F1

Financial market information as of November 2016, IE		
Sovereign yield spreads(bp)*	10-year	68
CDS (bp)	5-year	64.7

Realism of baseline assumptions





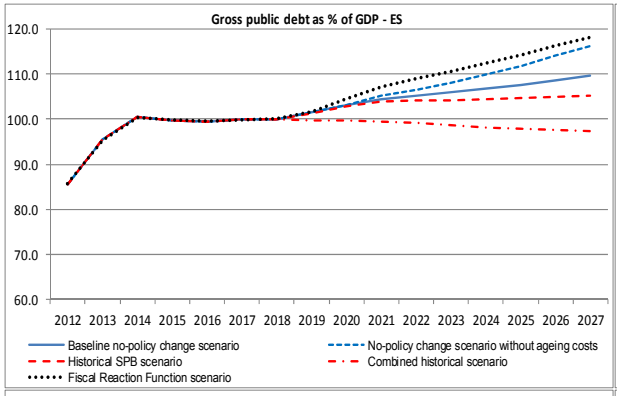
Underlying macro-fiscal assumptions

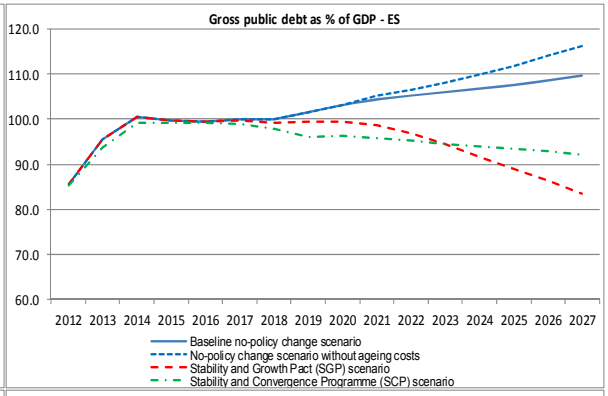
Macro-fiscal assumptions, Ireland													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.7	1.5	1.7	1.7	1.3	1.0	0.8	0.6	0.3	0.2	0.0	-0.2	-0.3
Structural primary balance (before CoA)	0.9	0.6	1.2	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Real GDP growth	26.3	4.1	3.6	3.5	3.5	2.9	2.7	2.5	2.1	1.7	1.3	1.0	1.3
Potential GDP growth	24.5	3.8	4.3	4.2	3.6	3.1	2.9	2.5	2.1	1.7	1.3	1.0	1.3
Inflation rate	4.9	-0.5	1.2	1.5	1.7	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.3	3.1	3.1	2.9	3.0	3.0	3.0	3.1	3.2	3.3	3.4	3.6	3.7
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.7	1.5	1.7	1.7	-1.8	-2.5	-2.8	-3.1	-3.1	-3.0	-2.9	-2.8	-2.6
Structural primary balance (before CoA)	0.9	0.6	1.2	1.4	-1.7	-2.1	-2.1	-2.2	-1.9	-1.8	-1.5	-1.2	-0.9
Real GDP growth	26.3	4.1	3.6	3.5	5.8	3.2	2.8	2.6	1.9	1.6	1.1	0.8	1.1
Potential GDP growth	24.5	3.8	4.3	4.2	6.0	3.4	2.9	2.6	1.9	1.6	1.1	0.8	1.1
Inflation rate	4.9	-0.5	1.2	1.5	1.7	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.3	3.1	3.1	2.9	3.0	3.0	3.0	3.1	3.2	3.4	3.5	3.7	3.9
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.7	1.5	1.7	1.8	1.7	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Structural primary balance (before CoA)	0.9	0.6	1.2	1.6	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Real GDP growth	26.3	4.1	3.6	3.4	3.5	3.0	2.8	2.5	2.1	1.7	1.3	1.0	1.3
Potential GDP growth	24.5	3.8	4.3	4.1	3.6	3.1	2.9	2.5	2.1	1.7	1.3	1.0	1.3
Inflation rate	4.9	-0.5	1.2	1.5	1.7	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.3	3.1	3.1	2.9	3.0	3.0	3.0	3.1	3.2	3.3	3.4	3.5	3.6
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.9	1.5	2.1	2.7	3.4	4.1	4.6	4.9	4.6	4.5	4.3	4.1	4.1
Structural primary balance (before CoA)	1.1	0.7	1.6	2.4	3.3	4.3	5.1	5.1	5.1	5.1	5.1	5.1	5.1
Real GDP growth	7.8	4.9	3.9	3.9	3.3	3.1	2.9	2.8	2.2	1.7	1.3	1.4	1.6
Potential GDP growth	4.4	5.0	5.0	4.2	3.5	3.3	2.8	2.8	2.2	1.7	1.3	1.4	1.6
Inflation rate	5.3	2.6	1.2	1.3	1.3	1.3	1.3	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.3	3.1	3.1	3.0	2.9	2.8	2.7	2.9	2.9	3.0	3.0	3.0	3.0
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.7	1.5	1.7	1.7	0.6	-0.4	-1.3	-2.1	-2.4	-2.5	-2.7	-2.9	-3.0
Structural primary balance (before CoA)	0.9	0.6	1.2	1.4	0.8	0.1	-0.6	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
Real GDP growth	26.3	4.1	3.6	3.5	4.0	3.5	3.2	3.0	2.1	1.7	1.3	1.0	1.3
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.7	1.5	1.7	1.7	0.6	-0.4	-1.3	-2.1	-2.4	-2.5	-2.7	-2.9	-3.0
Structural primary balance (before CoA)	0.9	0.6	1.2	1.4	0.8	0.1	-0.6	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
Real GDP growth	26.3	4.1	3.6	3.5	4.2	4.4	4.5	4.7	4.2	4.2	4.2	4.2	4.2
Implicit interest rate (nominal)	3.3	3.1	3.1	2.9	3.0	3.0	3.1	3.3	3.5	3.6	3.8	3.9	4.0
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.3	3.1	3.2	3.2	3.2	3.3	3.3	3.4	3.5	3.7	3.9	4.1	4.2
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.3	3.1	2.9	2.7	2.7	2.7	2.7	2.8	2.8	2.9	3.0	3.1	3.2
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.3	3.1	3.4	3.4	3.5	3.4	3.5	3.6	3.7	3.8	4.0	4.2	4.3
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	26.3	4.1	4.1	4.0	4.0	3.4	3.2	3.0	2.6	2.2	1.8	1.5	1.8
Potential GDP growth	24.5	3.8	4.8	4.7	4.1	3.6	3.4	3.0	2.6	2.2	1.8	1.5	1.8
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	26.3	4.1	3.1	3.0	3.0	2.4	2.2	2.0	1.6	1.2	0.8	0.5	0.8
Potential GDP growth	24.5	3.8	3.8	3.7	3.1	2.6	2.4	2.0	1.6	1.2	0.8	0.5	0.8
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	26.3	4.1	15.4	15.3	4.0	3.4	3.2	3.0	2.6	2.2	1.8	1.5	1.8
Potential GDP growth	24.5	3.8	16.0	15.9	4.1	3.6	3.4	3.0	2.6	2.2	1.8	1.5	1.8
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	26.3	4.1	-8.2	-8.2	3.0	2.4	2.2	2.0	1.6	1.2	0.8	0.5	0.8
Potential GDP growth	24.5	3.8	-7.5	-7.6	3.1	2.6	2.4	2.0	1.6	1.2	0.8	0.5	0.8
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	4.9	-0.5	1.7	2.0	2.2	2.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	4.9	-0.5	0.7	1.0	1.2	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.7	1.5	1.4	1.3	0.9	0.6	0.4	0.2	-0.1	-0.2	-0.4	-0.6	-0.7
Structural primary balance (before CoA)	0.9	0.6	0.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Real GDP growth	26.3	4.1	3.8	3.6	3.5	2.9	2.7	2.5	2.1	1.7	1.3	1.0	1.3
Potential GDP growth	24.5	3.8	4.5	4.2	3.6	3.1	2.9	2.5	2.1	1.7	1.3	1.0	1.3
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	3.3	3.1	3.1	2.9	3.0	3.0	3.0	3.1	3.2	3.3	3.4	3.6	3.7

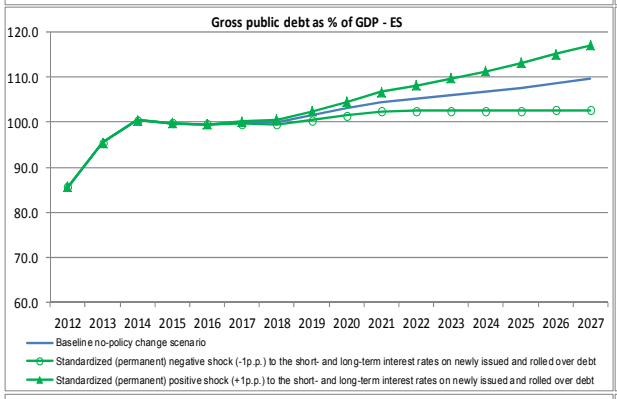
8. Spain

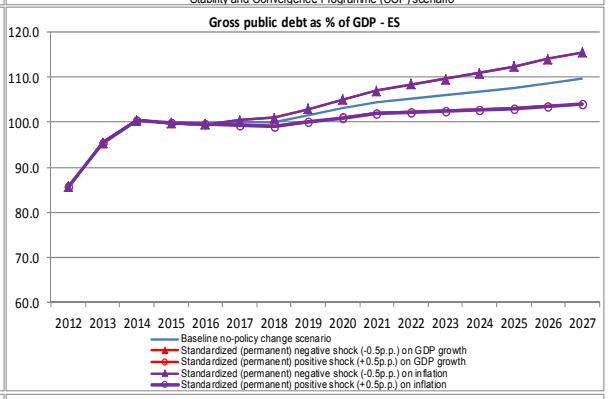
Public debt projections under baseline and alternative scenarios and sensitivity tests

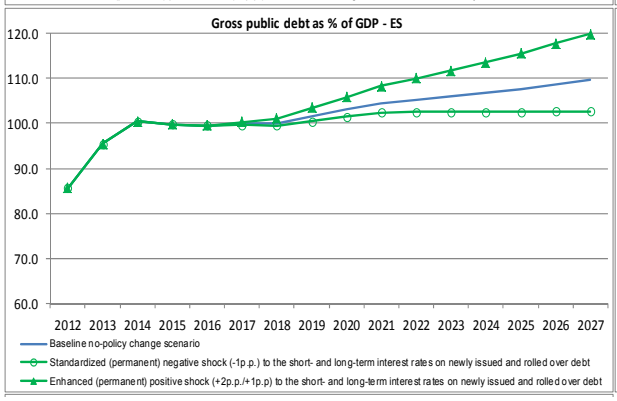
ES - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**100.4**	**99.8**	**99.5**	**99.9**	**100.0**	**101.4**	**103.0**	**104.5**	**105.3**	**106.0**	**106.7**	**107.6**	**108.7**	**109.6**
Changes in the ratio (-1+2+3)	*5.0*	*-0.6*	*-0.3*	*0.4*	*0.1*	*1.4*	*1.5*	*1.5*	*0.8*	*0.7*	*0.8*	*0.9*	*1.0*	*0.9*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-2.5**	**-2.0**	**-1.8**	**-1.1**	**-0.7**	**-0.9**	**-0.9**	**-1.0**	**-0.7**	**-0.5**	**-0.4**	**-0.3**	**-0.3**	**-0.1**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***1.6***	***0.3***	***-1.0***	***-1.2***	***-1.3***	***-1.3***	***-1.2***	***-1.0***	***-0.7***	***-0.5***	***-0.4***	***-0.3***	***-0.3***	***-0.1***
(1.1.1) Structural Primary Balance (before CoA)	*1.6*	*0.3*	*-1.0*	*-1.2*	*-1.3*	*-1.3*	*-1.3*	*-1.3*	*-1.3*	*-1.3*	*-1.3*	*-1.3*	*-1.3*	*-1.3*
(1.1.2) Cost of ageing						*-0.1*	*-0.2*	*-0.4*	*-0.6*	*-0.9*	*-1.0*	*-1.1*	*-1.2*	*-1.3*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*-0.1*	*-0.1*	*-0.1*
(1.2) Cyclical component	***-3.7***	***-2.2***	***-0.8***	***0.0***	***0.6***	***0.4***	***0.2***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-0.4***	***-0.2***	***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)	**2.4**	**-0.5**	**-1.0**	**-0.7**	**-1.1**	**0.5**	**0.6**	**0.5**	**0.1**	**0.2**	**0.3**	**0.5**	**0.8**	**0.8**
(2.1) Interest expenditure	*3.5*	*3.1*	*2.8*	*2.6*	*2.5*	*2.6*	*2.7*	*2.9*	*3.0*	*3.3*	*3.5*	*3.8*	*4.1*	*4.3*
(2.2) Growth effect	*-1.3*	*-3.1*	*-3.1*	*-2.2*	*-2.0*	*-0.4*	*-0.2*	*-0.3*	*-0.9*	*-1.0*	*-1.1*	*-1.2*	*-1.2*	*-1.4*
(2.3) Inflation effect	*0.3*	*-0.5*	*-0.7*	*-1.2*	*-1.5*	*-1.7*	*-1.8*	*-2.0*	*-2.0*	*-2.1*	*-2.1*	*-2.1*	*-2.1*	*-2.1*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock flow adjustments	**0.0**	**-2.1**	**-1.1**	**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	*0.0*	*-2.2*	*-1.1*	*0.0*	*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*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-1.9	-2.7	-3.8	-3.8	-3.8	-3.9	-3.8	-3.8	-3.8	-3.8	-3.9	-4.1	-4.3	-4.5

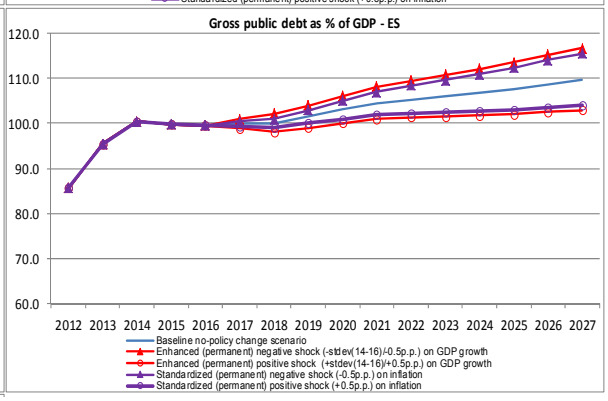


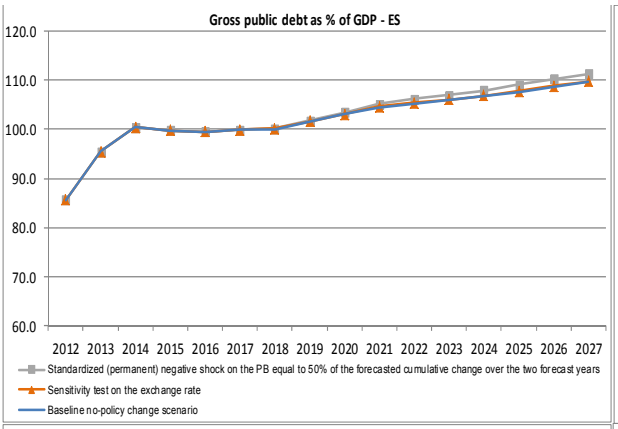


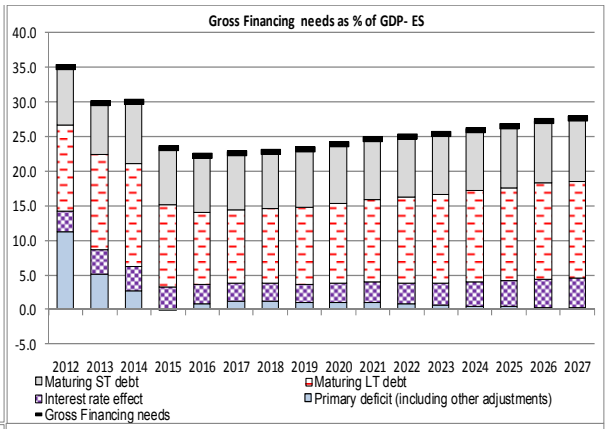


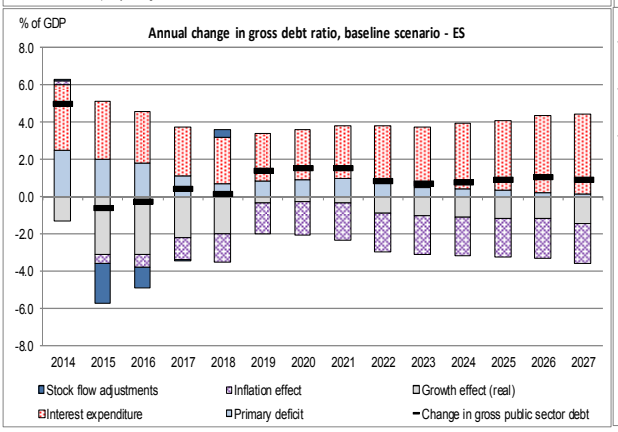


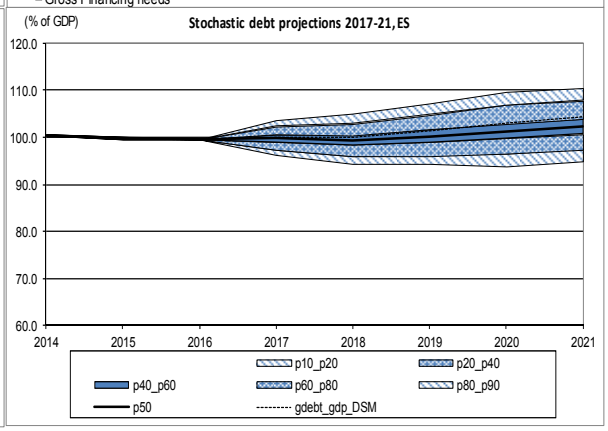












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	25.4	25.6	25.5	25.4	25.2	25.0	25.0	24.8	24.0	23.5
Revenues from pensions taxation	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Property incomes	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.79**	**0.37**	**0.46**
Fiscal sub-index	0.69	0.57	0.36
Financial competitiveness sub-index	0.85	0.27	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**4.9**	**7.0**	**5.3**	**3.5**	**2.5**
of which *Initial Budgetary position*	*2.0*	*1.9*	*2.1*	*0.6*	*0.1*
*Cost of delaying adjustment***	*0.8*	*1.6*	*0.8*	*0.6*	*0.4*
*Debt requirement****	*3.0*	*4.8*	*3.0*	*3.2*	*3.1*
Ageing costs	*-0.9*	*-1.2*	*-0.6*	*-0.9*	*-1.0*
Required structural primary balance related to S1	**3.5**	**6.3**	**3.9**	**3.2**	**2.7**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**1.9**	**1.3**	**3.6**	**0.8**	**0.1**
of which Initial Budgetary position	2.3	1.7	2.3	1.2	0.8
Long term component	-0.5	-0.5	1.3	-0.4	-0.7
of which Pensions	*-0.6*	*-0.7*	*-0.6*	*-0.6*	*-0.7*
Health care	*0.8*	*0.8*	*1.4*	*0.8*	*0.8*
Long-term care	*1.1*	*1.1*	*2.2*	*1.1*	*1.1*
Others	*-1.7*	*-1.7*	*-1.7*	*-1.6*	*-1.8*
Required structural primary balance related to S2	**0.5**	**0.7**	**2.3**	**0.5**	**0.3**

Risks related to the structure of public debt financing

Public debt structure - ES (2015):	Share of short-term public debt (p.p.) out of total debt: 9.0	Share of public debt by non-residents (%): 44.1	Share of public debt in foreign currency (%): 0.3

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		ES	EU
State guarantees (% GDP) (2014)		12.8	9.2
of which One-off guarantees		*12.8*	*8.8*
Standardised guarantees		.	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee [3]**	**0.27**	**2.74**
	Securities issued under liquidity schemes	**0.00**	**0.07**
	Special purpose entity	**4.04**	**0.48**
	Total	**4.31**	**3.29**

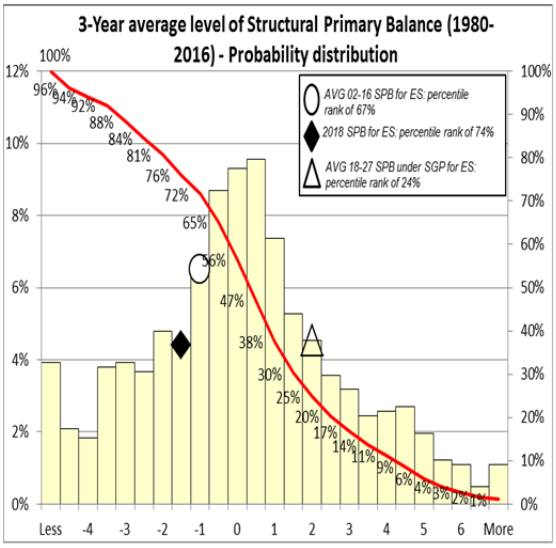
Government's contingent liability risks from banking sector - ES (2015):	Private sector credit flow (% GDP): -2.8	Bank loans-to-deposits ratio (%): 121.7	Share of non-performing loans (%): 6.3	Change in share of non-performing loans (p.p): -1.8	Change in nominal house price index: 3.6	NPL coverage ratio: 46.1	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8%: 0.05%	bank recap. at 10.5%: 0.16%

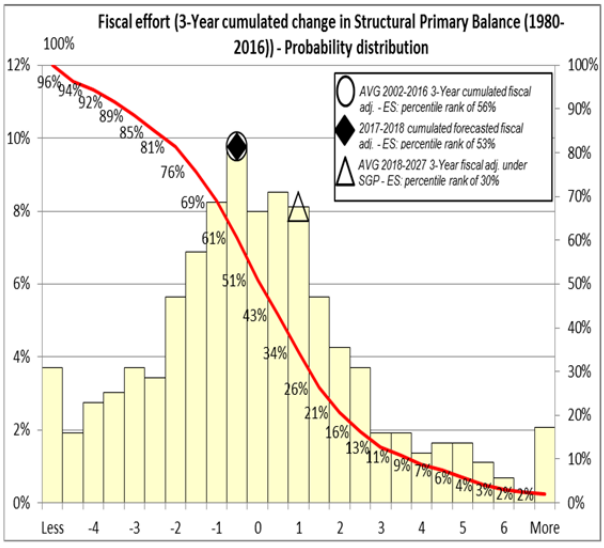
Financial market information

Sovereign Ratings as of Nov 15 2016, ES	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Baa2		Baa2	P-2
S&P	BBB+	A-2	BBB+	A-2
Fitch	BBB+		BBB+	F2

Financial market information as of November 2016, ES		
Sovereign yield spreads(bp)*	10-year	116
CDS (bp)	5-year	78.6

Realism of baseline assumptions





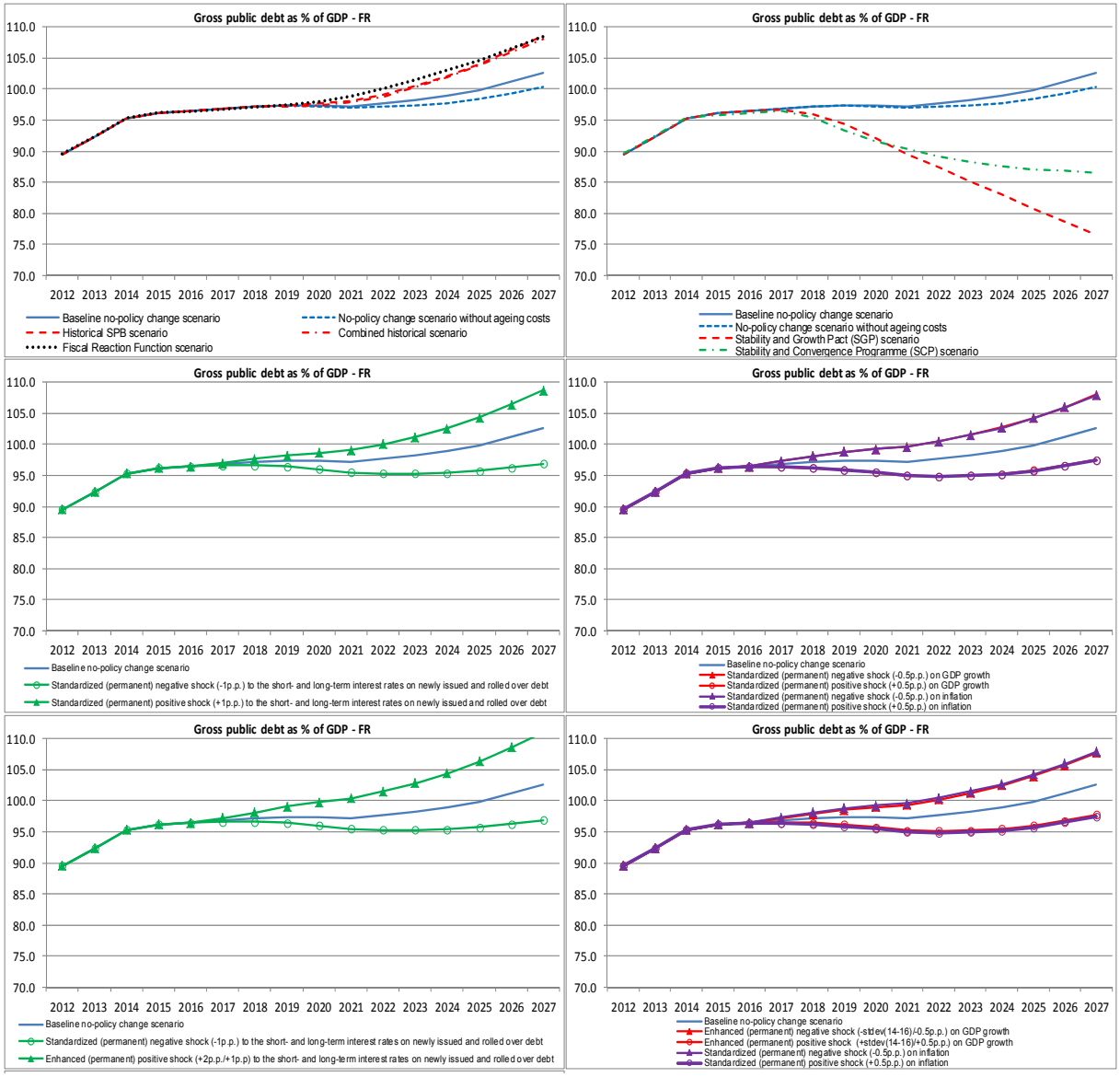
Underlying macro-fiscal assumptions

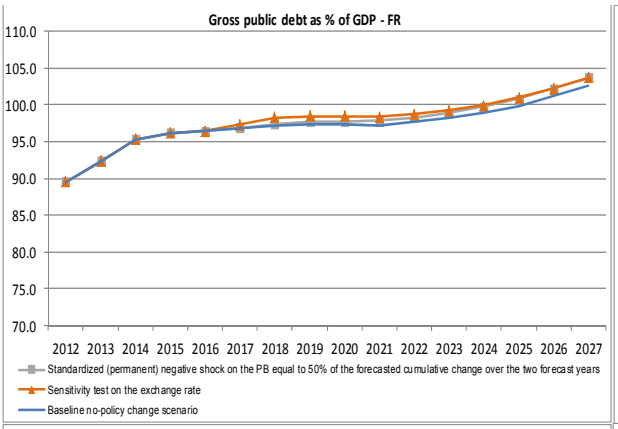
Macro-fiscal assumptions, Spain													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-2.0	-1.8	-1.1	-0.7	-0.9	-0.9	-1.0	-0.7	-0.5	-0.4	-0.3	-0.3	-0.1
Structural primary balance (before CoA)	0.3	-1.0	-1.2	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
Real GDP growth	3.2	3.2	2.3	2.1	0.4	0.3	0.3	0.9	1.0	1.1	1.1	1.1	1.3
Potential GDP growth	0.1	0.6	0.7	0.9	0.7	0.6	0.7	0.9	1.0	1.1	1.1	1.1	1.3
Inflation rate	0.5	0.7	1.2	1.5	1.7	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.2	2.9	2.7	2.5	2.6	2.7	2.8	3.0	3.2	3.4	3.7	3.9	4.1
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-2.0	-1.8	-1.1	-0.7	-2.3	-2.1	-1.9	-1.6	-1.5	-1.4	-1.3	-1.1	-1.0
Structural primary balance (before CoA)	0.3	-1.0	-1.2	-1.3	-2.7	-2.5	-2.2	-2.2	-2.3	-2.3	-2.2	-2.2	-2.2
Real GDP growth	3.2	3.2	2.3	2.1	1.4	0.1	0.1	0.9	1.1	1.1	1.1	1.1	1.3
Potential GDP growth	0.1	0.6	0.7	0.9	1.8	0.5	0.5	0.9	1.1	1.1	1.1	1.1	1.3
Inflation rate	0.5	0.7	1.2	1.5	1.7	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.2	2.9	2.7	2.5	2.6	2.7	2.8	3.0	3.2	3.4	3.7	4.0	4.1
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-2.0	-1.8	-0.6	0.3	0.8	1.2	1.7	2.4	3.0	3.1	3.2	3.3	3.3
Structural primary balance (before CoA)	0.3	-1.0	-0.7	-0.3	0.4	1.0	1.7	2.4	3.0	3.1	3.2	3.3	3.3
Real GDP growth	3.2	3.2	1.9	1.7	-0.1	-0.3	-0.2	0.4	0.6	1.0	1.0	1.1	1.3
Potential GDP growth	0.1	0.6	0.3	0.5	0.2	0.1	0.2	0.4	0.6	1.0	1.0	1.1	1.3
Inflation rate	0.5	0.7	1.2	1.5	1.7	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.2	2.9	2.7	2.6	2.6	2.7	2.8	3.0	3.1	3.3	3.6	3.8	4.0
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-2.0	-0.8	0.0	0.4	0.8	-0.2	0.0	0.2	0.5	0.6	0.6	0.7	0.8
Structural primary balance (before CoA)	0.2	0.2	0.2	-0.1	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
Real GDP growth	3.2	2.7	2.4	2.5	2.5	0.6	1.0	1.1	1.2	1.3	1.3	1.5	1.6
Potential GDP growth	0.2	0.5	0.8	1.1	1.3	0.7	1.0	1.1	1.2	1.3	1.3	1.5	1.6
Inflation rate	0.6	0.9	1.2	1.5	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.2	3.0	2.8	2.7	2.6	2.6	2.6	2.8	3.0	3.3	3.6	3.6	3.7
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-2.0	-1.8	-1.1	-0.7	-0.7	-0.6	-0.5	-0.1	0.1	0.2	0.3	0.4	0.5
Structural primary balance (before CoA)	0.3	-1.0	-1.2	-1.3	-1.2	-1.0	-0.9	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
Real GDP growth	3.2	3.2	2.3	2.1	0.2	0.1	0.2	0.8	1.0	1.1	1.1	1.1	1.3
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-2.0	-1.8	-1.1	-0.7	-0.7	-0.6	-0.5	-0.1	0.1	0.2	0.3	0.4	0.5
Structural primary balance (before CoA)	0.3	-1.0	-1.2	-1.3	-1.2	-1.0	-0.9	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
Real GDP growth	3.2	3.2	2.3	2.1	1.9	1.8	1.7	1.6	1.7	1.7	1.7	1.7	1.7
Implicit interest rate (nominal)	3.2	2.9	2.7	2.5	2.6	2.7	2.9	3.2	3.4	3.5	3.7	3.8	3.9
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.2	2.9	3.0	2.9	3.1	3.2	3.5	3.7	3.9	4.2	4.5	4.8	5.0
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.2	2.9	2.5	2.2	2.2	2.2	2.2	2.3	2.5	2.6	2.8	3.1	3.2
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.2	2.9	3.2	3.2	3.5	3.6	3.7	3.9	4.1	4.4	4.6	4.9	5.1
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.2	3.2	2.8	2.6	0.9	0.8	0.8	1.4	1.5	1.6	1.6	1.6	1.8
Potential GDP growth	0.1	0.6	1.2	1.4	1.2	1.1	1.2	1.4	1.5	1.6	1.6	1.6	1.8
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.2	3.2	1.8	1.6	-0.1	-0.2	-0.2	0.4	0.5	0.6	0.6	0.6	0.8
Potential GDP growth	0.1	0.6	0.2	0.4	0.2	0.1	0.2	0.4	0.5	0.6	0.6	0.6	0.8
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.2	3.2	3.3	3.1	0.9	0.8	0.8	1.4	1.5	1.6	1.6	1.6	1.8
Potential GDP growth	0.1	0.6	1.8	2.0	1.2	1.1	1.2	1.4	1.5	1.6	1.6	1.6	1.8
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.2	3.2	1.2	1.0	-0.1	-0.2	-0.2	0.4	0.5	0.6	0.6	0.6	0.8
Potential GDP growth	0.1	0.6	-0.3	-0.1	0.2	0.1	0.2	0.4	0.5	0.6	0.6	0.6	0.8
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.5	0.7	1.7	2.0	2.2	2.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.5	0.7	0.7	1.0	1.2	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-2.0	-1.8	-1.2	-0.9	-1.0	-1.1	-1.1	-0.9	-0.7	-0.6	-0.5	-0.4	-0.3
Structural primary balance (before CoA)	0.3	-1.0	-1.3	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Real GDP growth	3.2	3.2	2.3	2.1	0.4	0.3	0.3	0.9	1.0	1.1	1.1	1.1	1.3
Potential GDP growth	0.1	0.6	0.8	1.0	0.7	0.6	0.7	0.9	1.0	1.1	1.1	1.1	1.3
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	3.2	2.9	2.7	2.5	2.6	2.7	2.8	3.0	3.2	3.4	3.7	3.9	4.1

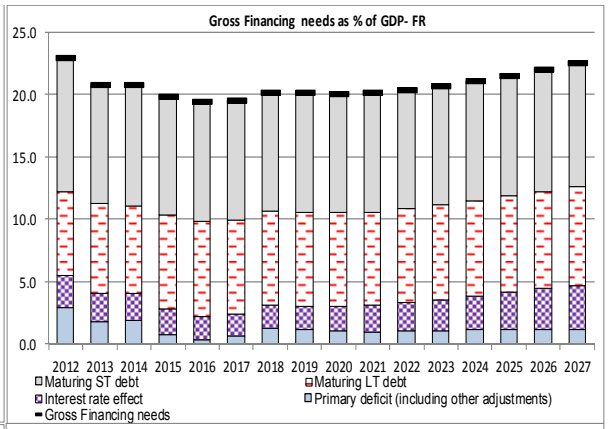
9. France

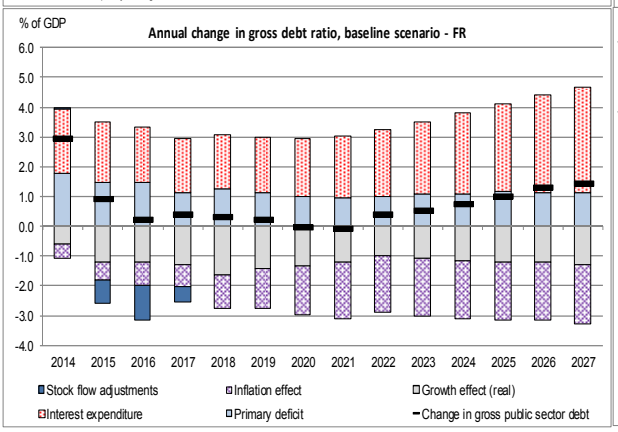
Public debt projections under baseline and alternative scenarios and sensitivity tests

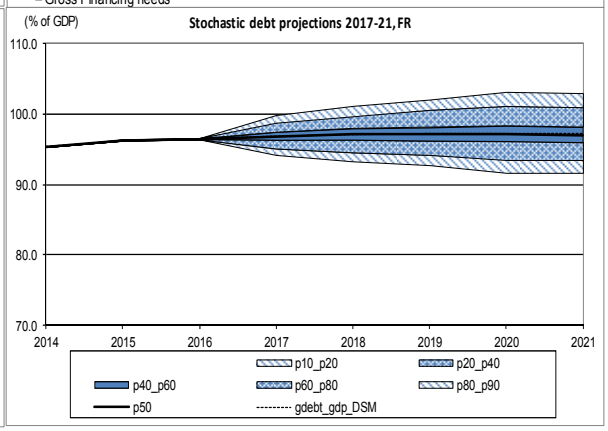
FR - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**95.3**	**96.2**	**96.4**	**96.8**	**97.1**	**97.3**	**97.3**	**97.2**	**97.6**	**98.1**	**98.9**	**99.9**	**101.1**	**102.6**
Changes in the ratio (-1+2+3)	*2.9*	*0.9*	*0.2*	*0.4*	*0.3*	*0.2*	*0.0*	*-0.1*	*0.4*	*0.5*	*0.7*	*1.0*	*1.3*	*1.4*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-1.8**	**-1.5**	**-1.5**	**-1.2**	**-1.3**	**-1.1**	**-1.0**	**-1.0**	**-1.0**	**-1.1**	**-1.1**	**-1.2**	**-1.1**	**-1.2**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***-0.7***	***-0.6***	***-0.6***	***-0.5***	***-0.8***	***-0.8***	***-0.8***	***-1.0***	***-1.0***	***-1.1***	***-1.1***	***-1.2***	***-1.1***	***-1.2***
(1.1.1) Structural Primary Balance (before CoA)	*-0.7*	*-0.6*	*-0.6*	*-0.5*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.8*
(1.1.2) Cost of ageing						*0.0*	*0.1*	*0.2*	*0.2*	*0.3*	*0.3*	*0.4*	*0.4*	*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*	*0.0*
(1.2) Cyclical component	***-1.1***	***-0.9***	***-0.8***	***-0.8***	***-0.5***	***-0.3***	***-0.2***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***0.0***	***0.1***	***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)	**1.1**	**0.2**	**-0.1**	**-0.2**	**-0.9**	**-0.9**	**-1.0**	**-1.0**	**-0.6**	**-0.5**	**-0.4**	**-0.2**	**0.1**	**0.3**
(2.1) Interest expenditure	*2.2*	*2.0*	*1.9*	*1.8*	*1.8*	*1.8*	*1.9*	*2.1*	*2.2*	*2.4*	*2.7*	*3.0*	*3.3*	*3.5*
(2.2) Growth effect	*-0.6*	*-1.2*	*-1.2*	*-1.3*	*-1.6*	*-1.4*	*-1.3*	*-1.2*	*-1.0*	*-1.1*	*-1.2*	*-1.2*	*-1.2*	*-1.3*
(2.3) Inflation effect	*-0.5*	*-0.6*	*-0.8*	*-0.7*	*-1.1*	*-1.4*	*-1.6*	*-1.9*	*-1.9*	*-1.9*	*-1.9*	*-1.9*	*-2.0*	*-2.0*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock flow adjustments	**0.0**	**-0.8**	**-1.2**	**-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	*0.0*	*-1.4*	*-1.2*	*-0.6*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.6*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-2.9	-2.0	-2.5	-2.3	-2.6	-2.7	-2.8	-3.0	-3.3	-3.5	-3.8	-4.1	-4.4	-4.7











Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	31.1	31.3	31.3	31.2	31.1	31.1	31.1	31.2	31.5	31.4
Revenues from pensions taxation	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Property incomes	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.39**	**0.31**	**0.46**
Fiscal sub-index	0.96	0.43	0.36
Financial competitiveness sub-index	0.09	0.25	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**4.5**	**9.0**	**4.9**	**3.0**	**4.4**
of which *Initial Budgetary position*	*0.7*	*2.3*	*0.7*	*-0.8*	*0.6*
*Cost of delaying adjustment***	*0.7*	*2.0*	*0.7*	*0.5*	*0.7*
*Debt requirement****	*2.9*	*4.3*	*2.9*	*3.0*	*2.9*
Ageing costs	*0.3*	*0.3*	*0.6*	*0.3*	*0.3*
Required structural primary balance related to S1	**3.7**	**7.3**	**4.1**	**3.9**	**3.8**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**0.7**	**1.6**	**2.7**	**-0.9**	**0.6**
of which Initial Budgetary position	1.7	2.7	1.7	0.1	1.5
Long term component	-1.0	-1.1	1.0	-1.0	-1.0
of which Pensions	*-1.7*	*-1.8*	*-1.7*	*-1.7*	*-1.7*
Health care	*0.6*	*0.7*	*1.1*	*0.6*	*0.7*
Long-term care	*0.6*	*0.6*	*2.1*	*0.6*	*0.6*
Others	*-0.5*	*-0.5*	*-0.5*	*-0.5*	*-0.6*
Required structural primary balance related to S2	**-0.1**	**0.0**	**1.9**	**0.0**	**0.0**

Risks related to the structure of public debt financing

Public debt structure - FR (2015):	Share of short-term public debt (p.p.) out of total debt	Share of public debt by non-residents (%):	Share of public debt in foreign currency (%):
	11.1	55.6	2.5

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015		FR	EU
State guarantees (% GDP) (2014)		4.5	9.2
of which One-off guarantees		*2.4*	*8.8*
Standardised guarantees		*2.1*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee [a]	1.84	2.74
	Securities issued under liquidity schemes	0.00	0.07
	Special purpose entity	0.00	0.48
	Total	1.84	3.29

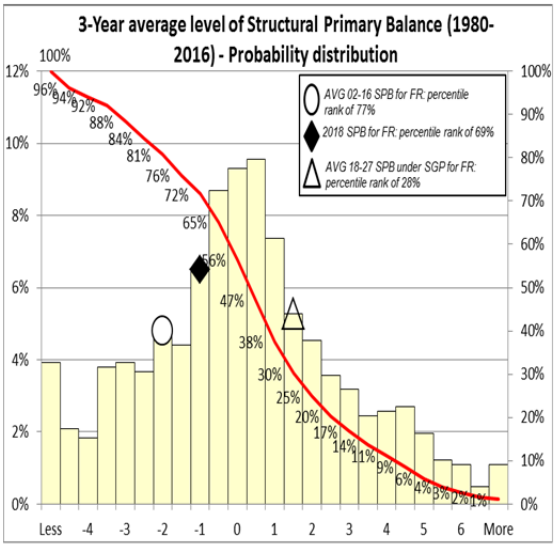
Government's contingent liability risks from banking sector - FR (2015):	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	Change in nominal house price index:	NPL coverage ratio	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):	
							bank recap. at 8%	bank recap. at 10.5%
	3.3 (2014)	112.3	4	-0.2	-1.5	51.7	0.00%	0.00%

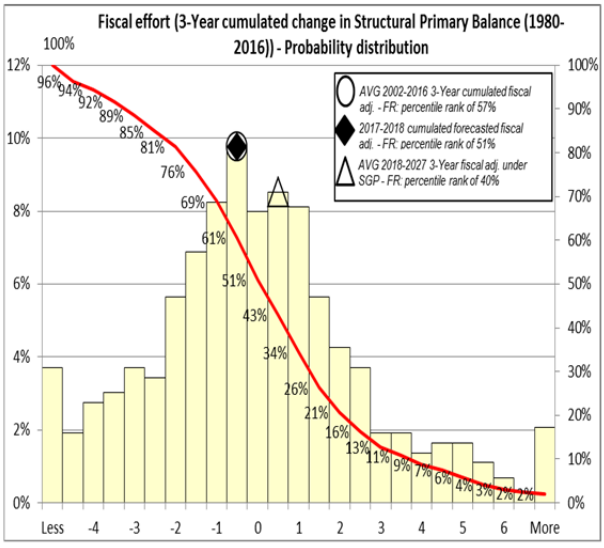
Financial market information

Sovereign Ratings as of Nov 15 2016, FR	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aa2		Aa2	
S&P	AA+u	A-1+u	AA+u	A-1+u
Fitch	AA		AA	F1+

Financial market information as of November 2016, FR		
Sovereign yield spreads(bp)*	10-year	44
CDS (bp)	5-year	37.4

Realism of baseline assumptions





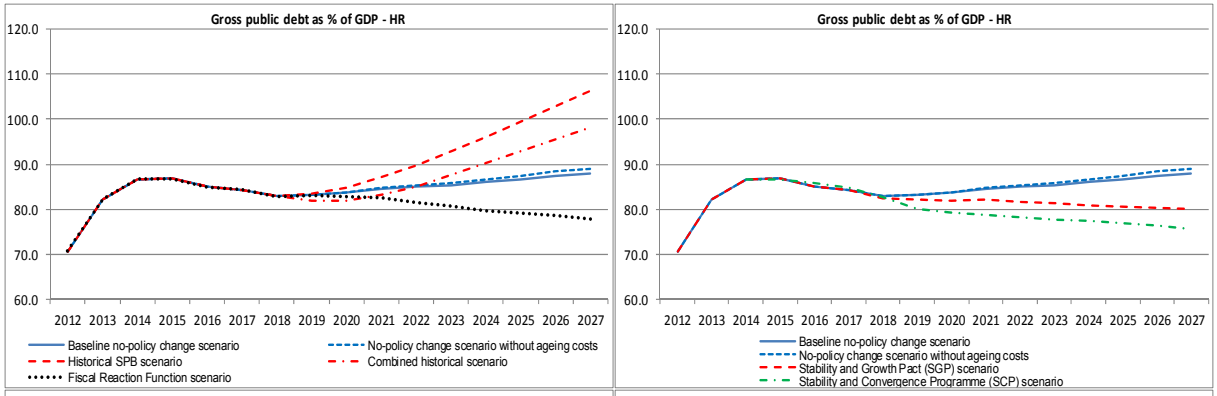
Underlying macro-fiscal assumptions

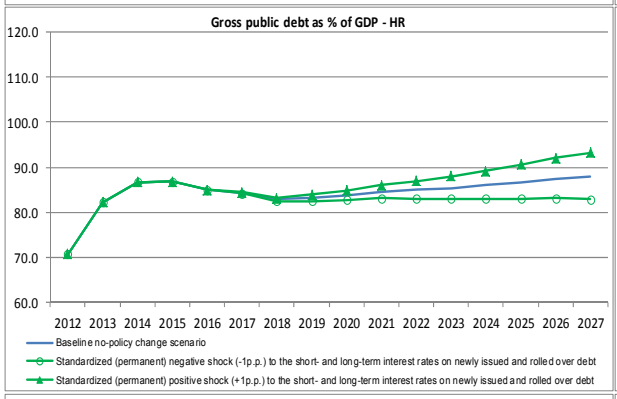
Macro-fiscal assumptions, France													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.5	-1.5	-1.2	-1.3	-1.1	-1.0	-1.0	-1.0	-1.1	-1.1	-1.2	-1.1	-1.2
Structural primary balance (before CoA)	-0.6	-0.6	-0.5	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8
Real GDP growth	1.3	1.3	1.4	1.7	1.5	1.4	1.3	1.0	1.1	1.2	1.3	1.2	1.3
Potential GDP growth	0.9	1.2	1.2	1.3	1.2	1.1	1.0	1.0	1.1	1.2	1.3	1.2	1.3
Inflation rate	0.6	0.8	0.8	1.2	1.4	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.1	2.0	1.9	1.9	2.0	2.1	2.2	2.4	2.6	2.8	3.1	3.4	3.6
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.5	-1.5	-1.2	-1.3	-1.6	-1.8	-1.9	-1.9	-1.9	-1.8	-1.7	-1.7	-1.6
Structural primary balance (before CoA)	-0.6	-0.6	-0.5	-0.8	-1.3	-1.6	-1.7	-1.7	-1.6	-1.5	-1.4	-1.3	-1.2
Real GDP growth	1.3	1.3	1.4	1.7	1.8	1.6	1.4	1.0	1.1	1.1	1.2	1.2	1.3
Potential GDP growth	0.9	1.2	1.2	1.3	1.6	1.4	1.1	1.0	1.1	1.1	1.2	1.2	1.3
Inflation rate	0.6	0.8	0.8	1.2	1.4	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.1	2.0	1.9	1.9	2.0	2.1	2.2	2.4	2.6	2.9	3.1	3.4	3.6
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.5	-1.5	-0.4	0.3	1.1	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2
Structural primary balance (before CoA)	-0.6	-0.6	0.2	0.8	1.4	1.5	1.5	1.6	1.7	1.8	2.0	2.1	2.2
Real GDP growth	1.3	1.3	0.8	1.1	1.0	1.4	1.2	1.0	1.1	1.1	1.2	1.1	1.3
Potential GDP growth	0.9	1.2	0.7	0.6	0.7	1.1	1.0	1.0	1.1	1.1	1.2	1.1	1.3
Inflation rate	0.6	0.8	0.8	1.2	1.4	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.1	2.0	1.9	1.9	2.0	2.0	2.2	2.3	2.5	2.7	3.0	3.2	3.4
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.5	-1.3	-0.8	0.1	0.9	0.9	0.7	0.7	0.6	0.6	0.5	0.6	0.6
Structural primary balance (before CoA)	-0.4	-0.4	-0.1	0.4	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Real GDP growth	1.2	1.5	1.5	1.8	1.9	1.4	1.2	1.2	1.4	1.4	1.4	1.4	1.4
Potential GDP growth	1.1	1.5	1.5	1.4	1.3	1.1	1.2	1.2	1.4	1.4	1.4	1.4	1.4
Inflation rate	1.1	0.9	0.9	1.3	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.2	2.1	2.1	2.1	2.3	2.4	2.6	2.7	3.1	3.4	3.6	3.8	3.8
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.5	-1.5	-1.2	-1.3	-1.3	-1.4	-1.6	-1.9	-1.9	-2.0	-2.0	-2.0	-2.0
Structural primary balance (before CoA)	-0.6	-0.6	-0.5	-0.8	-1.0	-1.2	-1.4	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
Real GDP growth	1.3	1.3	1.4	1.7	1.6	1.6	1.4	1.2	1.1	1.2	1.3	1.2	1.3
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.5	-1.5	-1.2	-1.3	-1.3	-1.4	-1.6	-1.9	-1.9	-2.0	-2.0	-2.0	-2.0
Structural primary balance (before CoA)	-0.6	-0.6	-0.5	-0.8	-1.0	-1.2	-1.4	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
Real GDP growth	1.3	1.3	1.4	1.7	1.8	1.7	1.6	1.5	1.3	1.3	1.3	1.3	1.3
Implicit interest rate (nominal)	2.1	2.0	1.9	1.9	2.0	2.1	2.3	2.6	2.9	3.1	3.2	3.4	3.5
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.1	2.0	2.1	2.2	2.4	2.5	2.7	3.0	3.2	3.5	3.9	4.2	4.4
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.1	2.0	1.7	1.6	1.6	1.6	1.7	1.8	1.9	2.1	2.4	2.6	2.8
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.1	2.0	2.3	2.5	2.8	2.8	3.0	3.2	3.4	3.7	4.0	4.3	4.5
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.3	1.3	1.9	2.2	2.0	1.9	1.8	1.5	1.6	1.7	1.8	1.7	1.8
Potential GDP growth	0.9	1.2	1.7	1.8	1.7	1.6	1.5	1.5	1.6	1.7	1.8	1.7	1.8
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.3	1.3	0.9	1.2	1.0	0.9	0.8	0.5	0.6	0.7	0.8	0.7	0.8
Potential GDP growth	0.9	1.2	0.7	0.8	0.7	0.6	0.5	0.5	0.6	0.7	0.8	0.7	0.8
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.3	1.3	1.7	2.1	2.0	1.9	1.8	1.5	1.6	1.7	1.8	1.7	1.8
Potential GDP growth	0.9	1.2	1.6	1.6	1.7	1.6	1.5	1.5	1.6	1.7	1.8	1.7	1.8
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.3	1.3	1.0	1.4	1.0	0.9	0.8	0.5	0.6	0.7	0.8	0.7	0.8
Potential GDP growth	0.9	1.2	0.9	0.9	0.7	0.6	0.5	0.5	0.6	0.7	0.8	0.7	0.8
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.6	0.8	1.3	1.7	1.9	2.2	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.6	0.8	0.3	0.7	0.9	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.5	-1.5	-1.4	-1.4	-1.2	-1.1	-1.1	-1.1	-1.2	-1.2	-1.3	-1.2	-1.2
Structural primary balance (before CoA)	-0.6	-0.6	-0.7	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9
Real GDP growth	1.3	1.3	1.5	1.6	1.5	1.4	1.3	1.0	1.1	1.2	1.3	1.2	1.3
Potential GDP growth	0.9	1.2	1.4	1.2	1.2	1.1	1.0	1.0	1.1	1.2	1.3	1.2	1.3
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	2.1	2.0	1.9	1.9	2.0	2.1	2.2	2.4	2.6	2.8	3.1	3.4	3.6

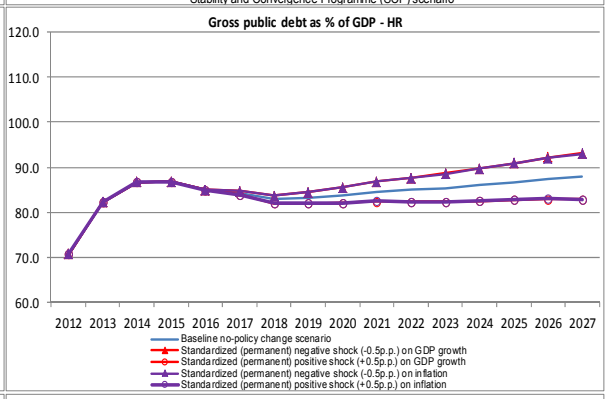
10. Croatia

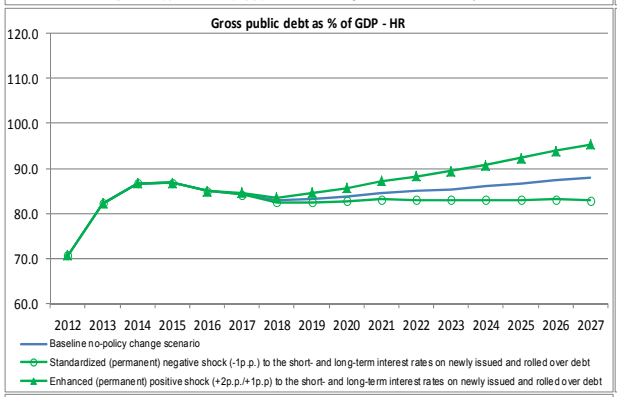
Public debt projections under baseline and alternative scenarios and sensitivity tests

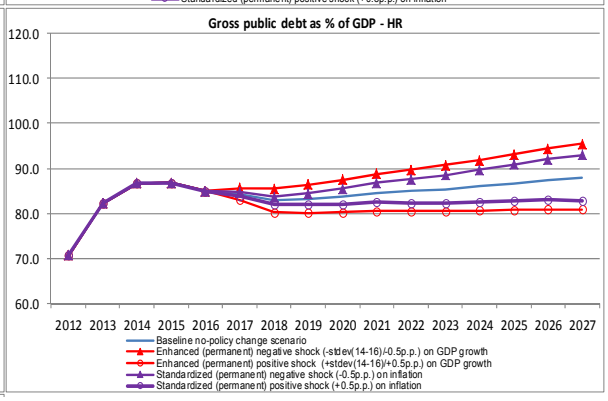
HR - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**86.6**	**86.7**	**85.0**	**84.3**	**82.8**	**83.2**	**83.7**	**84.6**	**84.9**	**85.4**	**86.0**	**86.7**	**87.4**	**87.8**
Changes in the ratio (-1+2+3)	*4.4*	*0.1*	*-1.8*	*-0.7*	*-1.5*	*0.4*	*0.5*	*0.8*	*0.4*	*0.5*	*0.6*	*0.7*	*0.7*	*0.4*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-1.9**	**0.3**	**1.3**	**1.6**	**1.8**	**1.5**	**1.2**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.9**	**1.0**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***-0.2***	***1.4***	***1.6***	***1.1***	***0.8***	***0.8***	***0.8***	***0.8***	***0.8***	***0.8***	***0.8***	***0.8***	***0.9***	***1.0***
(1.1.1) Structural Primary Balance (before CoA)	*-0.2*	*1.4*	*1.6*	*1.1*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*
(1.1.2) Cost of ageing						*0.0*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.2*	*-0.2*	*-0.3*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.0*	*0.0*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*
(1.2) Cyclical component	***-1.9***	***-1.2***	***-0.4***	***0.4***	***1.1***	***0.7***	***0.4***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.2***	***0.0***	***0.1***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**3.9**	**2.1**	**1.0**	**0.6**	**0.3**	**1.9**	**1.7**	**1.6**	**1.2**	**1.3**	**1.4**	**1.5**	**1.6**	**1.4**
(2.1) Interest expenditure	*3.5*	*3.6*	*3.4*	*3.4*	*3.3*	*3.3*	*3.3*	*3.4*	*3.4*	*3.5*	*3.6*	*3.7*	*3.8*	*3.8*
(2.2) Growth effect	*0.4*	*-1.4*	*-2.2*	*-2.0*	*-1.9*	*-0.2*	*-0.2*	*-0.1*	*-0.6*	*-0.6*	*-0.5*	*-0.5*	*-0.5*	*-0.7*
(2.3) Inflation effect	*0.0*	*-0.1*	*-0.2*	*-0.7*	*-1.0*	*-1.2*	*-1.4*	*-1.6*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock flow adjustments	**-1.4**	**-1.7**	**-1.5**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-1.9*	*-2.2*	*-0.7*	*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	*0.5*	*0.5*	*-0.7*	*-0.2*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-3.2	-1.7	-1.8	-2.3	-2.5	-2.5	-2.5	-2.5	-2.6	-2.7	-2.8	-2.8	-2.9	-2.9

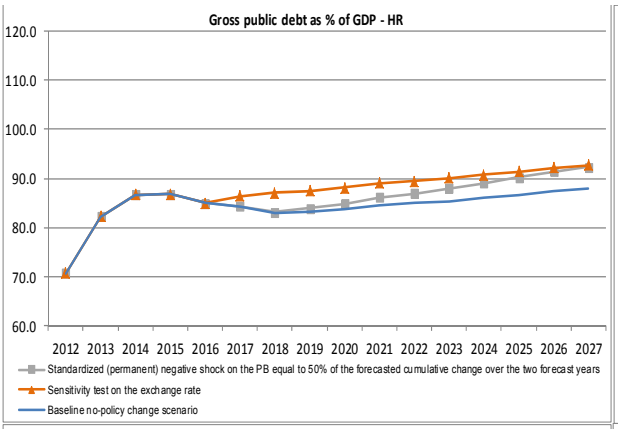


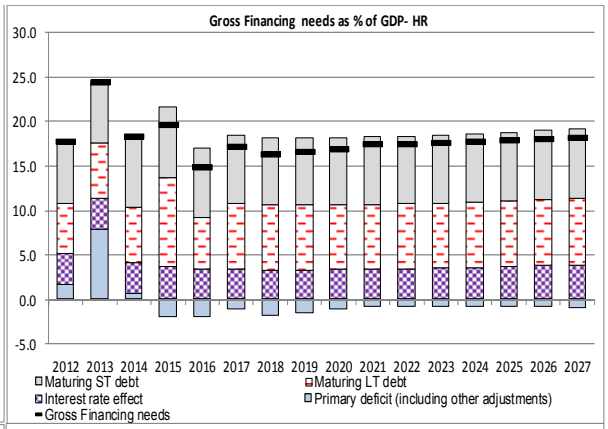


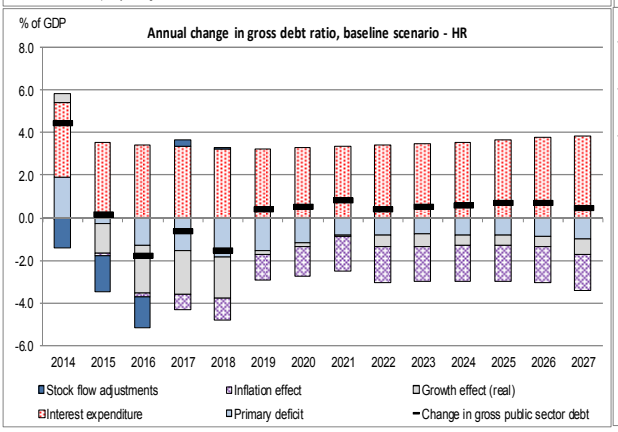


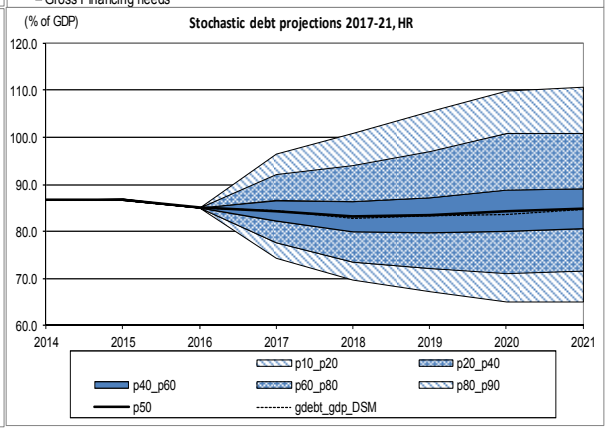












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	21.2	22.1	22.1	21.8	21.7	21.4	21.4	21.4	21.3	20.8
Revenues from pensions taxation	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Property incomes	1.0	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	0.9

Sustainability indicators

S0 indicator	**2009**	**2016**	**Critical threshold**
Overall index	**0.84**	**0.18**	**0.46**
Fiscal sub-index	0.64	0.08	0.36
Financial competitiveness sub-index	0.93	0.23	0.49

S1 indicator	**COM no-policy change scenario**	**Historical SPB scenario**	**AWG risk scenario**	**SCP scenario**	**2015 Sustainability Report**
Overall index	**2.4**	**8.6**	**2.7**	**1.4**	**4.5**
of which *Initial Budgetary position*	*0.7*	*3.8*	*0.7*	*-0.3*	*1.9*
*Cost of delaying adjustment***	*0.4*	*2.1*	*0.5*	*0.3*	*0.8*
*Debt requirement****	*1.6*	*3.1*	*1.6*	*1.6*	*2.3*
Ageing costs	*-0.3*	*-0.4*	*0.0*	*-0.2*	*-0.4*
Required structural primary balance related to S1	**3.2**	**6.8**	**3.5**	**3.2**	**4.3**

S2 indicator	**COM no-policy change scenario**	**Historical SPB scenario**	**AWG risk scenario**	**SCP scenario**	**2015 Sustainability Report**
Overall index	**-1.5**	**1.0**	**-0.1**	**-2.6**	**-0.8**
of which Initial Budgetary position	0.8	3.4	0.8	-0.3	1.7
Long term component	-2.3	-2.5	-1.0	-2.3	-2.5
of which Pensions	*-2.6*	*-2.8*	*-2.6*	*-2.6*	*-2.7*
Health care	*0.6*	*0.6*	*1.2*	*0.6*	*0.6*
Long-term care	*0.0*	*0.0*	*0.7*	*0.0*	*0.0*
Others	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.4*
Required structural primary balance related to S2	**-0.8**	**-1.0**	**0.6**	**-0.8**	**-1.0**

Risks related to the structure of public debt financing

Public debt structure - HR (2015):	Share of short-term public debt (p.p.) out of total debt: 6.7	Share of public debt by non-residents (%): 40.8	Share of public debt in foreign currency (%): 78.6

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		HR	EU
State guarantees (% GDP) (2014)		2.3	9.2
of which One-off guarantees		*2.3*	*8.8*
Standardised guarantees		*0.0*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** [x]	**0.00**	**2.74**
	Securities issued under liquidity schemes	**0.00**	**0.07**
	Special purpose entity	**0.00**	**0.48**
	Total	**0.00**	**3.29**

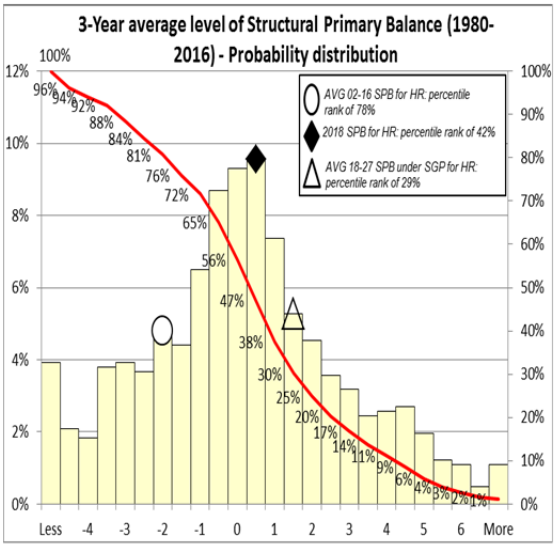
Government's contingent liability risks from banking sector - HR (2015):	Private sector credit flow (% GDP): -1.3	Bank loans-to-deposits ratio (%): 80.6	Share of non-performing loans (%): 12.5	Change in share of non-performing loans (p.p): -1.2	Change in nominal house price index: -2.9	NPL coverage ratio: 57.8	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8%: 0.00%	bank recap. at 10.5%: 0.01%

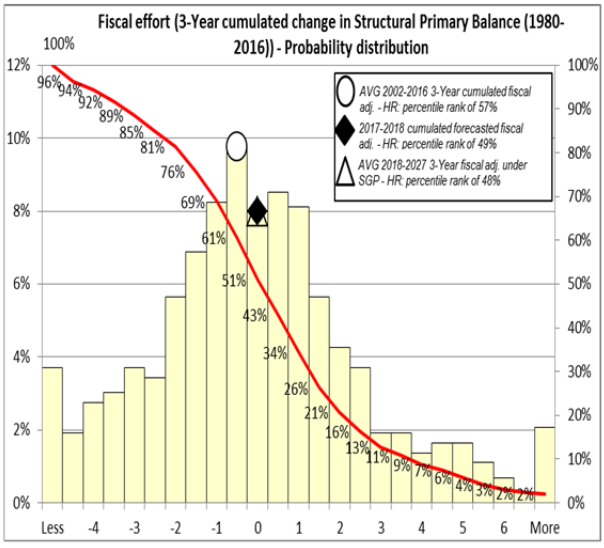
Financial market information

Sovereign Ratings as of Nov 15 2016, HR	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Ba2		Ba2	
S&P	BB	B	BB	B
Fitch	BB		BB	B

Financial market information as of November 2016, HR		
Sovereign yield spreads(bp)*	10-year	289
CDS (bp)	5-year	225.9

Realism of baseline assumptions





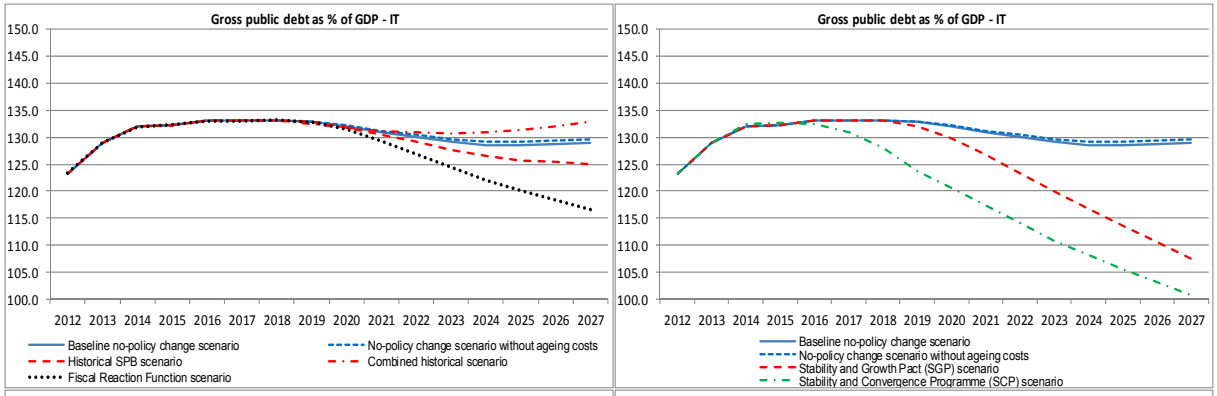
Underlying macro-fiscal assumptions

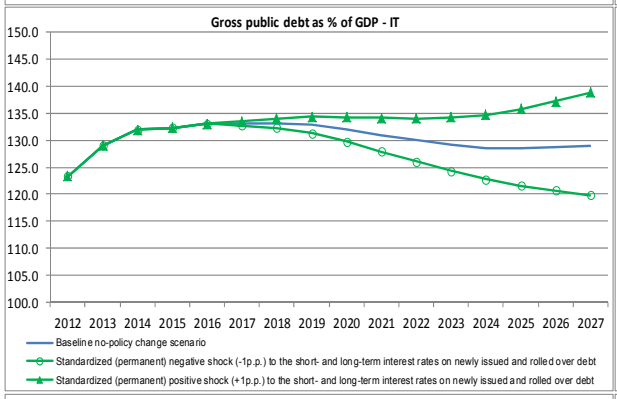
Macro-fiscal assumptions, Croatia													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.3	1.3	1.6	1.8	1.5	1.2	0.8	0.8	0.8	0.8	0.8	0.9	1.0
Structural primary balance (before CoA)	1.4	1.6	1.1	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Real GDP growth	1.6	2.6	2.5	2.3	0.2	0.2	0.1	0.7	0.7	0.6	0.6	0.6	0.9
Potential GDP growth	-0.1	1.0	0.6	0.9	1.0	1.0	0.9	0.7	0.7	0.6	0.6	0.6	0.9
Inflation rate	0.1	0.2	0.9	1.2	1.5	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.2	4.1	4.1	4.0	4.0	4.0	4.1	4.1	4.2	4.3	4.4	4.5	4.5
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.3	1.3	1.6	1.8	2.0	2.1	2.2	2.2	2.1	2.0	2.0	1.9	1.8
Structural primary balance (before CoA)	1.4	1.6	1.1	0.8	1.3	1.7	2.1	2.2	2.1	2.0	1.9	1.8	1.6
Real GDP growth	1.6	2.6	2.5	2.3	-0.2	-0.1	-0.2	0.7	0.7	0.7	0.7	0.7	1.0
Potential GDP growth	-0.1	1.0	0.6	0.9	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	1.0
Inflation rate	0.1	0.2	0.9	1.2	1.5	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.2	4.1	4.1	4.0	4.0	4.0	4.1	4.1	4.2	4.3	4.3	4.4	4.5
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.3	1.3	1.6	2.6	2.2	1.9	1.5	1.6	1.6	1.6	1.7	1.8	1.8
Structural primary balance (before CoA)	1.4	1.6	1.1	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.7	1.8	1.8
Real GDP growth	1.6	2.6	2.5	1.8	0.2	0.2	0.1	0.7	0.7	0.6	0.5	0.5	0.8
Potential GDP growth	-0.1	1.0	0.6	0.3	1.0	1.0	0.8	0.7	0.7	0.6	0.5	0.5	0.8
Inflation rate	0.1	0.2	0.9	1.2	1.5	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.2	4.1	4.1	4.0	4.0	4.0	4.1	4.1	4.2	4.3	4.4	4.4	4.5
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.4	0.8	1.5	1.7	2.4	1.8	1.8	1.8	1.8	1.8	1.8	1.9	2.0
Structural primary balance (before CoA)	1.9	1.8	1.9	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Real GDP growth	1.6	2.0	2.1	2.3	2.5	1.0	0.9	0.8	0.8	0.7	0.7	0.9	1.1
Potential GDP growth	0.6	0.8	1.0	1.2	1.3	0.9	0.9	0.8	0.8	0.7	0.7	0.9	1.1
Inflation rate	0.1	1.0	1.2	1.5	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.2	4.2	4.3	4.3	4.4	4.4	4.4	4.5	4.6	4.6	4.7	4.8	4.8
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.3	1.3	1.6	1.8	0.9	-0.1	-1.1	-1.7	-1.8	-1.7	-1.7	-1.7	-1.6
Structural primary balance (before CoA)	1.4	1.6	1.1	0.8	0.1	-0.5	-1.1	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8
Real GDP growth	1.6	2.6	2.5	2.3	0.7	0.7	0.5	1.2	0.7	0.6	0.6	0.6	0.9
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.3	1.3	1.6	1.8	0.9	-0.1	-1.1	-1.7	-1.8	-1.7	-1.7	-1.7	-1.6
Structural primary balance (before CoA)	1.4	1.6	1.1	0.8	0.1	-0.5	-1.1	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8
Real GDP growth	1.6	2.6	2.5	2.3	2.6	2.3	2.0	1.8	1.3	1.3	1.3	1.3	1.3
Implicit interest rate (nominal)	4.2	4.1	4.1	4.0	4.0	4.1	4.1	4.2	4.3	4.4	4.4	4.4	4.5
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	4.2	4.1	4.3	4.3	4.4	4.5	4.6	4.7	4.8	5.0	5.1	5.2	5.3
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	4.2	4.1	3.9	3.7	3.7	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.7
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	4.2	4.1	4.4	4.6	4.8	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.6	2.6	3.0	2.8	0.7	0.7	0.6	1.2	1.2	1.1	1.1	1.1	1.4
Potential GDP growth	-0.1	1.0	1.1	1.4	1.5	1.5	1.4	1.2	1.2	1.1	1.1	1.1	1.4
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.6	2.6	2.0	1.8	-0.3	-0.3	-0.4	0.2	0.2	0.1	0.1	0.1	0.4
Potential GDP growth	-0.1	1.0	0.1	0.4	0.5	0.5	0.4	0.2	0.2	0.1	0.1	0.1	0.4
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.6	2.6	4.1	3.9	0.7	0.7	0.6	1.2	1.2	1.1	1.1	1.1	1.4
Potential GDP growth	-0.1	1.0	2.2	2.5	1.5	1.5	1.4	1.2	1.2	1.1	1.1	1.1	1.4
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.6	2.6	0.9	0.7	-0.3	-0.3	-0.4	0.2	0.2	0.1	0.1	0.1	0.4
Potential GDP growth	-0.1	1.0	-1.0	-0.7	0.5	0.5	0.4	0.2	0.2	0.1	0.1	0.1	0.4
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.1	0.2	1.4	1.7	2.0	2.2	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.1	0.2	0.4	0.7	1.0	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.3	1.3	1.5	1.4	1.1	0.7	0.4	0.4	0.3	0.4	0.4	0.4	0.5
Structural primary balance (before CoA)	1.4	1.6	1.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Real GDP growth	1.6	2.6	2.5	2.6	0.2	0.2	0.1	0.7	0.7	0.6	0.6	0.6	0.9
Potential GDP growth	-0.1	1.0	0.7	1.2	1.0	1.0	0.9	0.7	0.7	0.6	0.6	0.6	0.9
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	2.1%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	4.2	4.1	4.1	4.0	4.0	4.0	4.1	4.1	4.2	4.3	4.4	4.5	4.5

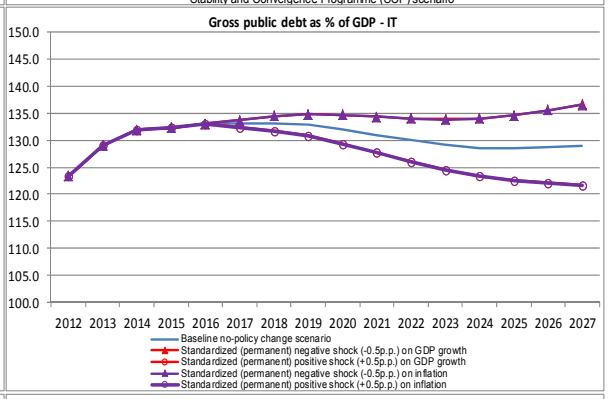
11. Italy

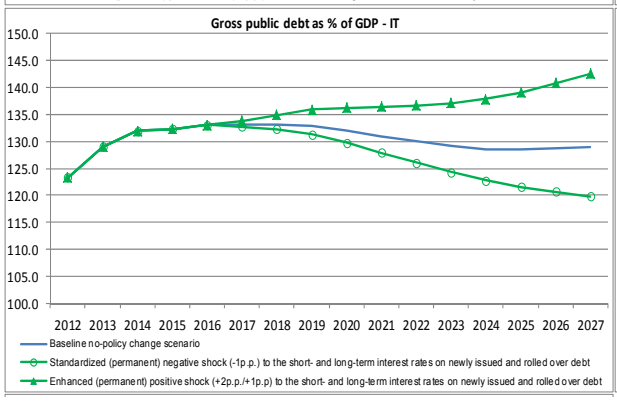
Public debt projections under baseline and alternative scenarios and sensitivity tests

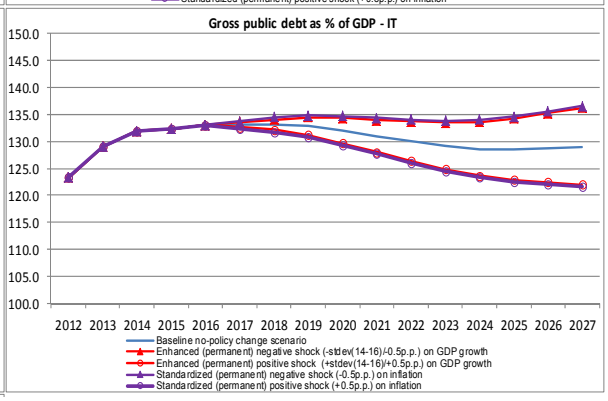
IT - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**131.9**	**132.3**	**133.0**	**133.1**	**133.1**	**132.8**	**132.0**	**130.9**	**130.0**	**129.1**	**128.6**	**128.4**	**128.7**	**128.9**
Changes in the ratio (-1+2+3)	*2.9*	*0.4*	*0.7*	*0.1*	*0.0*	*-0.3*	*-0.8*	*-1.0*	*-1.0*	*-0.9*	*-0.5*	*-0.2*	*0.3*	*0.3*
of which														
(1) Primary balance (1.1+1.2+1.3)	**1.6**	**1.5**	**1.6**	**1.4**	**1.1**	**1.3**	**1.3**	**1.4**	**1.4**	**1.4**	**1.3**	**1.3**	**1.2**	**1.2**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***3.4***	***3.1***	***2.4***	***1.6***	***1.2***	***1.3***	***1.3***	***1.4***	***1.4***	***1.4***	***1.3***	***1.3***	***1.2***	***1.2***
(1.1.1) Structural Primary Balance (before CoA)	*3.4*	*3.1*	*2.4*	*1.6*	*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*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*0.0*	*0.0*	*0.0*	*0.1*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.2) Cyclical component	***-2.0***	***-1.4***	***-0.9***	***-0.4***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.2***	***-0.2***	***0.1***	***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)	**3.3**	**2.4**	**1.8**	**1.4**	**0.7**	**1.0**	**0.5**	**0.3**	**0.4**	**0.5**	**0.7**	**1.1**	**1.5**	**1.4**
(2.1) Interest expenditure	*4.6*	*4.2*	*4.0*	*3.8*	*3.6*	*3.7*	*3.7*	*3.8*	*4.0*	*4.1*	*4.4*	*4.6*	*5.0*	*5.1*
(2.2) Growth effect	*-0.1*	*-1.0*	*-0.9*	*-1.2*	*-1.3*	*-0.7*	*-0.9*	*-0.9*	*-1.0*	*-1.1*	*-1.1*	*-1.0*	*-1.0*	*-1.2*
(2.3) Inflation effect	*-1.1*	*-0.8*	*-1.2*	*-1.2*	*-1.7*	*-2.0*	*-2.3*	*-2.6*	*-2.6*	*-2.5*	*-2.5*	*-2.5*	*-2.5*	*-2.5*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock flow adjustments	**1.1**	**-0.5**	**0.5**	**0.1**	**0.5**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*1.1*	*-0.5*	*0.5*	*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*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-1.2	-1.0	-1.6	-2.2	-2.4	-2.4	-2.4	-2.4	-2.6	-2.8	-3.1	-3.4	-3.7	-3.9

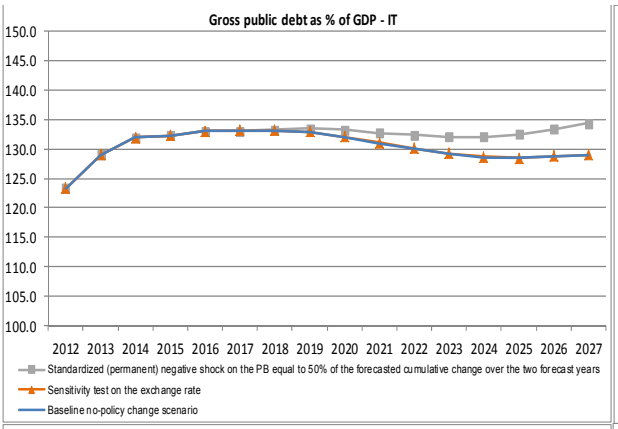


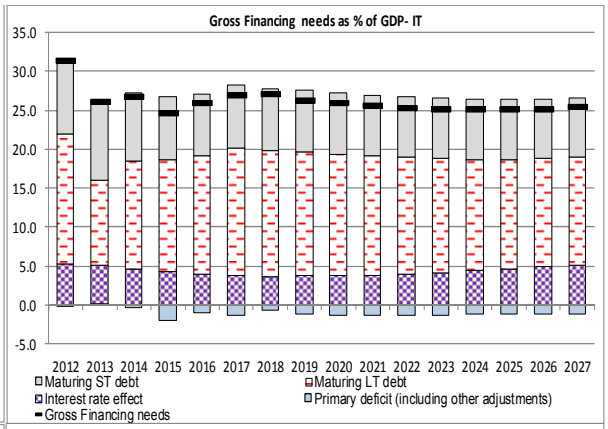


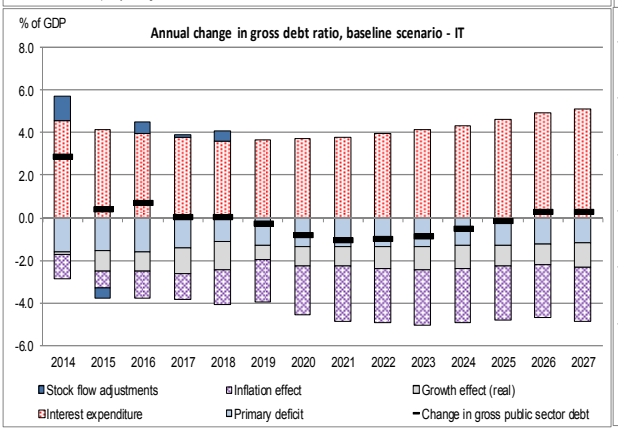


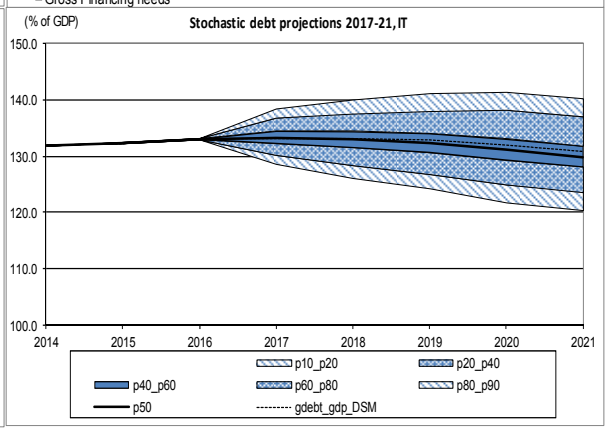












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	28.2	28.3	28.2	28.1	28.0	27.8	27.7	27.7	27.8	28.1
Revenues from pensions taxation	2.8	2.9	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.9
Property incomes	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.58**	**0.42**	**0.46**
Fiscal sub-index	0.96	0.47	0.36
Financial competitiveness sub-index	0.38	0.40	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**6.6**	**10.1**	**6.7**	**4.1**	**4.2**
of which *Initial Budgetary position*	*0.2*	*0.4*	*0.2*	*-2.3*	*-1.4*
*Cost of delaying adjustment***	*1.1*	*2.4*	*1.1*	*0.8*	*0.7*
*Debt requirement****	*5.3*	*7.3*	*5.3*	*5.6*	*5.1*
Ageing costs	*0.0*	*0.1*	*0.1*	*0.0*	*-0.2*
Required structural primary balance related to S1	**7.8**	**11.9**	**8.0**	**7.1**	**6.7**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**0.5**	**-0.1**	**1.0**	**-1.3**	**-0.9**
of which Initial Budgetary position	0.4	-0.2	0.4	-1.4	-0.8
Long term component	0.0	0.0	0.6	0.1	-0.1
of which Pensions	*-0.8*	*-0.8*	*-0.8*	*-0.7*	*-0.9*
Health care	*0.5*	*0.6*	*0.9*	*0.5*	*0.6*
Long-term care	*0.6*	*0.7*	*0.8*	*0.6*	*0.6*
Others	*-0.4*	*-0.4*	*-0.4*	*-0.3*	*-0.4*
Required structural primary balance related to S2	**1.7**	**1.7**	**2.2**	**1.7**	**1.6**

Risks related to the structure of public debt financing

Public debt structure - IT (2015):	Share of short-term public debt (p.p.) out of total debt: 14.2	Share of public debt by non-residents (%): 34.1	Share of public debt in foreign currency (%): 0.2

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		IT	**EU**
State guarantees (% GDP) (2014)		*2.7*	*9.2*
of which One-off guarantees		*1.8*	*8.8*
Standardised guarantees		*0.9*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** [x]	**0.39**	**2.74**
	Securities issued under liquidity schemes	**0.00**	**0.07**
	Special purpose entity	**0.00**	**0.48**
	Total	**0.39**	**3.29**

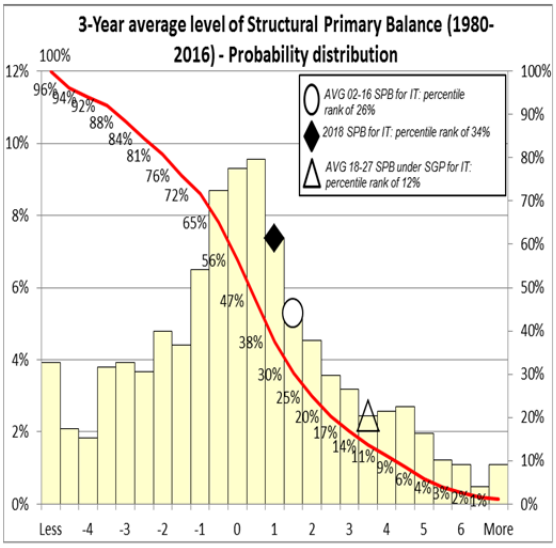
Government's contingent liability risks from banking sector - IT (2015):	Private sector credit flow (% GDP): -1.7	Bank loans-to-deposits ratio (%): 136.1	Share of non-performing loans: 16.8	Change in share of non-performing loans (p.p): -0.2	Change in nominal house price index: -2.6	NPL coverage ratio: 45.5	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8%: 0.01%	bank recap. at 10.5%: 0.02%

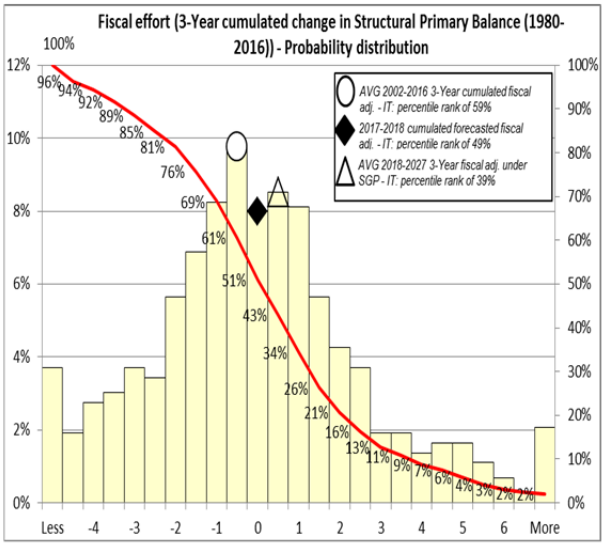
Financial market information

Sovereign Ratings as of Nov 15 2016, IT	**Local currency**		**Foreign currency**	
	long term	**short term**	**long term**	**short term**
Moody's	Baa2	P-2	Baa2	(P)P-2
S&P	BBB-u	A-3u	BBB-u	A-3u
Fitch	BBB+		BBB+	F2

Financial market information as of November 2016, IT		
Sovereign yield spreads(bp)*	**10-year**	171
CDS (bp)	**5-year**	155.7

Realism of baseline assumptions





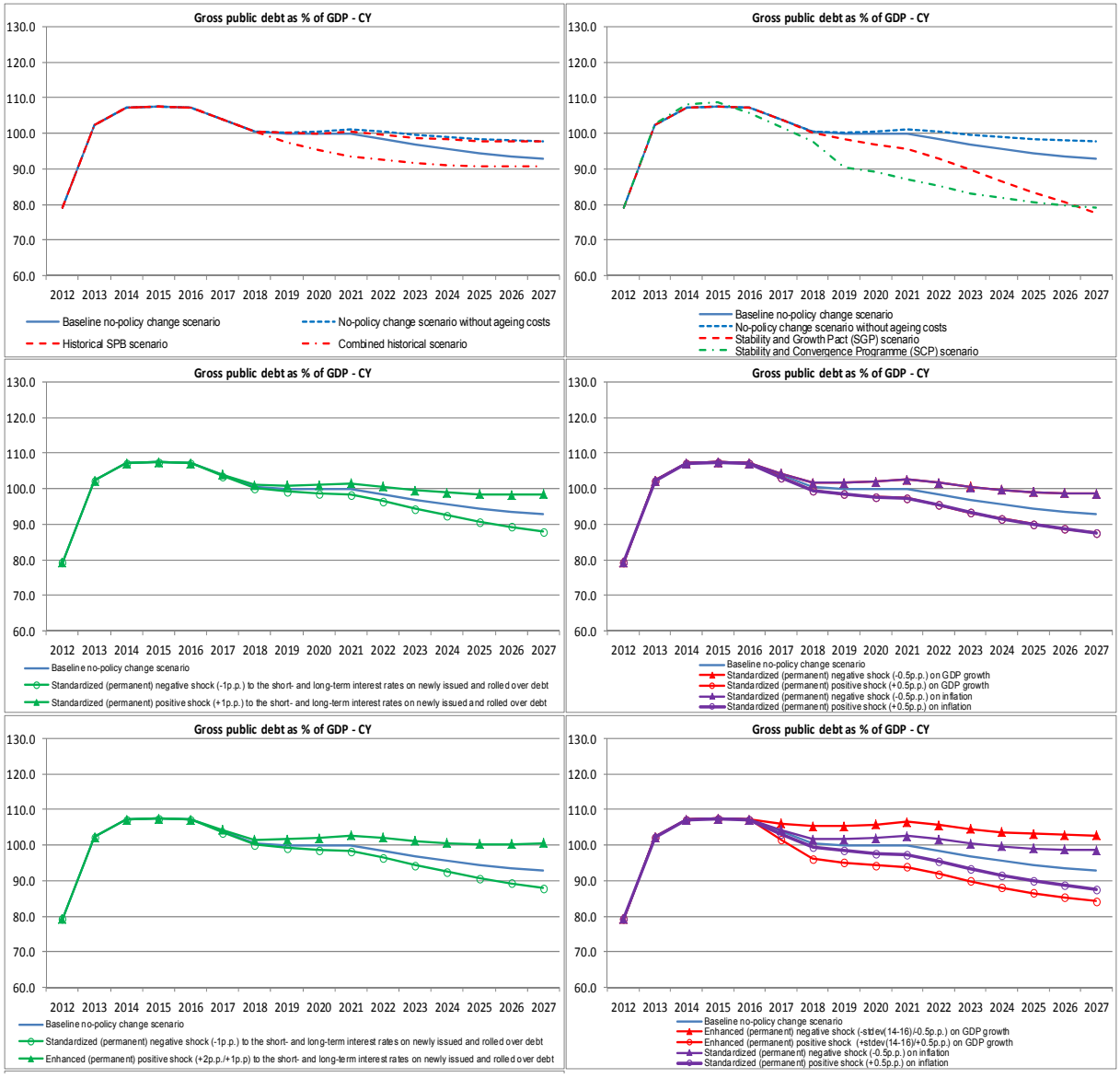
Underlying macro-fiscal assumptions

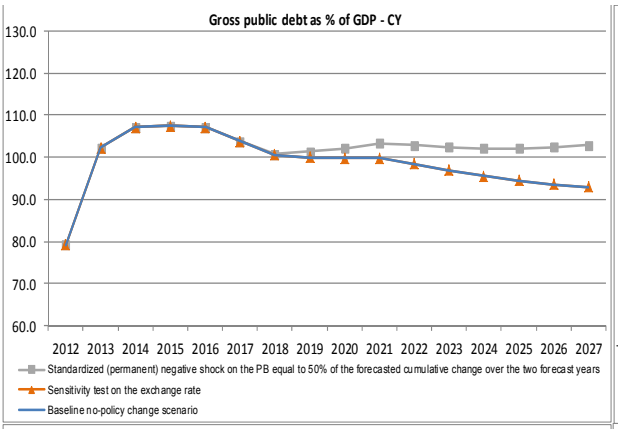
Macro-fiscal assumptions, Italy													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.5	1.6	1.4	1.1	1.3	1.3	1.4	1.4	1.4	1.3	1.3	1.2	1.2
Structural primary balance (before CoA)	3.1	2.4	1.6	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Real GDP growth	0.7	0.7	0.9	1.0	0.5	0.7	0.7	0.8	0.9	0.9	0.8	0.8	0.9
Potential GDP growth	-0.4	-0.3	0.1	0.3	0.5	0.7	0.7	0.8	0.9	0.9	0.8	0.8	0.9
Inflation rate	0.6	1.0	0.9	1.3	1.5	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.2	3.1	2.9	2.8	2.8	2.9	3.0	3.1	3.3	3.5	3.7	4.0	4.1
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.5	1.6	1.4	1.1	1.8	2.4	2.8	3.0	3.1	3.1	3.1	3.1	3.1
Structural primary balance (before CoA)	3.1	2.4	1.6	1.2	1.8	2.3	2.6	2.8	2.9	3.1	3.1	3.1	3.1
Real GDP growth	0.7	0.7	0.9	1.0	0.1	0.3	0.5	0.6	0.8	0.8	0.8	0.8	0.9
Potential GDP growth	-0.4	-0.3	0.1	0.3	0.1	0.3	0.4	0.6	0.8	0.8	0.8	0.8	0.9
Inflation rate	0.6	1.0	0.9	1.3	1.5	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.2	3.1	2.9	2.8	2.8	2.9	3.0	3.1	3.3	3.5	3.7	3.9	4.1
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.5	1.6	1.4	2.0	2.7	3.3	3.7	3.8	3.9	4.0	4.2	4.3	4.3
Structural primary balance (before CoA)	3.1	2.4	1.6	2.1	2.7	3.3	3.7	3.8	3.9	4.0	4.2	4.3	4.3
Real GDP growth	0.7	0.7	0.9	0.4	0.1	0.2	0.4	0.7	0.8	0.8	0.7	0.7	0.9
Potential GDP growth	-0.4	-0.3	0.1	-0.4	0.1	0.2	0.4	0.7	0.8	0.8	0.7	0.7	0.9
Inflation rate	0.6	1.0	0.9	1.3	1.5	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.2	3.1	2.9	2.8	2.8	2.9	3.0	3.1	3.3	3.4	3.7	3.9	4.0
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.6	1.6	1.9	2.7	3.6	3.0	3.1	3.1	3.1	3.0	3.0	2.9	2.9
Structural primary balance (before CoA)	3.2	2.4	2.2	2.4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Real GDP growth	0.8	1.2	1.4	1.5	1.4	0.9	1.0	1.1	1.1	1.1	1.1	1.1	1.2
Potential GDP growth	-0.2	-0.2	0.2	0.4	0.5	0.8	1.0	1.1	1.1	1.1	1.1	1.1	1.2
Inflation rate	0.8	1.0	1.1	1.6	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.2	3.1	2.9	2.9	2.8	2.8	2.8	2.9	3.1	3.3	3.5	3.6	3.7
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.5	1.6	1.4	1.1	1.4	1.6	1.8	1.9	2.0	1.9	1.8	1.8	1.8
Structural primary balance (before CoA)	3.1	2.4	1.6	1.2	1.4	1.5	1.7	1.8	1.8	1.8	1.8	1.8	1.8
Real GDP growth	0.7	0.7	0.9	1.0	0.4	0.6	0.6	0.7	0.9	0.9	0.8	0.8	0.9
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.5	1.6	1.4	1.1	1.4	1.6	1.8	1.9	2.0	1.9	1.8	1.8	1.8
Structural primary balance (before CoA)	3.1	2.4	1.6	1.2	1.4	1.5	1.7	1.8	1.8	1.8	1.8	1.8	1.8
Real GDP growth	0.7	0.7	0.9	1.0	0.7	0.5	0.3	0.1	0.2	0.2	0.2	0.2	0.2
Implicit interest rate (nominal)	3.2	3.1	2.9	2.8	2.8	2.9	3.1	3.4	3.6	3.8	3.9	4.1	4.1
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.2	3.1	3.2	3.2	3.3	3.4	3.6	3.8	4.0	4.3	4.6	4.8	5.0
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.2	3.1	2.6	2.4	2.3	2.3	2.3	2.4	2.5	2.7	2.9	3.1	3.2
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.2	3.1	3.5	3.6	3.8	3.7	3.9	4.0	4.2	4.4	4.7	4.9	5.1
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	0.7	0.7	1.4	1.5	1.0	1.2	1.2	1.3	1.4	1.4	1.3	1.3	1.4
Potential GDP growth	-0.4	-0.3	0.6	0.8	1.0	1.2	1.2	1.3	1.4	1.4	1.3	1.3	1.4
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	0.7	0.7	0.4	0.5	0.0	0.2	0.2	0.3	0.4	0.4	0.3	0.3	0.4
Potential GDP growth	-0.4	-0.3	-0.4	-0.2	0.0	0.2	0.2	0.3	0.4	0.4	0.3	0.3	0.4
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	0.7	0.7	1.3	1.4	1.0	1.2	1.2	1.3	1.4	1.4	1.3	1.3	1.4
Potential GDP growth	-0.4	-0.3	0.4	0.6	1.0	1.2	1.2	1.3	1.4	1.4	1.3	1.3	1.4
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	0.7	0.7	0.5	0.6	0.0	0.2	0.2	0.3	0.4	0.4	0.3	0.3	0.4
Potential GDP growth	-0.4	-0.3	-0.3	-0.1	0.0	0.2	0.2	0.3	0.4	0.4	0.3	0.3	0.4
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.6	1.0	1.4	1.8	2.0	2.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.6	1.0	0.4	0.8	1.0	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.5	1.6	1.3	0.6	0.7	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.6
Structural primary balance (before CoA)	3.1	2.4	1.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Real GDP growth	0.7	0.7	1.0	1.3	0.5	0.7	0.7	0.8	0.9	0.9	0.8	0.8	0.9
Potential GDP growth	-0.4	-0.3	0.1	0.6	0.5	0.7	0.7	0.8	0.9	0.9	0.8	0.8	0.9
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	3.2	3.1	2.9	2.8	2.8	2.9	3.0	3.1	3.3	3.5	3.7	4.0	4.1

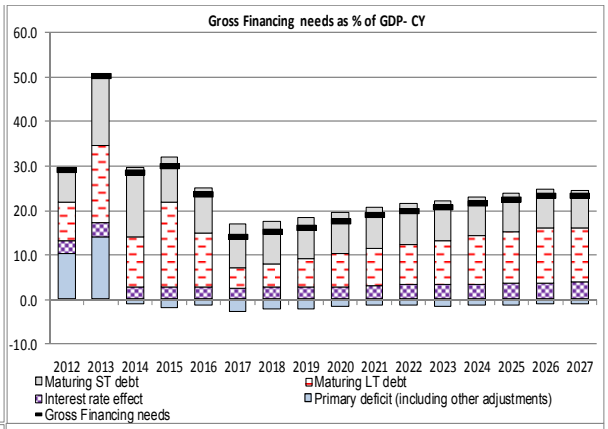
12. Cyprus

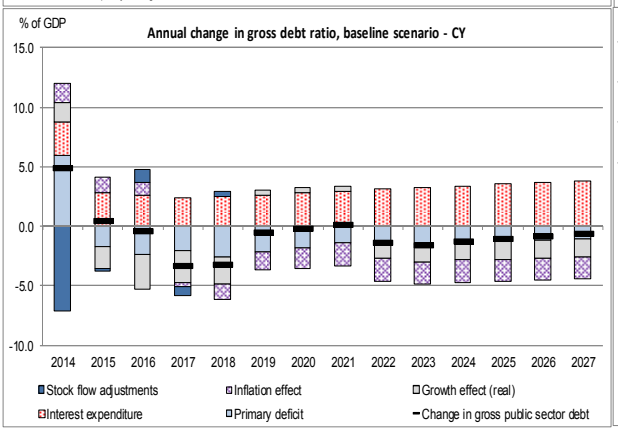
Public debt projections under baseline and alternative scenarios and sensitivity tests

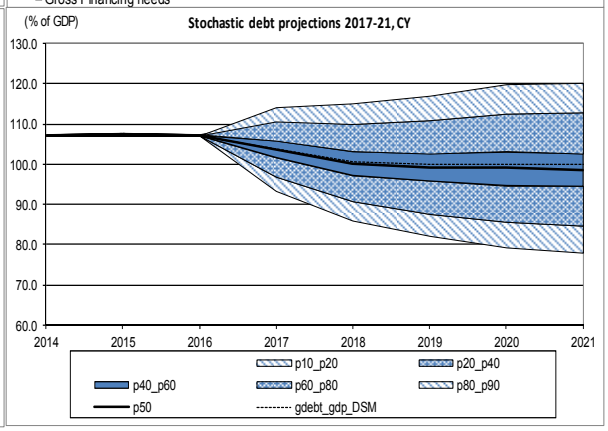
CY - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**107.1**	**107.5**	**107.1**	**103.7**	**100.6**	**100.0**	**99.8**	**99.9**	**98.4**	**96.8**	**95.5**	**94.4**	**93.6**	**93.0**
Changes in the ratio (-1+2+3)	*4.9*	*0.4*	*-0.4*	*-3.4*	*-3.2*	*-0.5*	*-0.3*	*0.1*	*-1.4*	*-1.6*	*-1.3*	*-1.1*	*-0.8*	*-0.6*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-6.0**	**1.7**	**2.3**	**2.0**	**2.5**	**2.1**	**1.8**	**1.3**	**1.4**	**1.5**	**1.3**	**1.2**	**1.1**	**1.0**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***5.9***	***4.5***	***2.8***	***1.2***	***0.8***	***1.0***	***1.2***	***1.3***	***1.4***	***1.5***	***1.3***	***1.2***	***1.1***	***1.0***
(1.1.1) Structural Primary Balance (before CoA)	*5.9*	*4.5*	*2.8*	*1.2*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*
(1.1.2) Cost of ageing						*-0.2*	*-0.4*	*-0.6*	*-0.7*	*-0.8*	*-0.6*	*-0.5*	*-0.4*	*-0.3*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*-0.1*	*-0.1*
(1.2) Cyclical component	***-3.3***	***-1.9***	***-0.4***	***0.8***	***1.8***	***1.2***	***0.6***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-8.5***	***-0.8***	***-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)	**6.0**	**2.4**	**0.8**	**-0.5**	**-1.0**	**1.6**	**1.5**	**1.4**	**0.0**	**-0.1**	**0.0**	**0.1**	**0.3**	**0.4**
(2.1) Interest expenditure	*2.8*	*2.8*	*2.6*	*2.5*	*2.5*	*2.7*	*2.8*	*3.0*	*3.1*	*3.3*	*3.4*	*3.5*	*3.7*	*3.8*
(2.2) Growth effect	*1.6*	*-1.8*	*-2.9*	*-2.7*	*-2.3*	*0.4*	*0.4*	*0.4*	*-1.2*	*-1.4*	*-1.5*	*-1.5*	*-1.6*	*-1.6*
(2.3) Inflation effect	*1.6*	*1.4*	*1.1*	*-0.3*	*-1.3*	*-1.5*	*-1.7*	*-2.0*	*-2.0*	*-1.9*	*-1.9*	*-1.9*	*-1.9*	*-1.8*
(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	**-7.1**	**-0.3**	**1.1**	**-0.8**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-7.1*	*-0.3*	*1.1*	*-0.8*	*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*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	3.0	1.7	0.2	-1.3	-1.8	-1.7	-1.6	-1.6	-1.7	-1.8	-2.1	-2.3	-2.6	-2.8











Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	20.9	21.1	20.6	20.4	20.2	20.2	19.9	19.7	19.6	19.9
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	0.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.71**	**0.41**	**0.46**
Fiscal sub-index	0.56	0.08	0.36
Financial competitiveness sub-index	0.77	0.57	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario
Overall index	**2.9**	**6.0**	**3.1**	**2.0**
of which *Initial Budgetary position*	*-0.2*	*0.8*	*-0.2*	*-0.7*
*Cost of delaying adjustment***	*0.5*	*1.4*	*0.5*	*0.4*
*Debt requirement****	*3.1*	*4.3*	*3.1*	*2.6*
Ageing costs	*-0.4*	*-0.4*	*-0.3*	*-0.3*
Required structural primary balance related to S1	**3.6**	**6.1**	**3.8**	**3.5**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario
Overall index	**-0.7**	**0.0**	**0.8**	**-1.2**
of which Initial Budgetary position	0.1	0.8	0.1	-0.7
Long term component	-0.7	-0.7	0.8	-0.5
of which Pensions	*0.2*	*0.2*	*0.2*	*0.3*
Health care	*0.2*	*0.2*	*0.5*	*0.2*
Long-term care	*0.2*	*0.2*	*1.4*	*0.2*
Others	*-1.3*	*-1.3*	*-1.3*	*-1.2*
Required structural primary balance related to S2	**0.1**	**-0.1**	**1.6**	**0.3**

Risks related to the structure of public debt financing

Public debt structure - CY (2015):	Share of short-term public debt (p.p.) out of total debt	Share of public debt by non-residents (%):	Share of public debt in foreign currency (%):
	2.1	58.6	4.7

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		CY	EU
State guarantees (% GDP) (2013)		15.9	9.2
of which One-off guarantees		*15.9*	*8.8*
Standardised guarantees		*0.0*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** [x]	**5.67**	**2.74**
	Securities issued under liquidity schemes	**0.00**	**0.07**
	Special purpose entity	**0.00**	**0.48**
	Total	**5.67**	**3.29**

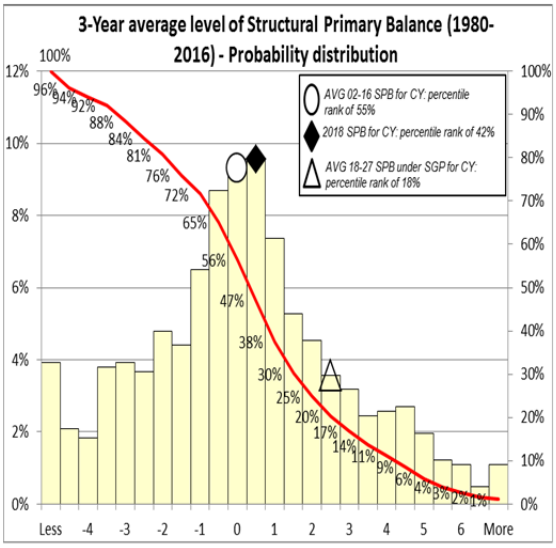
Government's contingent liability risks from banking sector - CY (2015):	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	Change in nominal house price index:	NPL coverage ratio	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8%	bank recap. at 10.5%
	-8.4 (2014)	95.2	48.9	-1.9	1.2	38.0	2.63%	5.02%

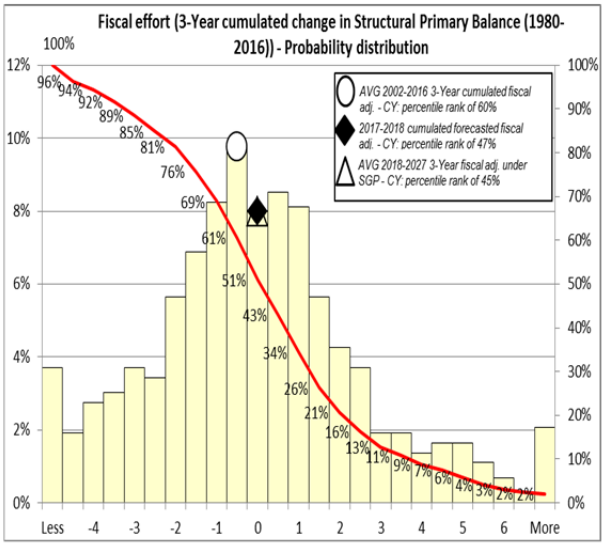
Financial market information

Sovereign Ratings as of Nov 15 2016, CY	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	B1	NP	(P)B1	NP
S&P	BB	B	BB	B
Fitch	BB-		BB-	B

Financial market information as of November 2016, CY		
Sovereign yield spreads(bp)*	10-year	376.1
CDS (bp)	5-year	1054.8

Realism of baseline assumptions





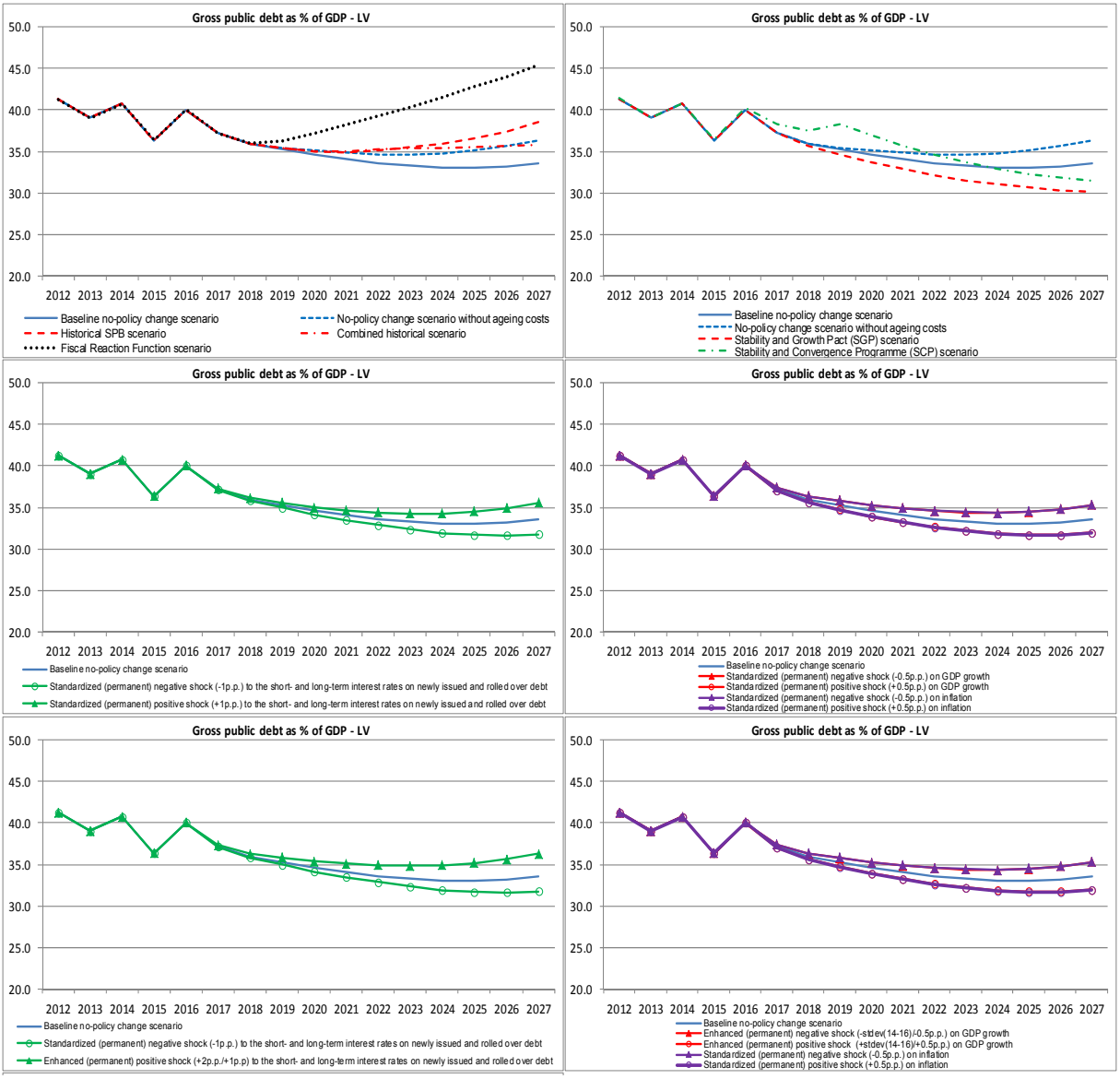
Underlying macro-fiscal assumptions

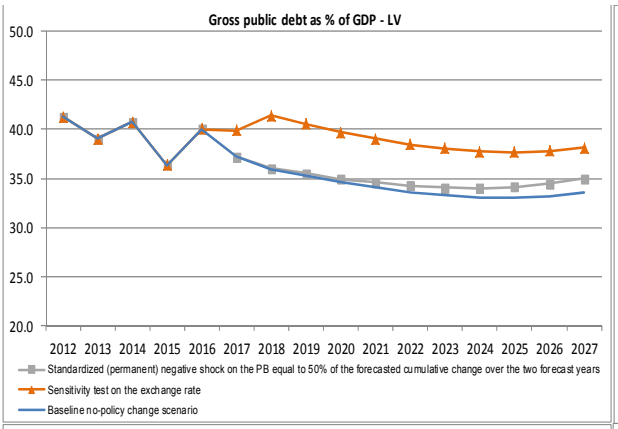
Macro-fiscal assumptions, Cyprus													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.7	2.3	2.0	2.5	2.1	1.8	1.3	1.4	1.5	1.3	1.2	1.1	1.0
Structural primary balance (before CoA)	4.5	2.8	1.2	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Real GDP growth	1.7	2.8	2.5	2.3	-0.4	-0.4	-0.4	1.2	1.5	1.6	1.7	1.7	1.7
Potential GDP growth	-1.2	-0.3	0.1	0.5	0.7	0.7	0.7	1.2	1.5	1.6	1.7	1.7	1.7
Inflation rate	-1.3	-1.1	0.3	1.2	1.5	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.6	2.5	2.4	2.5	2.7	2.8	3.0	3.2	3.4	3.6	3.9	4.1	4.2
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.7	2.3	2.0	4.1	3.6	3.1	2.6	3.0	3.0	3.1	3.1	3.2	3.2
Structural primary balance (before CoA)	4.5	2.8	1.2	2.3	2.4	2.5	2.6	3.0	3.0	3.1	3.1	3.2	3.2
Real GDP growth	1.7	2.8	2.5	1.1	-0.5	-0.5	-0.5	1.0	1.4	1.6	1.6	1.7	1.7
Potential GDP growth	-1.2	-0.3	0.1	-0.6	0.6	0.6	0.6	1.0	1.4	1.6	1.6	1.7	1.7
Inflation rate	-1.3	-1.1	0.3	1.2	1.5	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.6	2.5	2.4	2.5	2.7	2.8	3.0	3.2	3.4	3.6	3.8	3.9	4.1
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.9	2.2	1.9	2.3	3.0	1.7	1.9	2.0	2.0	1.8	1.8	1.6	1.6
Structural primary balance (before CoA)	4.8	3.2	1.7	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Real GDP growth	1.6	2.2	2.5	2.5	2.5	0.6	1.4	1.6	1.7	1.7	1.7	1.7	1.7
Potential GDP growth	-1.3	0.0	1.0	2.0	2.0	0.9	1.4	1.6	1.7	1.7	1.7	1.7	1.7
Inflation rate	-1.4	-0.5	0.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.6	2.4	2.4	2.6	2.8	2.9	3.4	3.6	3.7	4.5	4.6	4.6	4.9
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.7	2.3	2.0	2.5	2.0	1.4	0.8	0.7	0.8	0.6	0.5	0.4	0.3
Structural primary balance (before CoA)	4.5	2.8	1.2	0.8	0.6	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Real GDP growth	1.7	2.8	2.5	2.3	-0.3	-0.3	-0.3	1.4	1.5	1.6	1.7	1.7	1.7
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.7	2.3	2.0	2.5	2.0	1.4	0.8	0.7	0.8	0.6	0.5	0.4	0.3
Structural primary balance (before CoA)	4.5	2.8	1.2	0.8	0.6	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Real GDP growth	1.7	2.8	2.5	2.3	2.2	2.1	1.9	1.7	1.6	1.6	1.6	1.6	1.6
Implicit interest rate (nominal)	2.6	2.5	2.4	2.5	2.7	2.8	3.0	3.3	3.5	3.7	3.8	4.0	4.1
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.6	2.5	2.6	2.8	3.0	3.2	3.5	3.7	4.0	4.3	4.6	4.8	5.0
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.6	2.5	2.1	2.3	2.4	2.5	2.6	2.7	2.9	3.0	3.2	3.3	3.4
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.6	2.5	2.8	3.1	3.3	3.4	3.7	3.9	4.2	4.4	4.7	4.9	5.1
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.7	2.8	3.0	2.8	0.1	0.1	0.1	1.7	2.0	2.1	2.2	2.2	2.2
Potential GDP growth	-1.2	-0.3	0.6	1.0	1.2	1.2	1.2	1.7	2.0	2.1	2.2	2.2	2.2
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.7	2.8	2.0	1.8	-0.9	-0.9	-0.9	0.7	1.0	1.1	1.2	1.2	1.2
Potential GDP growth	-1.2	-0.3	-0.4	0.0	0.2	0.2	0.2	0.7	1.0	1.1	1.2	1.2	1.2
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.7	2.8	4.8	4.5	0.1	0.1	0.1	1.7	2.0	2.1	2.2	2.2	2.2
Potential GDP growth	-1.2	-0.3	2.4	2.8	1.2	1.2	1.2	1.7	2.0	2.1	2.2	2.2	2.2
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.7	2.8	0.3	0.1	-0.9	-0.9	-0.9	0.7	1.0	1.1	1.2	1.2	1.2
Potential GDP growth	-1.2	-0.3	-2.1	-1.7	0.2	0.2	0.2	0.7	1.0	1.1	1.2	1.2	1.2
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	-1.3	-1.1	0.8	1.7	2.0	2.2	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	-1.3	-1.1	-0.2	0.7	1.0	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.7	2.3	2.1	1.5	1.1	0.8	0.3	0.4	0.5	0.3	0.2	0.1	0.0
Structural primary balance (before CoA)	4.5	2.8	1.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
Real GDP growth	1.7	2.8	2.5	3.1	-0.4	-0.4	-0.4	1.2	1.5	1.6	1.7	1.7	1.7
Potential GDP growth	-1.2	-0.3	0.1	1.3	0.7	0.7	0.7	1.2	1.5	1.6	1.7	1.7	1.7
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	2.6	2.5	2.4	2.5	2.7	2.8	3.0	3.2	3.4	3.6	3.9	4.1	4.2

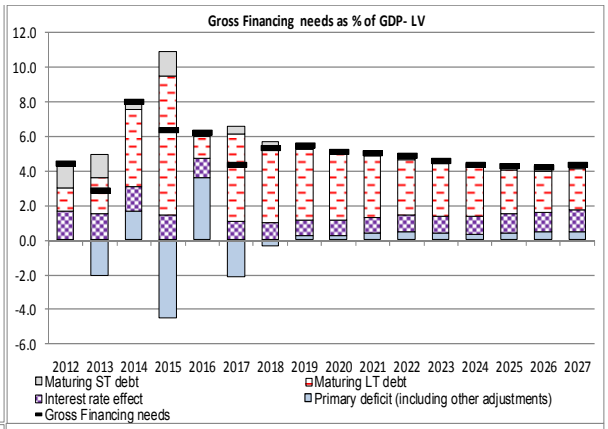
13. Latvia

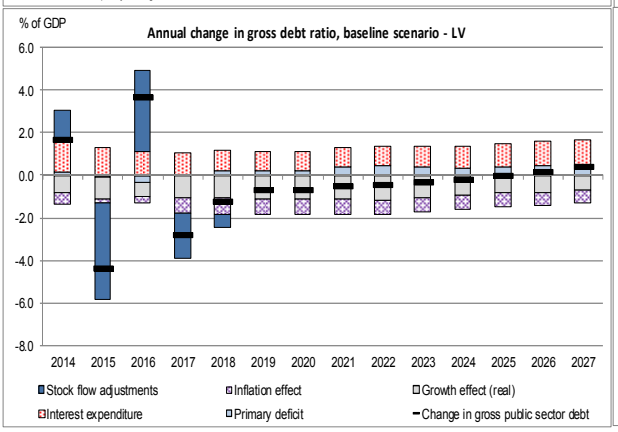
Public debt projections under baseline and alternative scenarios and sensitivity tests

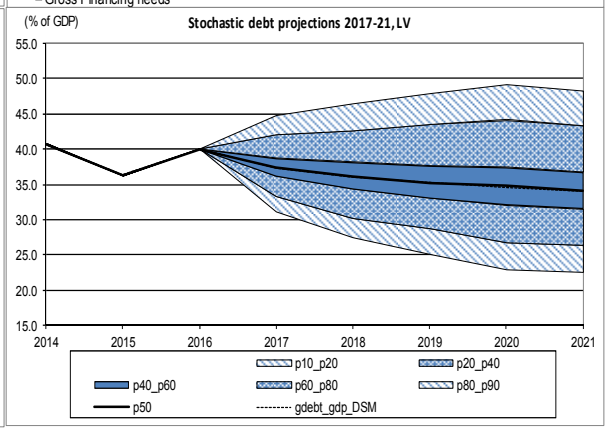
LV - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**40.7**	**36.3**	**40.0**	**37.2**	**36.0**	**35.3**	**34.6**	**34.0**	**33.6**	**33.3**	**33.1**	**33.1**	**33.2**	**33.6**
Changes in the ratio (-1+2+3)	*1.7*	*-4.4*	*3.7*	*-2.8*	*-1.2*	*-0.7*	*-0.7*	*-0.5*	*-0.4*	*-0.3*	*-0.2*	*0.0*	*0.2*	*0.4*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-0.1**	**0.1**	**0.3**	**0.0**	**-0.3**	**-0.2**	**-0.2**	**-0.4**	**-0.5**	**-0.4**	**-0.3**	**-0.4**	**-0.5**	**-0.5**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***-0.2***	***-0.5***	***-0.3***	***-0.6***	***-0.6***	***-0.5***	***-0.3***	***-0.4***	***-0.5***	***-0.4***	***-0.3***	***-0.4***	***-0.5***	***-0.5***
(1.1.1) Structural Primary Balance (before CoA)	*-0.2*	*-0.5*	*-0.3*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*	*-0.6*
(1.1.2) Cost of ageing						*-0.2*	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.4*	*-0.4*	*-0.3*	*-0.3*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.0*	*0.0*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*
(1.2) Cyclical component	***0.4***	***0.6***	***0.5***	***0.5***	***0.4***	***0.3***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-0.3***	***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***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**0.1**	**0.2**	**0.2**	**-0.7**	**-0.9**	**-0.9**	**-0.9**	**-0.9**	**-0.9**	**-0.7**	**-0.6**	**-0.4**	**-0.3**	**-0.1**
(2.1) Interest expenditure	*1.4*	*1.3*	*1.1*	*1.0*	*1.0*	*0.9*	*0.9*	*0.9*	*0.9*	*1.0*	*1.0*	*1.1*	*1.1*	*1.2*
(2.2) Growth effect	*-0.8*	*-1.1*	*-0.7*	*-1.1*	*-1.1*	*-1.1*	*-1.1*	*-1.1*	*-1.2*	*-1.0*	*-0.9*	*-0.8*	*-0.8*	*-0.7*
(2.3) Inflation effect	*-0.6*	*-0.2*	*-0.3*	*-0.7*	*-0.8*	*-0.8*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.7*	*-0.6*	*-0.6*	*-0.7*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock flow adjustments	**1.5**	**-4.5**	**3.8**	**-2.1**	**-0.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*1.4*	*-7.1*	*3.9*	*-2.2*	*-0.6*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.1*	*2.6*	*0.0*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-1.6	0.7	-1.5	-1.7	-1.6	-1.4	-1.2	-1.3	-1.4	-1.4	-1.3	-1.5	-1.6	-1.7











Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	16.2	15.5	15.1	14.9	14.9	14.9	14.8	14.6	14.6	14.7
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	1.0	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.6	0.6

Sustainability indicators

S0 indicator	**2009**	**2016**	**Critical threshold**
Overall index	**0.65**	**0.29**	**0.46**
Fiscal sub-index	0.45	0.00	0.36
Financial competitiveness sub-index	0.76	0.45	0.49

S1 indicator	**COM no-policy change scenario**	**Historical SPB scenario**	**AWG risk scenario**	**SCP scenario**	**2015 Sustainability Report**
Overall index	**-2.1**	**-2.2**	**-1.6**	**-3.1**	**-2.1**
of which *Initial Budgetary position*	*0.4*	*1.3*	*0.4*	*-0.6*	*0.2*
*Cost of delaying adjustment***	*-0.3*	*-0.5*	*-0.2*	*-0.6*	*-0.3*
*Debt requirement****	*-1.9*	*-2.7*	*-1.9*	*-1.9*	*-1.8*
Ageing costs	*-0.3*	*-0.3*	*0.1*	*-0.1*	*-0.3*
Required structural primary balance related to S1	**-2.7**	**-3.5**	**-2.2**	**-2.5**	**-2.8**

S2 indicator	**COM no-policy change scenario**	**Historical SPB scenario**	**AWG risk scenario**	**SCP scenario**	**2015 Sustainability Report**
Overall index	**0.8**	**1.5**	**3.2**	**-0.2**	**0.9**
of which Initial Budgetary position	1.2	1.9	1.2	0.0	1.3
Long term component	-0.4	-0.4	2.0	-0.2	-0.4
of which Pensions	*-1.5*	*-1.5*	*-1.5*	*-1.2*	*-1.6*
Health care	*0.4*	*0.4*	*1.0*	*0.4*	*0.4*
Long-term care	*0.1*	*0.1*	*1.9*	*0.1*	*0.1*
Others	*0.5*	*0.5*	*0.5*	*0.5*	*0.6*
Required structural primary balance related to S2	**0.1**	**0.2**	**2.5**	**0.4**	**0.2**

Risks related to the structure of public debt financing

Public debt structure - LV (2015):	Share of short-term public debt (p.p.) out of total debt: 3.6	Share of public debt by non-residents (%): 71.9	Share of public debt in foreign currency (%): 33

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		LV	EU
State guarantees (% GDP) (2014)		1.3	9.2
of which One-off guarantees		*0.9*	*8.8*
Standardised guarantees		*0.5*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** *	**0.00**	**2.74**
	Securities issued under liquidity schemes	**0.00**	**0.07**
	Special purpose entity	**0.00**	**0.48**
	Total	**0.00**	**3.29**

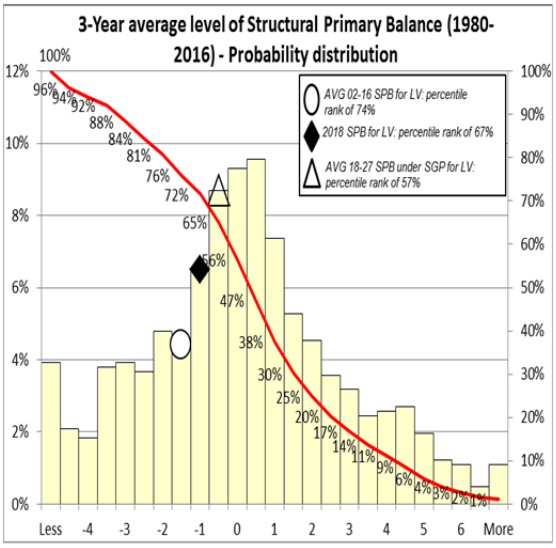
Government's contingent liability risks from banking sector - LV (2015):	Private sector credit flow (% GDP): 0.7	Bank loans-to-deposits ratio (%): 68.3	Share of non-performing loans (%): 4	Change in share of non-performing loans (p.p): -1.7	Change in nominal house price index: -3.3	NPL coverage ratio 30.9	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8% 0.00%	bank recap. at 10.5% 0.00%

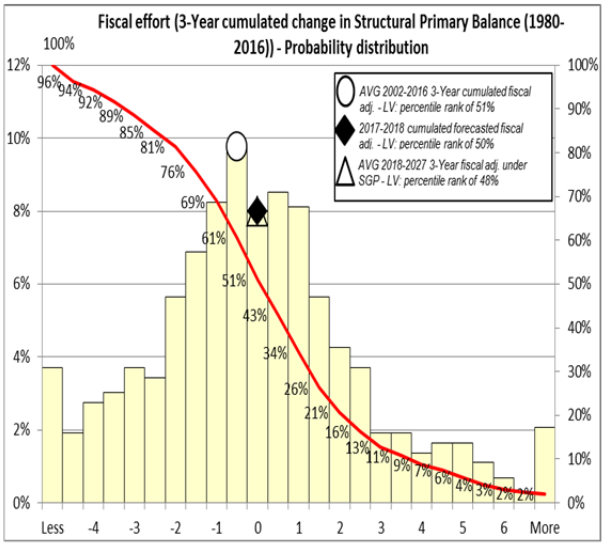
Financial market information

Sovereign Ratings as of Nov 15 2016, LV	**Local currency**		**Foreign currency**	
	long term	**short term**	**long term**	**short term**
Moody's	A3		A3	
S&P	A-	A-2	A-	A-2
Fitch	A-		A-	F1

Financial market information as of November 2016, LV		
Sovereign yield spreads(bp)*	**10-year**	43.1
CDS (bp)	**5-year**	81.8

Realism of baseline assumptions





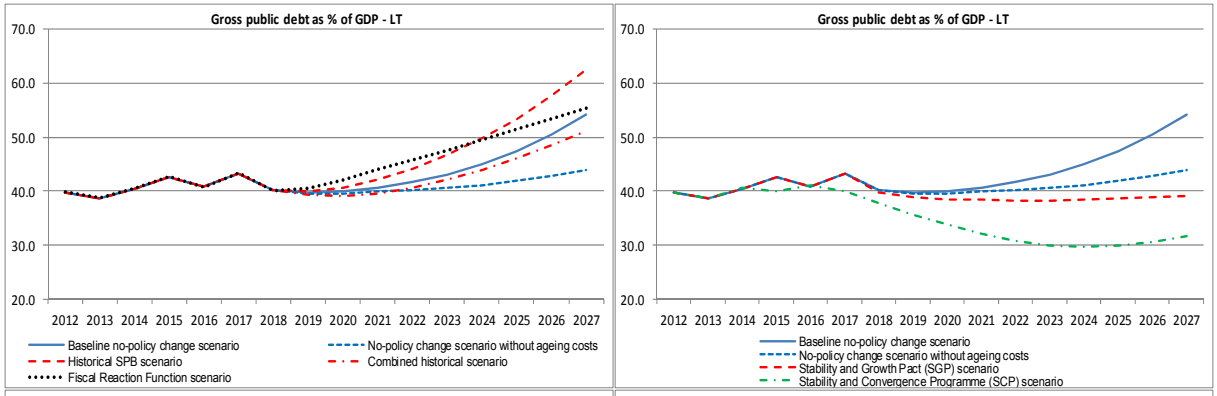
Underlying macro-fiscal assumptions

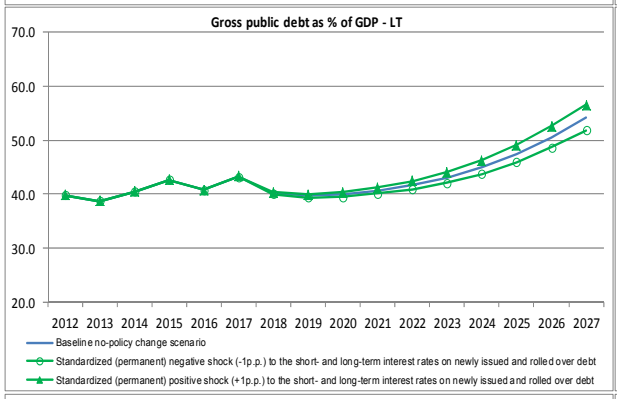
Macro-fiscal assumptions, Latvia													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.1	0.3	0.0	-0.3	-0.2	-0.2	-0.4	-0.5	-0.4	-0.3	-0.4	-0.5	-0.5
Structural primary balance (before CoA)	-0.5	-0.3	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
Real GDP growth	2.7	1.9	2.8	3.0	3.2	3.3	3.5	3.6	3.2	2.9	2.6	2.5	2.1
Potential GDP growth	2.3	2.0	2.8	3.2	3.5	3.7	3.8	3.6	3.2	2.9	2.6	2.5	2.1
Inflation rate	0.4	0.8	1.8	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.4	3.1	2.7	2.7	2.7	2.7	2.8	2.9	3.0	3.2	3.4	3.6	3.8
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.1	0.3	0.0	-0.3	-1.6	-1.9	-2.0	-2.0	-1.9	-1.8	-1.7	-1.6	-1.5
Structural primary balance (before CoA)	-0.5	-0.3	-0.6	-0.6	-2.0	-2.4	-2.3	-2.1	-2.1	-2.1	-1.9	-1.8	-1.6
Real GDP growth	2.7	1.9	2.8	3.0	4.2	3.6	3.4	3.5	3.2	2.9	2.5	2.4	2.0
Potential GDP growth	2.3	2.0	2.8	3.2	4.5	3.9	3.7	3.5	3.2	2.9	2.5	2.4	2.0
Inflation rate	0.4	0.8	1.8	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.4	3.1	2.7	2.7	2.7	2.7	2.8	2.9	3.1	3.3	3.5	3.7	3.9
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.1	0.3	0.0	0.2	0.2	0.0	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.1
Structural primary balance (before CoA)	-0.5	-0.3	-0.6	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.1
Real GDP growth	2.7	1.9	2.8	2.6	3.1	3.3	3.5	3.6	3.2	2.9	2.6	2.5	2.1
Potential GDP growth	2.3	2.0	2.8	2.9	3.5	3.7	3.8	3.6	3.2	2.9	2.6	2.5	2.1
Inflation rate	0.4	0.8	1.8	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.4	3.1	2.7	2.7	2.7	2.7	2.8	2.9	3.0	3.2	3.4	3.6	3.7
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.1	0.2	0.0	0.1	0.6	0.7	0.7	0.6	0.7	0.7	0.7	0.6	0.6
Structural primary balance (before CoA)	-0.6	-0.5	-0.5	-0.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Real GDP growth	2.7	3.0	3.3	3.4	3.4	3.0	3.3	3.0	2.7	2.5	2.4	2.1	1.7
Potential GDP growth	2.5	2.7	2.9	3.0	3.0	3.5	3.3	3.0	2.7	2.5	2.4	2.1	1.7
Inflation rate	0.6	1.3	2.4	2.8	2.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.3	2.8	2.9	3.1	3.5	3.7	3.7	4.1	4.5	4.6	4.6	4.7
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.1	0.3	0.0	-0.3	-0.4	-0.6	-0.9	-1.1	-1.1	-1.0	-1.1	-1.1	-1.2
Structural primary balance (before CoA)	-0.5	-0.3	-0.6	-0.6	-0.8	-1.0	-1.2	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
Real GDP growth	2.7	1.9	2.8	3.0	3.3	3.4	3.6	3.7	3.2	2.9	2.6	2.5	2.1
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.1	0.3	0.0	-0.3	-0.4	-0.6	-0.9	-1.1	-1.1	-1.0	-1.1	-1.1	-1.2
Structural primary balance (before CoA)	-0.5	-0.3	-0.6	-0.6	-0.8	-1.0	-1.2	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
Real GDP growth	2.7	1.9	2.8	3.0	3.2	3.3	3.3	3.4	3.3	3.3	3.3	3.3	3.3
Implicit interest rate (nominal)	3.4	3.1	2.7	2.7	2.7	2.6	2.6	2.5	2.5	2.4	2.4	2.4	2.3
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.4	3.1	2.9	3.0	3.1	3.2	3.3	3.5	3.7	3.9	4.2	4.4	4.6
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.4	3.1	2.5	2.5	2.3	2.2	2.2	2.3	2.4	2.5	2.6	2.8	2.9
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.4	3.1	3.1	3.3	3.4	3.5	3.6	3.7	3.9	4.1	4.3	4.5	4.7
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	2.7	1.9	3.3	3.5	3.7	3.8	4.0	4.1	3.7	3.4	3.1	3.0	2.6
Potential GDP growth	2.3	2.0	3.3	3.7	4.0	4.2	4.3	4.1	3.7	3.4	3.1	3.0	2.6
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	2.7	1.9	2.3	2.5	2.7	2.8	3.0	3.1	2.7	2.4	2.1	2.0	1.6
Potential GDP growth	2.3	2.0	2.3	2.7	3.0	3.2	3.3	3.1	2.7	2.4	2.1	2.0	1.6
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	2.7	1.9	3.2	3.4	3.7	3.8	4.0	4.1	3.7	3.4	3.1	3.0	2.6
Potential GDP growth	2.3	2.0	3.3	3.7	4.0	4.2	4.3	4.1	3.7	3.4	3.1	3.0	2.6
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	2.7	1.9	2.3	2.5	2.7	2.8	3.0	3.1	2.7	2.4	2.1	2.0	1.6
Potential GDP growth	2.3	2.0	2.4	2.8	3.0	3.2	3.3	3.1	2.7	2.4	2.1	2.0	1.6
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.4	0.8	2.3	2.7	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.4	0.8	1.3	1.7	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.1	0.3	0.0	-0.4	-0.4	-0.4	-0.5	-0.6	-0.6	-0.5	-0.6	-0.6	-0.6
Structural primary balance (before CoA)	-0.5	-0.3	-0.6	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8
Real GDP growth	2.7	1.9	2.7	3.1	3.2	3.3	3.5	3.6	3.2	2.9	2.6	2.5	2.1
Potential GDP growth	2.3	2.0	2.8	3.4	3.5	3.7	3.8	3.6	3.2	2.9	2.6	2.5	2.1
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.6%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	3.4	3.1	2.7	2.7	2.7	2.7	2.8	2.9	3.0	3.2	3.4	3.6	3.8

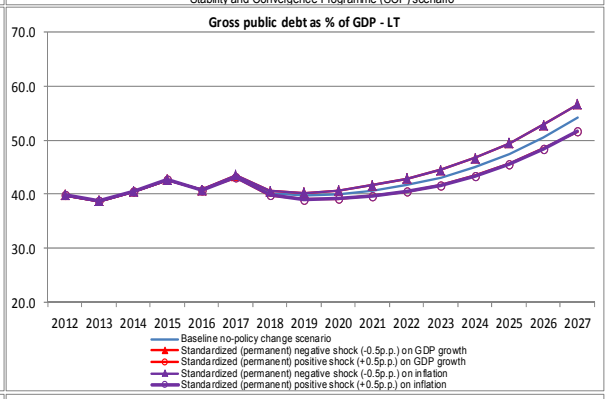
14. Lithuania

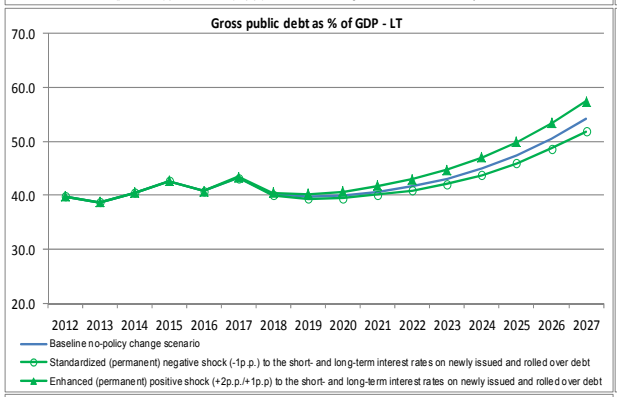
Public debt projections under baseline and alternative scenarios and sensitivity tests

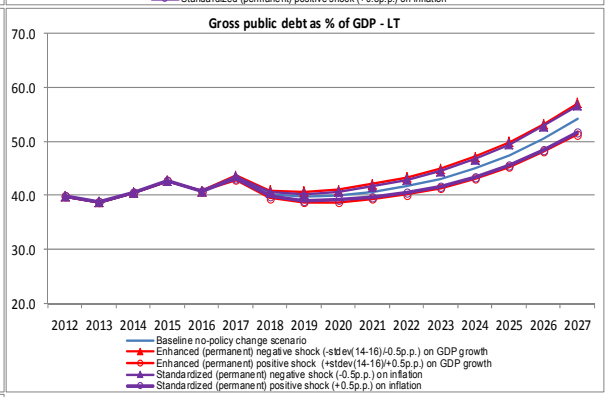
LT - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**40.5**	**42.7**	**40.8**	**43.3**	**40.2**	**39.7**	**39.9**	**40.7**	**41.7**	**43.1**	**45.0**	**47.5**	**50.5**	**54.1**
Changes in the ratio (-1+2+3)	*1.8*	*2.2*	*-1.9*	*2.5*	*-3.1*	*-0.5*	*0.2*	*0.8*	*1.0*	*1.4*	*1.9*	*2.5*	*3.0*	*3.5*
of which														
(1) Primary balance (1.1+1.2+1.3)	**0.9**	**1.3**	**0.9**	**0.7**	**0.7**	**0.3**	**-0.1**	**-0.6**	**-0.8**	**-1.1**	**-1.4**	**-1.7**	**-2.0**	**-2.4**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***0.1***	***0.9***	***0.6***	***0.1***	***-0.1***	***-0.2***	***-0.4***	***-0.6***	***-0.8***	***-1.1***	***-1.4***	***-1.7***	***-2.0***	***-2.4***
(1.1.1) Structural Primary Balance (before CoA)	*0.1*	*0.9*	*0.6*	*0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*
(1.1.2) Cost of ageing						*0.1*	*0.3*	*0.5*	*0.7*	*1.0*	*1.3*	*1.6*	*1.9*	*2.3*
(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	***0.4***	***0.3***	***0.4***	***0.6***	***0.7***	***0.5***	***0.2***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.4***	***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)	**-0.1**	**0.8**	**0.1**	**-0.3**	**-0.9**	**-0.2**	**0.1**	**0.3**	**0.1**	**0.3**	**0.5**	**0.8**	**1.0**	**1.1**
(2.1) Interest expenditure	*1.6*	*1.5*	*1.5*	*1.4*	*1.4*	*1.3*	*1.3*	*1.3*	*1.3*	*1.4*	*1.5*	*1.7*	*1.9*	*2.1*
(2.2) Growth effect	*-1.3*	*-0.7*	*-0.8*	*-1.1*	*-1.2*	*-0.5*	*-0.3*	*-0.3*	*-0.4*	*-0.3*	*-0.2*	*0.0*	*0.0*	*0.0*
(2.3) Inflation effect	*-0.4*	*-0.1*	*-0.6*	*-0.7*	*-1.1*	*-1.0*	*-0.9*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.9*	*-0.9*	*-1.0*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock flow adjustments	**2.8**	**2.7**	**-1.1**	**3.4**	**-1.5**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*2.8*	*0.6*	*-1.0*	*3.3*	*-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*	*2.1*	*0.0*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-1.5	1.5	-0.9	-1.4	-1.5	-1.5	-1.6	-1.9	-2.2	-2.6	-2.9	-3.4	-3.9	-4.5

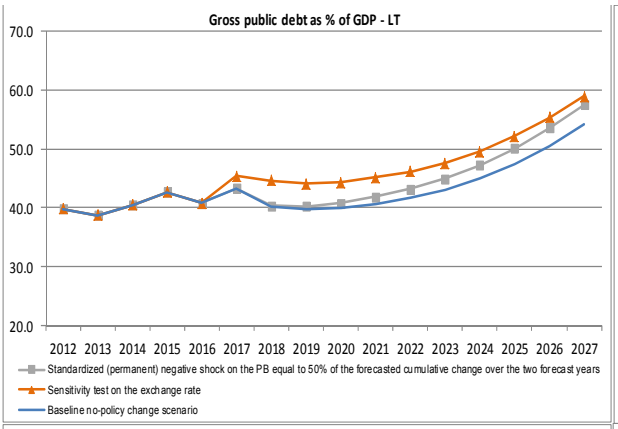


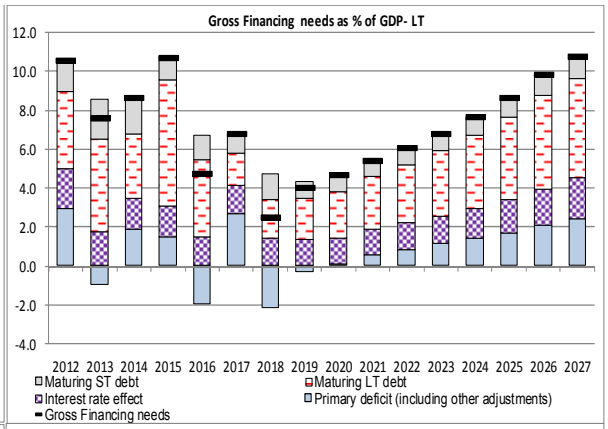


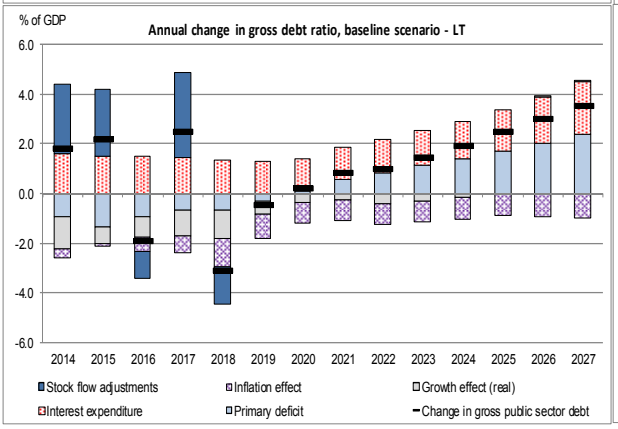


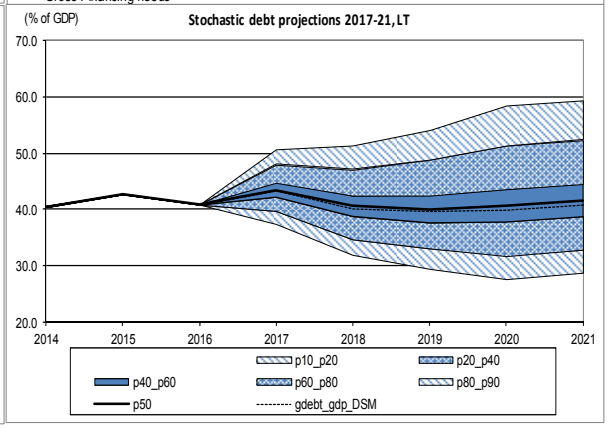












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	16.9	16.4	16.1	16.2	16.2	16.3	16.4	16.6	17.9	19.6
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.58**	**0.21**	**0.46**
Fiscal sub-index	0.58	0.00	0.36
Financial competitiveness sub-index	0.57	0.33	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**1.1**	**3.7**	**1.7**	**-2.3**	**0.5**
of which *Initial Budgetary position*	*0.6*	*2.2*	*0.6*	*-1.4*	*0.1*
*Cost of delaying adjustment***	*0.2*	*0.9*	*0.3*	*-0.4*	*0.1*
*Debt requirement****	*-1.3*	*-1.6*	*-1.3*	*-2.0*	*-1.1*
Ageing costs	*1.6*	*2.2*	*2.1*	*1.6*	*1.5*
Required structural primary balance related to S1	**1.0**	**2.5**	**1.6**	**-0.6**	**1.1**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**3.4**	**4.7**	**5.8**	**1.5**	**2.9**
of which Initial Budgetary position	0.6	1.8	0.7	-1.2	0.1
Long term component	2.8	2.9	5.1	2.7	2.8
of which Pensions	*1.2*	*1.2*	*1.2*	*1.1*	*1.2*
Health care	*0.1*	*0.0*	*0.6*	*0.0*	*0.1*
Long-term care	*0.7*	*0.7*	*2.5*	*0.7*	*0.7*
Others	*0.9*	*0.9*	*0.8*	*0.9*	*0.8*
Required structural primary balance related to S2	**3.3**	**3.4**	**5.7**	**3.2**	**3.5**

Risks related to the structure of public debt financing

Public debt structure - LT (2015):	Share of short-term public debt (p.p.) out of total debt: 5.2	Share of public debt by non-residents (%): 72	Share of public debt in foreign currency (%): 28

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		LT	EU
State guarantees (% GDP) (2014)		0.8	9.2
of which One-off guarantees		*0.3*	*8.8*
Standardised guarantees		*0.5*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** [a]	:	**2.74**
	Securities issued under liquidity schemes	:	**0.07**
	Special purpose entity	:	**0.48**
	Total	**0.00**	**3.29**

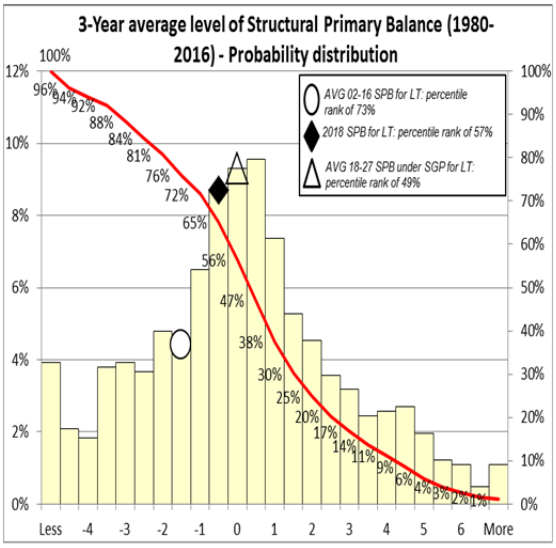
Government's contingent liability risks from banking sector - LT (2015):	Private sector credit flow (% GDP): -1.2 (2014)	Bank loans-to-deposits ratio (%): 96.3	Share of non-performing loans (%): 5.1	Change in share of non-performing loans (p.p): -1.3	Change in nominal house price index: 3.7	NPL coverage ratio: 31.7	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8%: 0.00%	bank recap. at 10.5%: 0.00%

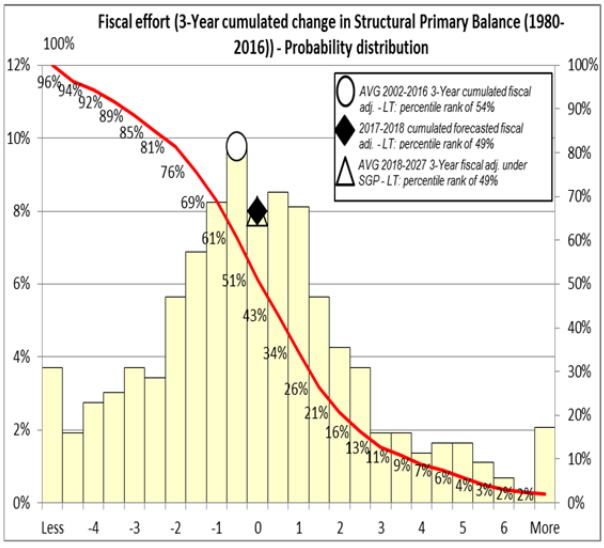
Financial market information

Sovereign Ratings as of Nov 15 2016, LT	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	A3		A3	P-2
S&P	A-	A-2	A-	A-2
Fitch	A-		A-	F1

Financial market information as of November 2016, LT		
Sovereign yield spreads(bp)*	10-year	95.2
CDS (bp)	5-year	n.a.

Realism of baseline assumptions





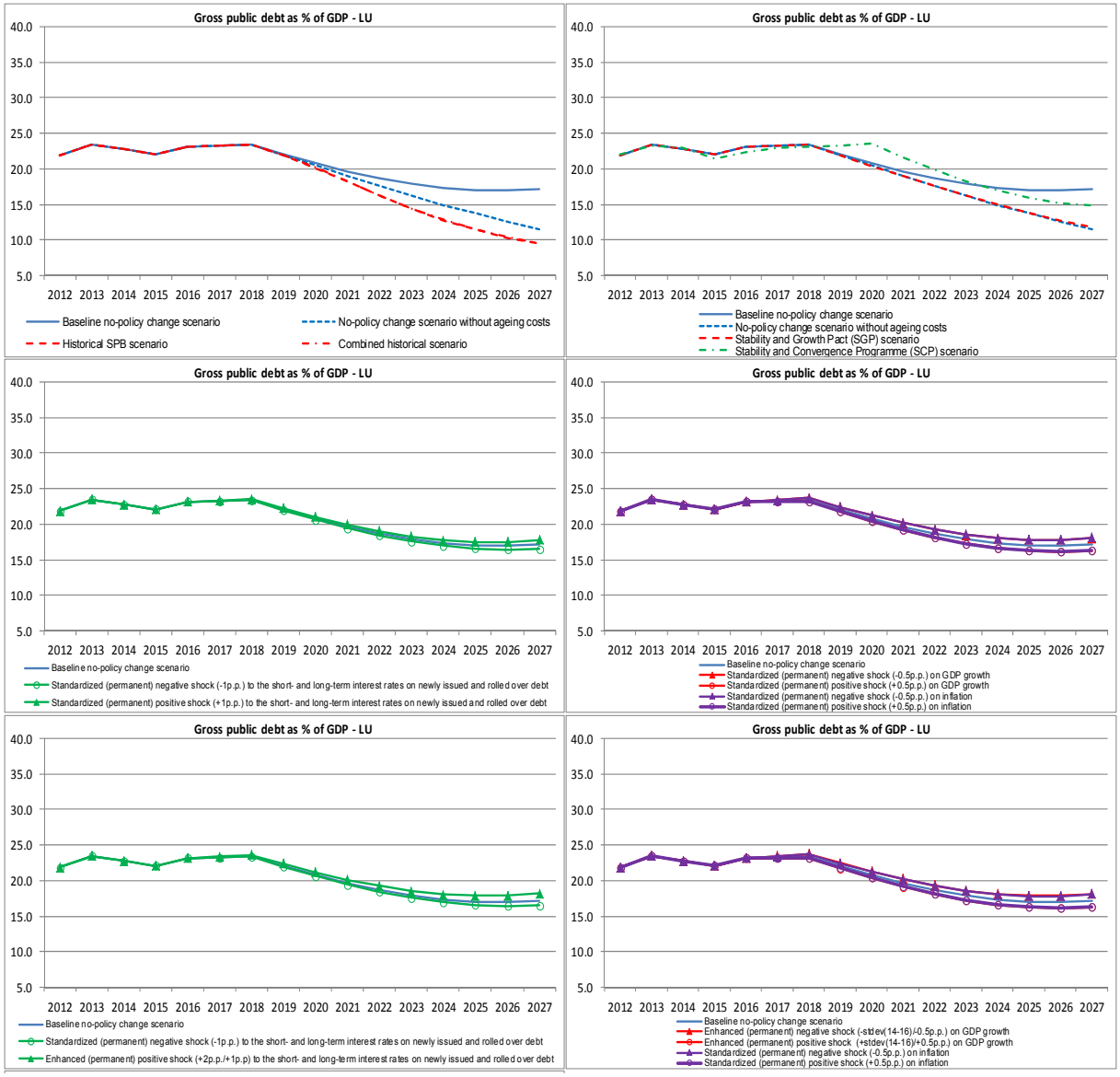
Underlying macro-fiscal assumptions

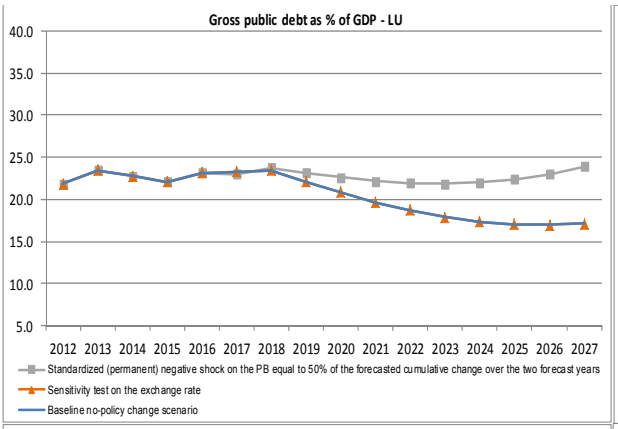
Macro-fiscal assumptions, Lithuania													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.3	0.9	0.7	0.7	0.3	-0.1	-0.6	-0.8	-1.1	-1.4	-1.7	-2.0	-2.4
Structural primary balance (before CoA)	0.9	0.6	0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Real GDP growth	1.8	2.0	2.7	2.8	1.4	0.9	0.7	1.0	0.7	0.4	0.0	-0.1	-0.1
Potential GDP growth	2.0	1.9	2.2	2.4	2.0	1.5	1.3	1.0	0.7	0.4	0.0	-0.1	-0.1
Inflation rate	0.2	1.4	1.6	2.7	2.5	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.8	3.6	3.7	3.4	3.4	3.4	3.4	3.4	3.5	3.6	3.8	4.0	4.2
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.3	0.9	0.7	0.7	-1.0	-1.5	-1.5	-1.4	-1.3	-1.1	-1.0	-0.8	-0.6
Structural primary balance (before CoA)	0.9	0.6	0.1	-0.1	-1.4	-1.5	-1.1	-0.7	-0.3	0.1	0.6	1.1	1.7
Real GDP growth	1.8	2.0	2.7	2.8	2.4	0.9	0.4	0.8	0.4	0.1	-0.3	-0.5	-0.5
Potential GDP growth	2.0	1.9	2.2	2.4	3.0	1.5	1.0	0.8	0.4	0.1	-0.3	-0.5	-0.5
Inflation rate	0.2	1.4	1.6	2.7	2.5	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.8	3.6	3.7	3.4	3.4	3.3	3.4	3.4	3.5	3.6	3.8	4.0	4.2
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.3	0.9	0.7	1.1	0.8	0.5	0.3	0.3	0.3	0.3	0.4	0.5	0.6
Structural primary balance (before CoA)	0.9	0.6	0.1	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.6
Real GDP growth	1.8	2.0	2.7	2.4	1.5	0.9	0.7	1.0	0.7	0.4	0.0	-0.2	-0.1
Potential GDP growth	2.0	1.9	2.2	2.1	2.1	1.5	1.3	1.0	0.7	0.4	0.0	-0.2	-0.1
Inflation rate	0.2	1.4	1.6	2.7	2.5	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.8	3.6	3.7	3.4	3.4	3.4	3.4	3.4	3.5	3.6	3.8	3.9	4.1
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.3	0.7	1.3	1.5	1.9	1.5	1.3	1.1	0.8	0.5	0.2	-0.1	-0.5
Structural primary balance (before CoA)	1.1	0.7	1.3	1.4	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Real GDP growth	1.6	2.5	3.2	3.1	3.1	0.7	0.9	0.8	0.6	0.3	0.2	0.2	0.1
Potential GDP growth	2.5	2.7	3.0	3.1	3.1	1.0	0.9	0.8	0.6	0.3	0.2	0.2	0.1
Inflation rate	0.4	1.1	2.0	2.3	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.3	3.0	3.2	2.7	2.3	2.0	2.1	2.2	2.8	3.7	3.8	4.0
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.3	0.9	0.7	0.7	0.0	-0.7	-1.4	-1.9	-2.2	-2.5	-2.8	-3.1	-3.5
Structural primary balance (before CoA)	0.9	0.6	0.1	-0.1	-0.4	-0.6	-0.9	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2
Real GDP growth	1.8	2.0	2.7	2.8	1.6	1.1	0.9	1.2	0.7	0.4	0.0	-0.1	-0.1
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.3	0.9	0.7	0.7	0.0	-0.7	-1.4	-1.9	-2.2	-2.5	-2.8	-3.1	-3.5
Structural primary balance (before CoA)	0.9	0.6	0.1	-0.1	-0.4	-0.6	-0.9	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2
Real GDP growth	1.8	2.0	2.7	2.8	3.2	3.4	3.6	3.7	3.5	3.5	3.5	3.5	3.5
Implicit interest rate (nominal)	3.8	3.6	3.7	3.4	3.4	3.4	3.4	3.6	3.7	3.8	3.9	3.9	4.0
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.8	3.6	3.8	3.6	3.7	3.7	3.8	3.9	4.1	4.3	4.5	4.8	5.0
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.8	3.6	3.5	3.1	3.1	3.0	3.0	2.9	3.0	3.0	3.1	3.3	3.4
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.8	3.6	4.0	3.9	4.0	3.9	4.0	4.1	4.2	4.4	4.6	4.9	5.1
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.8	2.0	3.2	3.3	1.9	1.4	1.2	1.5	1.2	0.9	0.5	0.4	0.4
Potential GDP growth	2.0	1.9	2.7	2.9	2.5	2.0	1.8	1.5	1.2	0.9	0.5	0.4	0.4
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.8	2.0	2.2	2.3	0.9	0.4	0.2	0.5	0.2	-0.1	-0.5	-0.6	-0.6
Potential GDP growth	2.0	1.9	1.7	1.9	1.5	1.0	0.8	0.5	0.2	-0.1	-0.5	-0.6	-0.6
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.8	2.0	3.6	3.7	1.9	1.4	1.2	1.5	1.2	0.9	0.5	0.4	0.4
Potential GDP growth	2.0	1.9	3.1	3.4	2.5	2.0	1.8	1.5	1.2	0.9	0.5	0.4	0.4
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.8	2.0	1.8	1.9	0.9	0.4	0.2	0.5	0.2	-0.1	-0.5	-0.6	-0.6
Potential GDP growth	2.0	1.9	1.3	1.5	1.5	1.0	0.8	0.5	0.2	-0.1	-0.5	-0.6	-0.6
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.2	1.4	2.1	3.2	3.0	2.7	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.2	1.4	1.1	2.2	2.0	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.3	0.9	0.7	0.3	0.0	-0.4	-0.9	-1.2	-1.5	-1.7	-2.0	-2.4	-2.8
Structural primary balance (before CoA)	0.9	0.6	0.1	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Real GDP growth	1.8	2.0	2.7	3.1	1.4	0.9	0.7	1.0	0.7	0.4	0.0	-0.1	-0.1
Potential GDP growth	2.0	1.9	2.2	2.7	2.0	1.5	1.3	1.0	0.7	0.4	0.0	-0.1	-0.1
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	3.8	3.6	3.7	3.4	3.4	3.4	3.4	3.4	3.5	3.6	3.8	4.0	4.2

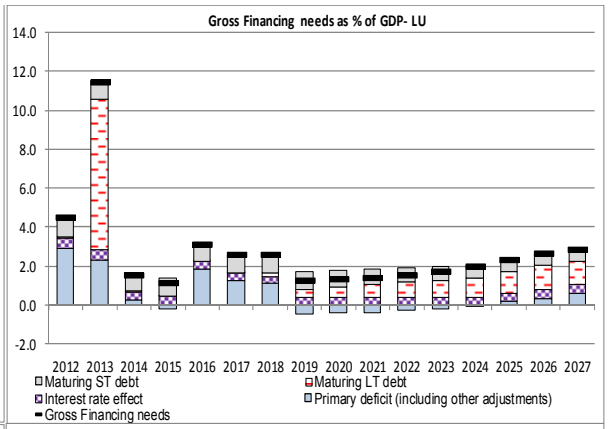
15. Luxembourg

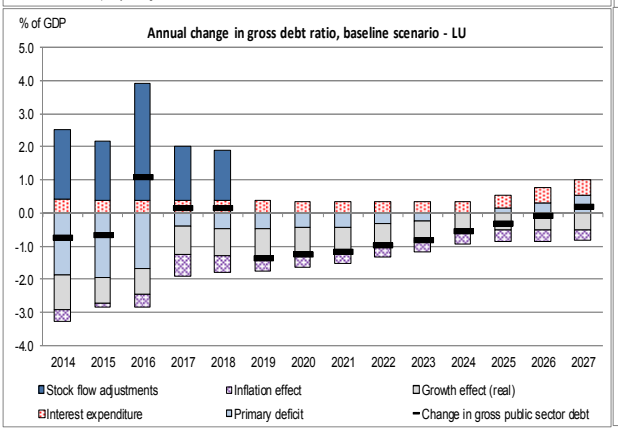
Public debt projections under baseline and alternative scenarios and sensitivity tests

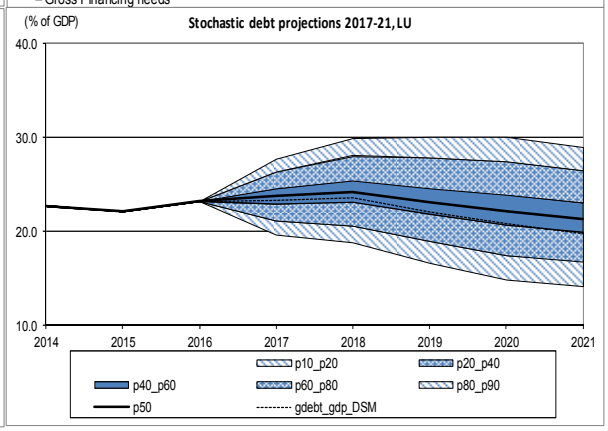
LU - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**22.7**	**22.1**	**23.2**	**23.3**	**23.5**	**22.1**	**20.8**	**19.7**	**18.7**	**17.9**	**17.3**	**17.0**	**17.0**	**17.2**
Changes in the ratio (-1+2+3)	*-0.7*	*-0.7*	*1.1*	*0.1*	*0.2*	*-1.4*	*-1.3*	*-1.2*	*-1.0*	*-0.8*	*-0.6*	*-0.3*	*-0.1*	*0.2*
of which														
(1) Primary balance (1.1+1.2+1.3)	**1.9**	**2.0**	**1.7**	**0.4**	**0.5**	**0.5**	**0.4**	**0.4**	**0.3**	**0.2**	**0.0**	**-0.2**	**-0.3**	**-0.5**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***2.9***	***2.6***	***2.3***	***0.8***	***0.8***	***0.6***	***0.5***	***0.4***	***0.3***	***0.2***	***0.0***	***-0.2***	***-0.3***	***-0.5***
(1.1.1) Structural Primary Balance (before CoA)	*2.9*	*2.6*	*2.3*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*	*0.8*
(1.1.2) Cost of ageing						*0.1*	*0.2*	*0.4*	*0.5*	*0.6*	*0.8*	*0.9*	*1.1*	*1.3*
(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	***-1.0***	***-0.8***	***-0.6***	***-0.4***	***-0.3***	***-0.2***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***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)	**-1.0**	**-0.5**	**-0.8**	**-1.1**	**-0.9**	**-0.9**	**-0.8**	**-0.8**	**-0.7**	**-0.6**	**-0.5**	**-0.5**	**-0.4**	**-0.3**
(2.1) Interest expenditure	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.5*
(2.2) Growth effect	*-1.0*	*-0.8*	*-0.7*	*-0.8*	*-0.8*	*-0.8*	*-0.8*	*-0.7*	*-0.6*	*-0.6*	*-0.6*	*-0.5*	*-0.5*	*-0.5*
(2.3) Inflation effect	*-0.4*	*-0.1*	*-0.4*	*-0.7*	*-0.5*	*-0.5*	*-0.4*	*-0.4*	*-0.4*	*-0.4*	*-0.4*	*-0.3*	*-0.3*	*-0.3*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock flow adjustments	**2.1**	**1.8**	**3.5**	**1.6**	**1.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*2.1*	*1.8*	*3.5*	*1.6*	*1.6*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	2.5	2.2	1.9	0.4	0.4	0.3	0.1	0.0	0.0	-0.1	-0.4	-0.6	-0.8	-1.0











Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	19.5	19.6	19.8	20.0	20.2	20.4	20.5	20.6	21.3	22.3
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.23**	**0.29**	**0.46**
Fiscal sub-index	0.26	0.00	0.36
Financial competitiveness sub-index	0.22	0.45	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**-3.7**	**-7.5**	**-3.5**	**-5.8**	**-4.4**
of which *Initial Budgetary position*	*-1.2*	*-2.2*	*-1.2*	*-1.6*	*-1.7*
*Cost of delaying adjustment***	*-0.5*	*-1.6*	*-0.5*	*-1.0*	*-0.6*
*Debt requirement****	*-3.0*	*-5.1*	*-3.0*	*-4.0*	*-3.2*
Ageing costs	*1.0*	*1.3*	*1.2*	*0.8*	*1.1*
Required structural primary balance related to S1	**-3.0**	**-5.6**	**-2.8**	**-4.7**	**-3.1**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**4.3**	**3.3**	**5.8**	**3.8**	**4.2**
of which Initial Budgetary position	-0.2	-1.3	-0.2	-0.6	-0.6
Long term component	4.5	4.7	6.0	4.4	4.8
of which Pensions	*2.8*	*2.8*	*2.8*	*2.5*	*2.9*
Health care	*0.4*	*0.4*	*0.7*	*0.4*	*0.4*
Long-term care	*1.2*	*1.3*	*2.5*	*1.3*	*1.3*
Others	*0.1*	*0.1*	*0.1*	*0.2*	*0.1*
Required structural primary balance related to S2	**5.1**	**5.3**	**6.5**	**4.9**	**5.5**

Risks related to the structure of public debt financing

Public debt structure - LU (2015):	Share of short-term public debt (p.p.) out of total debt: 6.5	Share of public debt by non-residents (%): 36.6	Share of public debt in foreign currency (%): 0

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		LU	EU
State guarantees (% GDP) (2014)		7.6	9.2
of which One-off guarantees		*6.0*	*8.8*
Standardised guarantees		*1.6*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** [x]	**3.59**	**2.74**
	Securities issued under liquidity schemes	**0.00**	**0.07**
	Special purpose entity	**0.00**	**0.48**
	Total	**3.59**	**3.29**

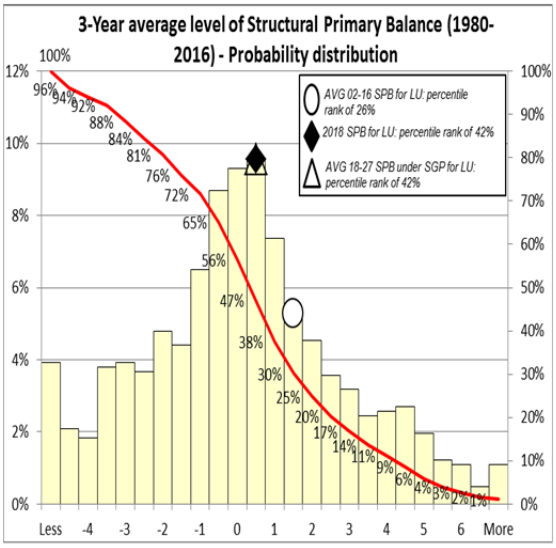
Government's contingent liability risks from banking sector - LU (2015):	Private sector credit flow (% GDP): 24.2	Bank loans-to-deposits ratio (%): 130.7	Share of non-performing loans (%): 1.2	Change in share of non-performing loans (p.p): -0.4	Change in nominal house price index: 5.4	NPL coverage ratio 45.4	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8%: 0.03%	bank recap. at 10.5%: 0.09%

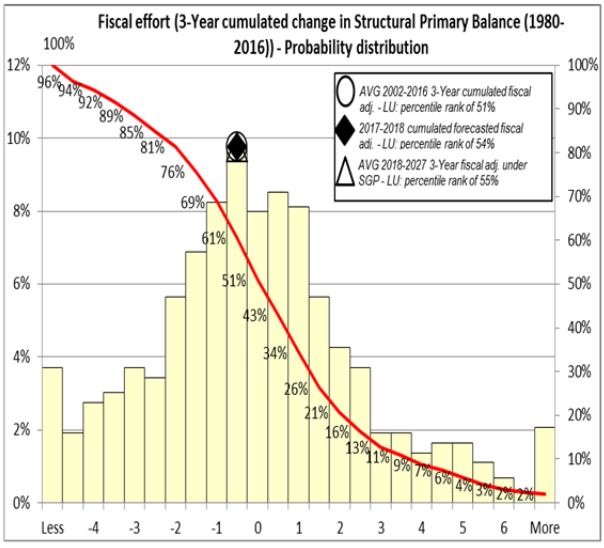
Financial market information

Sovereign Ratings as of Nov 15 2016, 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+

Financial market information as of November 2016, LU		
Sovereign yield spreads(bp)*	10-year	17.6
CDS (bp)	5-year	n.a.

Realism of baseline assumptions





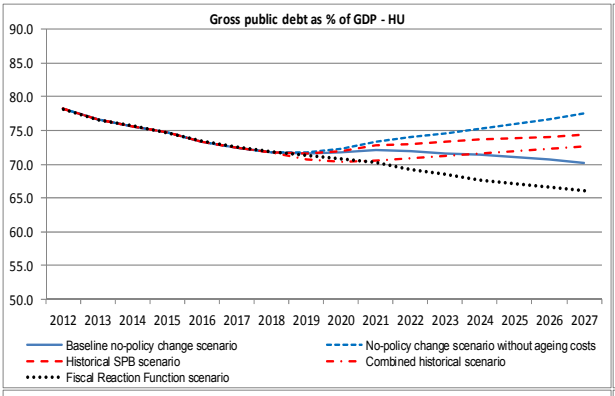
Underlying macro-fiscal assumptions

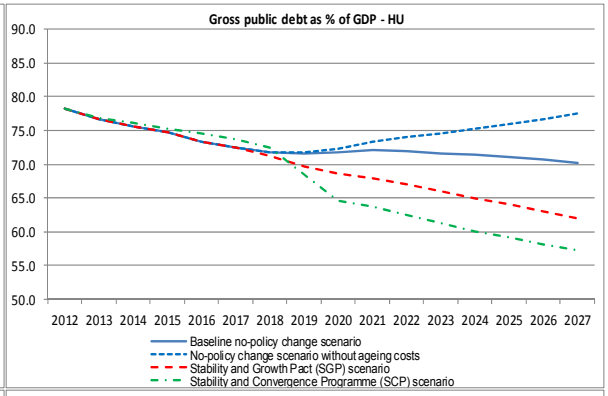
Macro-fiscal assumptions, Luxembourg													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	2.0	1.7	0.4	0.5	0.5	0.4	0.4	0.3	0.2	0.0	-0.2	-0.3	-0.5
Structural primary balance (before CoA)	2.6	2.3	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Real GDP growth	3.5	3.6	3.8	3.6	3.6	3.6	3.6	3.4	3.3	3.3	3.1	3.2	3.0
Potential GDP growth	3.1	3.1	3.2	3.4	3.4	3.4	3.4	3.4	3.3	3.3	3.1	3.2	3.0
Inflation rate	0.4	1.9	2.9	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.9	1.9	1.8	1.7	1.7	1.8	1.8	1.9	2.0	2.2	2.4	2.7	3.0
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	2.0	1.7	0.4	0.5	0.6	0.7	0.8	0.7	0.7	0.7	0.7	0.7	0.7
Structural primary balance (before CoA)	2.6	2.3	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7
Real GDP growth	3.5	3.6	3.8	3.6	3.6	3.6	3.6	3.4	3.3	3.3	3.2	3.2	3.1
Potential GDP growth	3.1	3.1	3.2	3.4	3.4	3.4	3.4	3.4	3.3	3.3	3.2	3.2	3.1
Inflation rate	0.4	1.9	2.9	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.9	1.9	1.8	1.7	1.7	1.8	1.8	1.9	2.0	2.1	2.2	2.3	2.4
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.6	1.1	0.3	0.5	0.5	0.7	1.0	0.9	0.8	0.6	0.4	0.3	0.0
Structural primary balance (before CoA)	2.0	1.8	0.6	0.2	0.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Real GDP growth	4.8	2.9	4.5	4.9	3.5	2.3	3.7	3.6	3.6	3.5	3.5	3.3	3.0
Potential GDP growth	3.1	3.2	3.2	3.2	3.1	3.5	3.7	3.6	3.6	3.5	3.5	3.3	3.0
Inflation rate	1.6	1.6	2.2	1.8	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.6	1.8	1.5	1.4	1.3	1.3	1.3	1.6	1.6	1.6	1.6	1.6	3.5
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	2.0	1.7	0.4	0.5	0.7	1.0	1.2	1.4	1.3	1.1	0.9	0.8	0.5
Structural primary balance (before CoA)	2.6	2.3	0.8	0.8	1.0	1.3	1.6	1.8	1.8	1.8	1.8	1.8	1.8
Real GDP growth	3.5	3.6	3.8	3.6	3.4	3.4	3.4	3.2	3.3	3.3	3.1	3.2	3.0
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	2.0	1.7	0.4	0.5	0.7	1.0	1.2	1.4	1.3	1.1	0.9	0.8	0.5
Structural primary balance (before CoA)	2.6	2.3	0.8	0.8	1.0	1.3	1.6	1.8	1.8	1.8	1.8	1.8	1.8
Real GDP growth	3.5	3.6	3.8	3.6	3.3	3.3	3.2	3.1	3.3	3.3	3.3	3.3	3.3
Implicit interest rate (nominal)	1.9	1.9	1.8	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	1.9	1.9	1.9	1.9	2.0	2.1	2.1	2.2	2.4	2.6	2.9	3.3	3.6
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	1.9	1.9	1.6	1.5	1.5	1.5	1.5	1.6	1.7	1.8	1.9	2.2	2.4
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	1.9	1.9	2.1	2.1	2.3	2.3	2.3	2.4	2.6	2.8	3.1	3.4	3.7
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.5	3.6	4.3	4.1	4.1	4.1	4.1	3.9	3.8	3.8	3.6	3.7	3.5
Potential GDP growth	3.1	3.1	3.7	3.9	3.9	3.9	3.9	3.9	3.8	3.8	3.6	3.7	3.5
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.5	3.6	3.3	3.1	3.1	3.1	3.1	2.9	2.8	2.8	2.6	2.7	2.5
Potential GDP growth	3.1	3.1	2.7	2.9	2.9	2.9	2.9	2.9	2.8	2.8	2.6	2.7	2.5
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.5	3.6	4.5	4.3	4.1	4.1	4.1	3.9	3.8	3.8	3.6	3.7	3.5
Potential GDP growth	3.1	3.1	3.9	4.0	3.9	3.9	3.9	3.9	3.8	3.8	3.6	3.7	3.5
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.5	3.6	3.2	3.0	3.1	3.1	3.1	2.9	2.8	2.8	2.6	2.7	2.5
Potential GDP growth	3.1	3.1	2.6	2.7	2.9	2.9	2.9	2.9	2.8	2.8	2.6	2.7	2.5
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.4	1.9	3.4	2.7	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.4	1.9	2.4	1.7	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	2.0	1.7	0.8	-0.3	-0.3	-0.3	-0.4	-0.5	-0.6	-0.8	-0.9	-1.1	-1.3
Structural primary balance (before CoA)	2.6	2.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Real GDP growth	3.5	3.6	3.6	4.5	3.6	3.6	3.6	3.4	3.3	3.3	3.1	3.2	3.0
Potential GDP growth	3.1	3.1	3.0	4.2	3.4	3.4	3.4	3.4	3.3	3.3	3.1	3.2	3.0
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	1.9	1.9	1.8	1.7	1.7	1.8	1.8	1.9	2.0	2.2	2.4	2.7	3.0

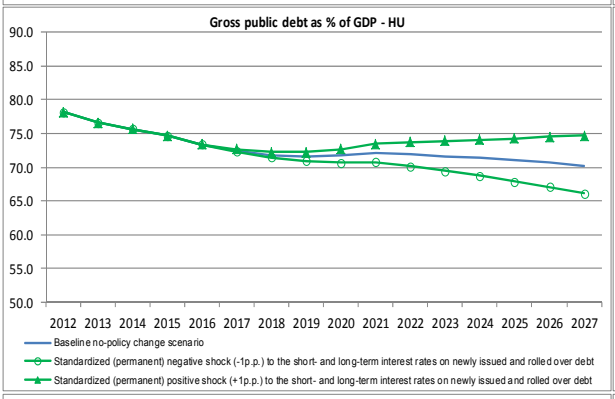
16. Hungary

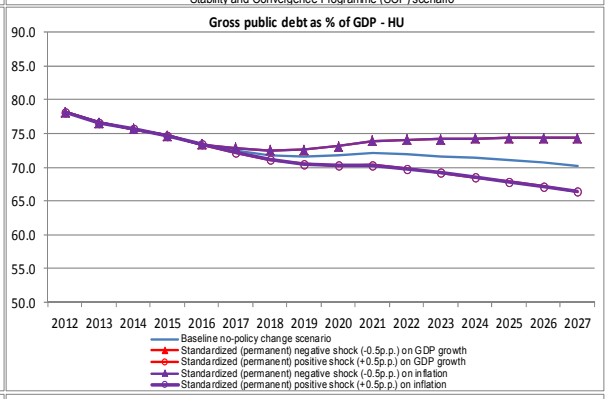
Public debt projections under baseline and alternative scenarios and sensitivity tests

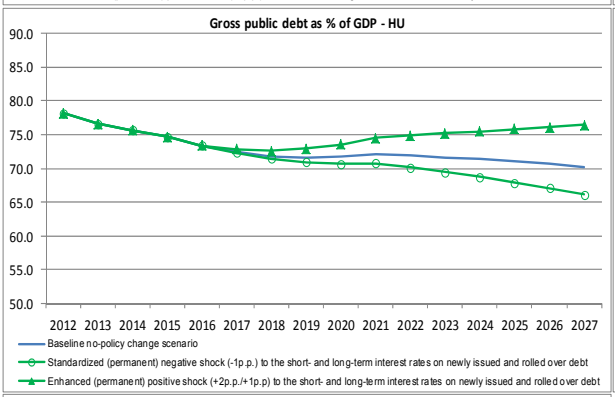
HU - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**75.7**	**74.7**	**73.4**	**72.5**	**71.8**	**71.5**	**71.7**	**72.1**	**71.9**	**71.6**	**71.3**	**71.0**	**70.6**	**70.3**
Changes in the ratio (-1+2+3)	*-0.9*	*-0.9*	*-1.3*	*-0.9*	*-0.7*	*-0.3*	*0.1*	*0.4*	*-0.2*	*-0.3*	*-0.3*	*-0.3*	*-0.4*	*-0.4*
of which														
(1) Primary balance (1.1+1.2+1.3)	**1.9**	**2.0**	**1.6**	**0.6**	**0.5**	**0.4**	**0.4**	**0.2**	**0.4**	**0.5**	**0.6**	**0.6**	**0.6**	**0.7**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***1.8***	***1.7***	***0.6***	***0.1***	***-0.3***	***-0.1***	***0.1***	***0.2***	***0.4***	***0.5***	***0.6***	***0.6***	***0.6***	***0.7***
(1.1.1) Structural Primary Balance (before CoA)	*1.8*	*1.7*	*0.6*	*0.1*	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.3*	*-0.3*
(1.1.2) Cost of ageing						*-0.2*	*-0.5*	*-0.6*	*-0.8*	*-0.9*	*-1.0*	*-1.0*	*-1.1*	*-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*	*-0.1*
(1.2) Cyclical component	***-0.2***	***0.3***	***0.3***	***0.5***	***0.8***	***0.6***	***0.3***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.3***	***0.0***	***0.7***	***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**	**0.1**	**-0.1**	**-0.8**	**-1.1**	**0.2**	**0.5**	**0.6**	**0.2**	**0.2**	**0.3**	**0.3**	**0.3**	**0.3**
(2.1) Interest expenditure	*4.0*	*3.5*	*3.1*	*2.9*	*2.8*	*2.8*	*2.8*	*2.9*	*2.9*	*2.9*	*3.0*	*3.0*	*3.1*	*3.1*
(2.2) Growth effect	*-2.9*	*-2.3*	*-1.5*	*-1.8*	*-1.9*	*-0.9*	*-0.8*	*-0.8*	*-1.2*	*-1.3*	*-1.3*	*-1.3*	*-1.4*	*-1.4*
(2.3) Inflation effect	*-2.5*	*-1.3*	*-1.7*	*-1.9*	*-1.9*	*-1.8*	*-1.6*	*-1.4*	*-1.4*	*-1.4*	*-1.4*	*-1.4*	*-1.4*	*-1.4*
(2.4) Exchange rate effect linked to the interest rate	*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*
(3) Stock flow adjustments	**2.3**	**0.9**	**0.4**	**0.5**	**0.9**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*1.4*	*-1.8*	*0.4*	*0.7*	*0.9*	*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	*0.9*	*2.7*	*0.0*	*-0.2*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-1.3	0.9	-2.6	-2.9	-3.1	-2.9	-2.7	-2.7	-2.5	-2.4	-2.4	-2.4	-2.4	-2.4

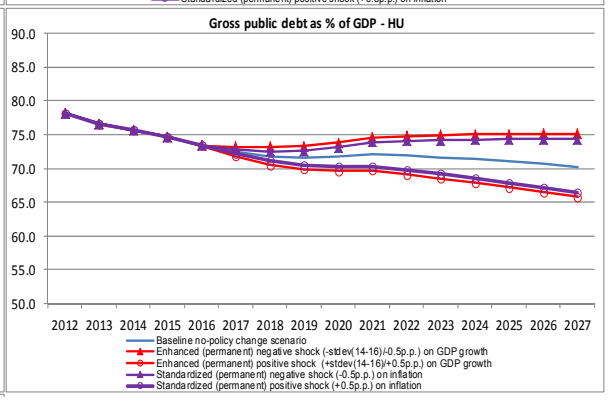


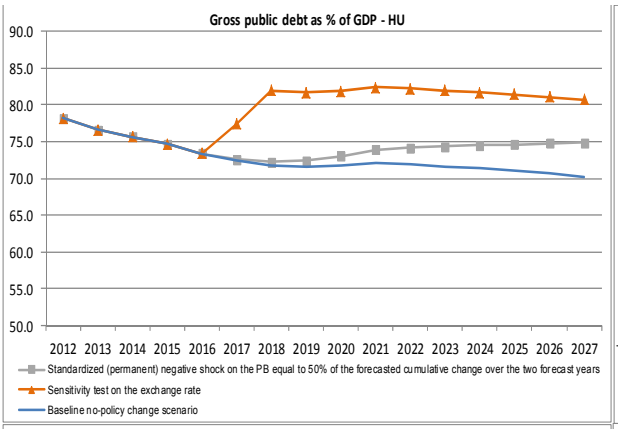


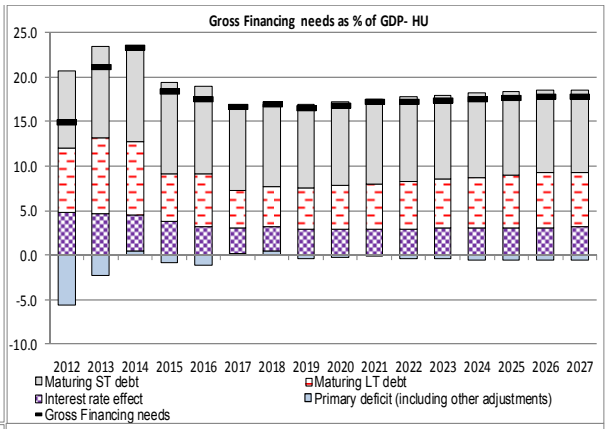


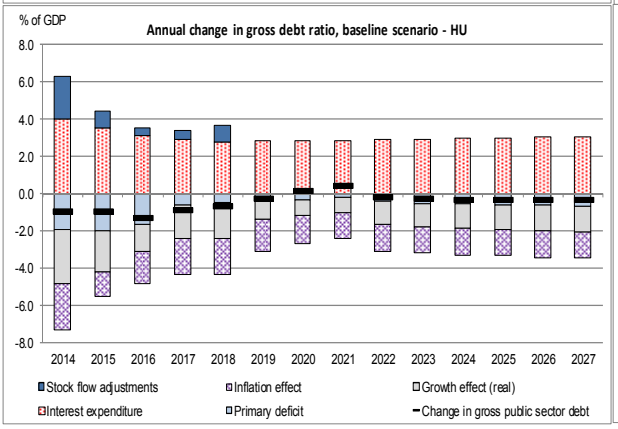


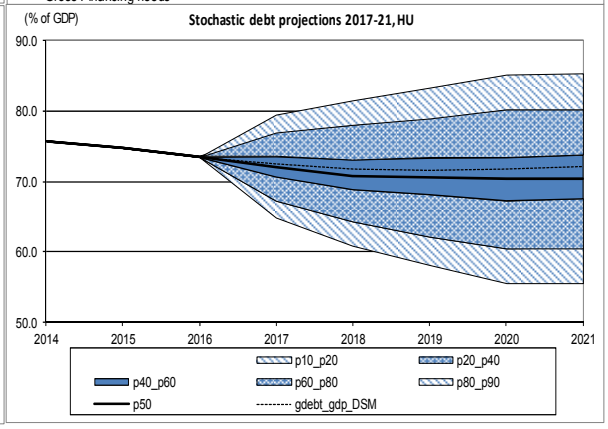












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	20.8	20.3	20.0	19.6	19.4	19.2	19.0	18.8	18.2	18.0
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.74**	**0.31**	**0.46**
Fiscal sub-index	0.56	0.39	0.36
Financial competitiveness sub-index	0.84	0.27	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**0.8**	**2.3**	**1.3**	**-0.7**	**-0.6**
of which *Initial Budgetary position*	*0.7*	*1.5*	*0.7*	*-0.5*	*-0.5*
*Cost of delaying adjustment***	*0.1*	*0.5*	*0.2*	*-0.1*	*-0.1*
*Debt requirement****	*0.9*	*1.4*	*0.9*	*0.5*	*0.9*
Ageing costs	*-0.9*	*-1.1*	*-0.5*	*-0.5*	*-1.0*
Required structural primary balance related to S1	**0.5**	**1.4**	**1.0**	**-0.2**	**0.3**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**2.7**	**3.4**	**5.5**	**2.2**	**1.5**
of which Initial Budgetary position	1.5	2.1	1.5	0.5	0.5
Long term component	1.2	1.3	4.0	1.7	1.0
of which Pensions	*0.4*	*0.5*	*0.4*	*0.8*	*0.3*
Health care	*0.5*	*0.6*	*1.0*	*0.5*	*0.5*
Long-term care	*0.3*	*0.3*	*2.6*	*0.3*	*0.3*
Others	*0.0*	*0.0*	*0.0*	*0.1*	*-0.1*
Required structural primary balance related to S2	**2.3**	**2.4**	**5.2**	**2.7**	**2.4**

Risks related to the structure of public debt financing

Public debt structure - HU (2015):	Share of short-term public debt (p.p.) out of total debt 15.3	Share of public debt by non-residents (%): 48.4	Share of public debt in foreign currency (%): 35.3

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		HU	EU
State guarantees (% GDP) (2014)		7.8	9.2
of which One-off guarantees		*7.5*	*8.8*
Standardised guarantees		*0.3*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** *	:	2.74
	Securities issued under liquidity schemes	:	0.07
	Special purpose entity	:	0.48
	Total	0.00	3.29

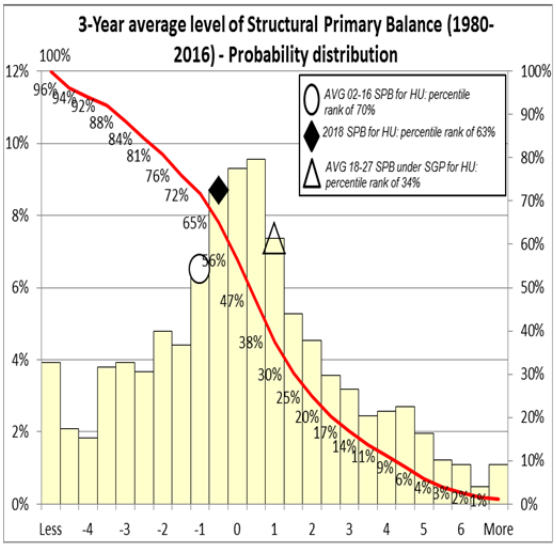
Government's contingent liability risks from banking sector - HU (2015):	Private sector credit flow (% GDP): -3.1	Bank loans-to-deposits ratio (%): 81.4	Share of non-performing loans (%): 14	Change in share of non-performing loans (p.p): -5.4	Change in nominal house price index: 11.7	NPL coverage ratio 60.0	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8% 0.00%	bank recap. at 10.5% 0.00%

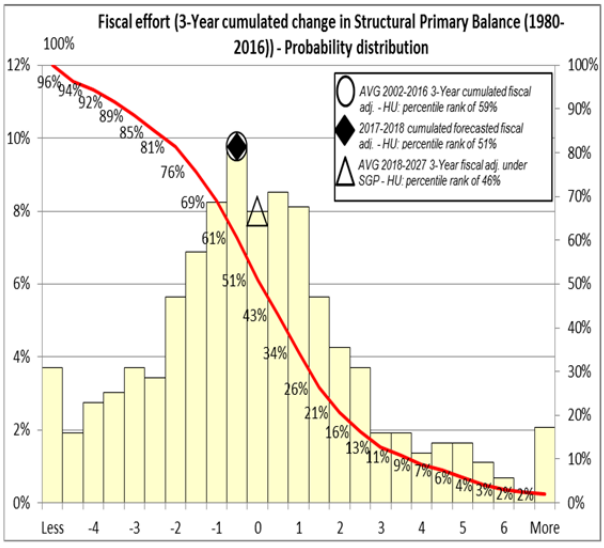
Financial market information

Sovereign Ratings as of Nov 15 2016, HU	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Baa3		Baa3	
S&P	BBB-	A-3	BBB-	A-3
Fitch	BBB-		BBB-	F3

Financial market information as of November 2016, HU		
Sovereign yield spreads(bp)*	10-year	309
CDS (bp)	5-year	115.1

Realism of baseline assumptions





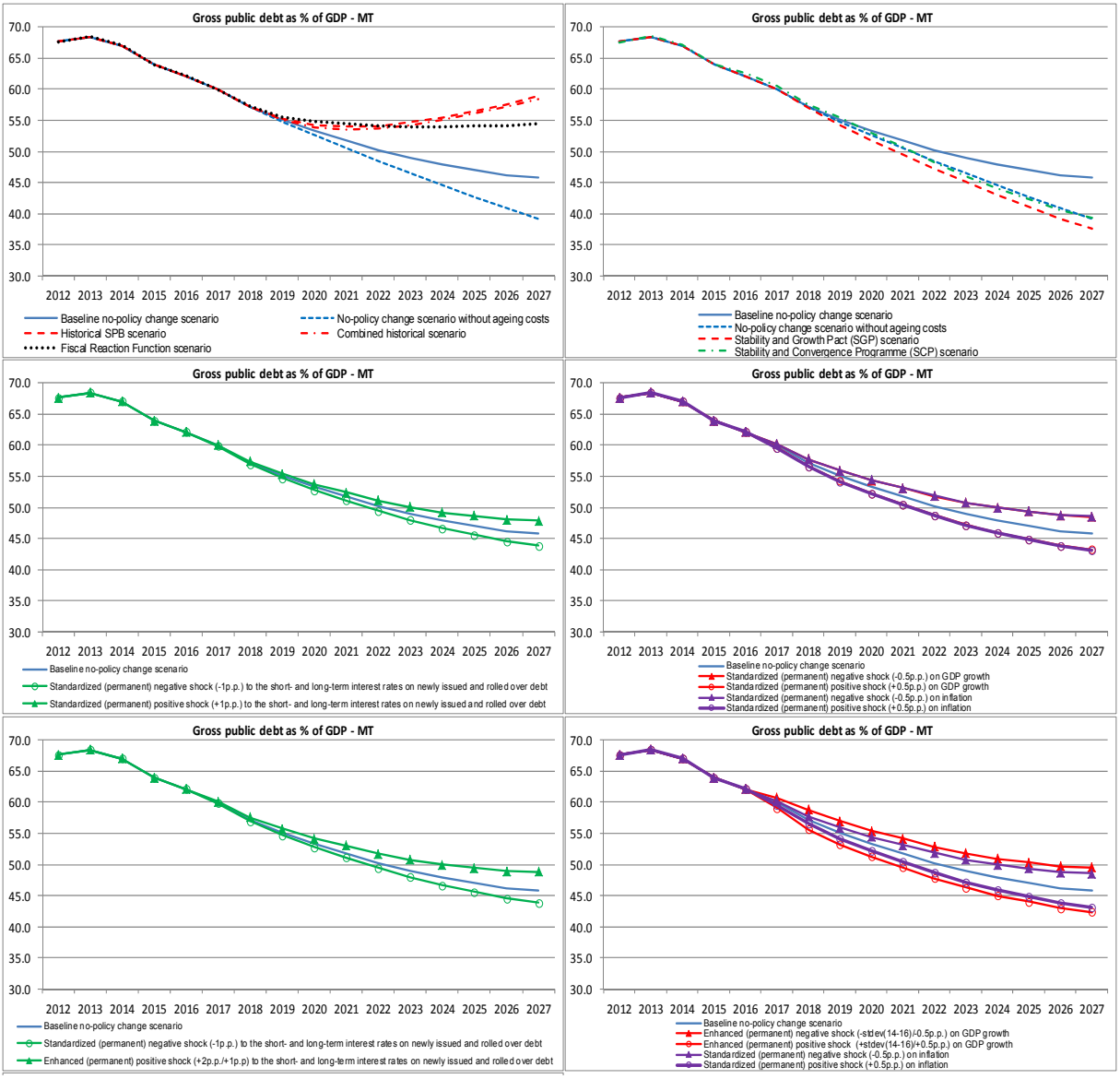
Underlying macro-fiscal assumptions

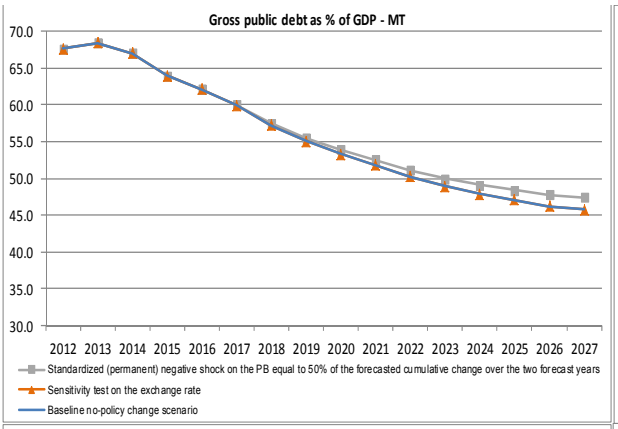
Macro-fiscal assumptions, Hungary													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	2.0	1.6	0.6	0.5	0.4	0.4	0.2	0.4	0.5	0.6	0.6	0.6	0.7
Structural primary balance (before CoA)	1.7	0.6	0.1	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
Real GDP growth	3.1	2.1	2.6	2.8	1.3	1.1	1.2	1.8	1.8	1.9	1.9	2.0	2.0
Potential GDP growth	2.1	2.0	2.2	2.2	1.9	1.7	1.8	1.8	1.8	1.9	1.9	2.0	2.0
Inflation rate	1.7	2.4	2.6	2.8	2.5	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.9	4.4	4.2	4.0	4.1	4.1	4.1	4.2	4.2	4.3	4.4	4.5	4.5
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	2.0	1.6	0.6	0.5	1.0	1.1	1.1	1.1	1.0	0.9	0.8	0.8	0.7
Structural primary balance (before CoA)	1.7	0.6	0.1	-0.3	0.2	0.4	0.6	0.3	0.1	0.0	-0.1	-0.2	-0.3
Real GDP growth	3.1	2.1	2.6	2.8	0.9	1.0	1.1	2.0	2.0	2.0	2.0	2.1	2.1
Potential GDP growth	2.1	2.0	2.2	2.2	1.4	1.5	1.7	2.0	2.0	2.0	2.0	2.1	2.1
Inflation rate	1.7	2.4	2.6	2.8	2.5	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.9	4.4	4.2	4.0	4.1	4.1	4.1	4.2	4.2	4.3	4.4	4.5	4.5
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	2.0	1.6	0.6	1.8	1.9	1.5	1.2	1.2	1.2	1.2	1.2	1.3	1.2
Structural primary balance (before CoA)	1.7	0.6	0.1	0.9	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.3	1.2
Real GDP growth	3.1	2.1	2.6	1.8	1.0	1.2	1.2	1.8	1.8	1.9	1.9	2.0	2.0
Potential GDP growth	2.1	2.0	2.2	1.2	1.6	1.7	1.8	1.8	1.8	1.9	1.9	2.0	2.0
Inflation rate	1.7	2.4	2.6	2.8	2.5	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.9	4.4	4.2	4.0	4.1	4.1	4.1	4.2	4.2	4.3	4.4	4.5	4.5
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.6	1.2	0.6	1.0	1.0	1.1	0.6	0.8	0.9	1.0	1.0	1.1	1.1
Structural primary balance (before CoA)	1.5	0.5	0.5	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Real GDP growth	2.9	2.5	3.1	3.4	3.1	3.2	2.0	2.1	2.1	2.1	2.1	2.1	2.1
Potential GDP growth	2.0	2.4	2.7	2.9	3.0	3.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1
Inflation rate	1.8	1.8	2.7	2.8	2.6	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.8	4.3	4.1	3.9	3.7	3.6	3.5	3.6	3.7	3.8	4.1	4.4	4.5
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	2.0	1.6	0.6	0.5	0.3	0.1	-0.2	-0.1	-0.1	0.0	0.0	0.1	0.1
Structural primary balance (before CoA)	1.7	0.6	0.1	-0.3	-0.5	-0.6	-0.8	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9
Real GDP growth	3.1	2.1	2.6	2.8	1.4	1.2	1.3	1.9	1.8	1.9	1.9	2.0	2.0
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	2.0	1.6	0.6	0.5	0.3	0.1	-0.2	-0.1	-0.1	0.0	0.0	0.1	0.1
Structural primary balance (before CoA)	1.7	0.6	0.1	-0.3	-0.5	-0.6	-0.8	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9
Real GDP growth	3.1	2.1	2.6	2.8	2.6	2.4	2.1	1.9	1.8	1.8	1.8	1.8	1.8
Implicit interest rate (nominal)	4.9	4.4	4.2	4.0	4.1	4.1	4.2	4.2	4.3	4.3	4.4	4.4	4.4
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	4.9	4.4	4.5	4.3	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	4.9	4.4	4.0	3.7	3.7	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.7
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	4.9	4.4	4.7	4.7	4.9	4.8	4.9	4.9	5.0	5.1	5.2	5.4	5.4
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.1	2.1	3.1	3.3	1.8	1.6	1.7	2.3	2.3	2.4	2.4	2.5	2.5
Potential GDP growth	2.1	2.0	2.7	2.7	2.4	2.2	2.3	2.3	2.3	2.4	2.4	2.5	2.5
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.1	2.1	2.1	2.3	0.8	0.6	0.7	1.3	1.3	1.4	1.4	1.5	1.5
Potential GDP growth	2.1	2.0	1.7	1.7	1.4	1.2	1.3	1.3	1.3	1.4	1.4	1.5	1.5
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.1	2.1	3.6	3.7	1.8	1.6	1.7	2.3	2.3	2.4	2.4	2.5	2.5
Potential GDP growth	2.1	2.0	3.2	3.2	2.4	2.2	2.3	2.3	2.3	2.4	2.4	2.5	2.5
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.1	2.1	1.6	1.8	0.8	0.6	0.7	1.3	1.3	1.4	1.4	1.5	1.5
Potential GDP growth	2.1	2.0	1.2	1.2	1.4	1.2	1.3	1.3	1.3	1.4	1.4	1.5	1.5
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	1.7	2.4	3.1	3.3	3.0	2.8	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	1.7	2.4	2.1	2.3	2.0	1.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	2.0	1.6	0.4	0.0	0.0	-0.1	-0.3	0.0	0.1	0.1	0.2	0.2	0.2
Structural primary balance (before CoA)	1.7	0.6	-0.1	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8
Real GDP growth	3.1	2.1	2.7	3.0	1.3	1.1	1.2	1.8	1.8	1.9	1.9	2.0	2.0
Potential GDP growth	2.1	2.0	2.3	2.4	1.9	1.7	1.8	1.8	1.8	1.9	1.9	2.0	2.0
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	11.5%	11.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	4.9	4.4	4.2	4.0	4.1	4.1	4.1	4.2	4.2	4.3	4.4	4.5	4.5

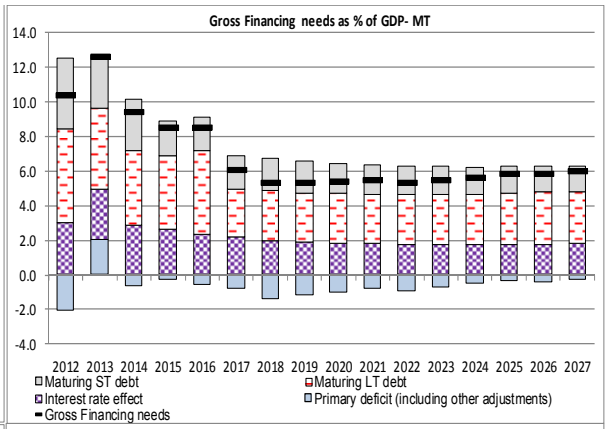
17. Malta

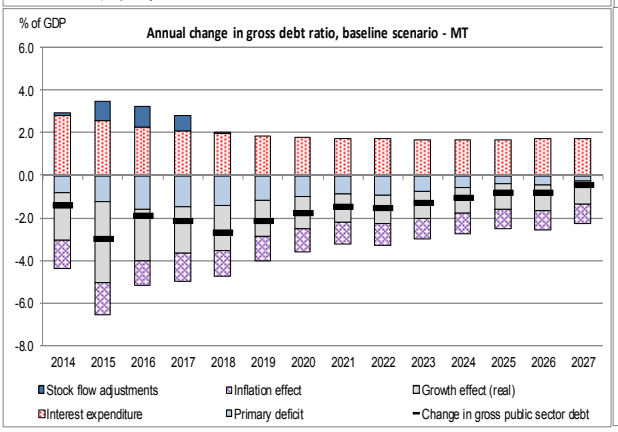
Public debt projections under baseline and alternative scenarios and sensitivity tests

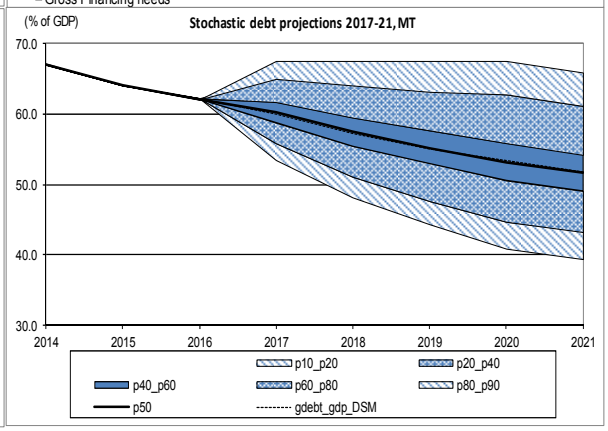
MT - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**67.0**	**64.0**	**62.1**	**59.9**	**57.2**	**55.0**	**53.3**	**51.8**	**50.2**	**48.9**	**47.9**	**47.1**	**46.2**	**45.8**
Changes in the ratio (-1+2+3)	*-1.4*	*-3.0*	*-1.9*	*-2.2*	*-2.7*	*-2.2*	*-1.8*	*-1.5*	*-1.5*	*-1.3*	*-1.1*	*-0.8*	*-0.8*	*-0.5*
of which														
(1) Primary balance (1.1+1.2+1.3)	**0.8**	**1.2**	**1.6**	**1.5**	**1.4**	**1.2**	**1.0**	**0.8**	**0.9**	**0.7**	**0.6**	**0.4**	**0.5**	**0.3**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***0.0***	***0.4***	***1.1***	***1.4***	***1.5***	***1.2***	***1.1***	***0.8***	***0.9***	***0.7***	***0.6***	***0.4***	***0.5***	***0.3***
(1.1.1) Structural Primary Balance (before CoA)	*0.0*	*0.4*	*1.1*	*1.4*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*
(1.1.2) Cost of ageing						*0.2*	*0.4*	*0.6*	*0.5*	*0.7*	*0.9*	*1.1*	*1.0*	*1.2*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.2) Cyclical component	***0.2***	***0.7***	***0.4***	***0.0***	***-0.1***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.5***	***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)	**-0.7**	**-2.7**	**-1.3**	**-1.4**	**-1.3**	**-1.0**	**-0.8**	**-0.6**	**-0.6**	**-0.6**	**-0.5**	**-0.4**	**-0.4**	**-0.2**
(2.1) Interest expenditure	*2.9*	*2.6*	*2.3*	*2.1*	*2.0*	*1.9*	*1.8*	*1.8*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.8*
(2.2) Growth effect	*-2.2*	*-3.8*	*-2.5*	*-2.1*	*-2.1*	*-1.7*	*-1.5*	*-1.3*	*-1.3*	*-1.3*	*-1.2*	*-1.2*	*-1.2*	*-1.0*
(2.3) Inflation effect	*-1.3*	*-1.5*	*-1.1*	*-1.4*	*-1.2*	*-1.1*	*-1.1*	*-1.0*	*-1.0*	*-1.0*	*-1.0*	*-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	**0.1**	**0.9**	**1.0**	**0.7**	**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*	*0.9*	*1.0*	*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	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-2.8	-2.2	-1.1	-0.7	-0.5	-0.6	-0.8	-0.9	-0.8	-1.0	-1.1	-1.3	-1.3	-1.5











Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	22.6	22.6	22.5	22.6	22.7	22.6	22.8	23.0	23.7	24.3
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.45**	**0.15**	**0.46**
Fiscal sub-index	0.20	0.00	0.36
Financial competitiveness sub-index	0.58	0.22	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**-1.2**	**1.1**	**-0.9**	**-2.6**	**-0.2**
of which *Initial Budgetary position*	*-1.8*	*0.3*	*-1.8*	*-2.5*	*-1.0*
*Cost of delaying adjustment***	*-0.2*	*0.2*	*-0.1*	*-0.5*	*0.0*
*Debt requirement****	*-0.2*	*-0.7*	*-0.2*	*-0.4*	*0.1*
Ageing costs	*1.0*	*1.2*	*1.3*	*0.8*	*0.8*
Required structural primary balance related to S1	**0.2**	**0.7**	**0.6**	**-0.4**	**0.6**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**4.0**	**6.1**	**5.6**	**3.1**	**4.6**
of which Initial Budgetary position	-0.8	1.1	-0.8	-1.5	-0.1
Long term component	4.8	5.0	6.4	4.7	4.7
of which Pensions	*2.1*	*2.2*	*2.1*	*2.0*	*1.9*
Health care	*1.4*	*1.5*	*2.1*	*1.4*	*1.5*
Long-term care	*0.9*	*0.9*	*1.8*	*0.9*	*0.9*
Others	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*
Required structural primary balance related to S2	**5.5**	**5.6**	**7.1**	**5.3**	**5.4**

Risks related to the structure of public debt financing

Public debt structure - MT (2015):	Share of short-term public debt (p.p.) out of total debt	Share of public debt by non-residents (%):	Share of public debt in foreign currency (%):
	5.8	8.8	0

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		MT	**EU**
State guarantees (% GDP) (2014)		16.8	9.2
of which One-off guarantees		*16.8*	*8.8*
Standardised guarantees		:	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** *	:	**2.74**
	Securities issued under liquidity schemes	:	**0.07**
	Special purpose entity	:	**0.48**
	Total	**0.00**	**3.29**

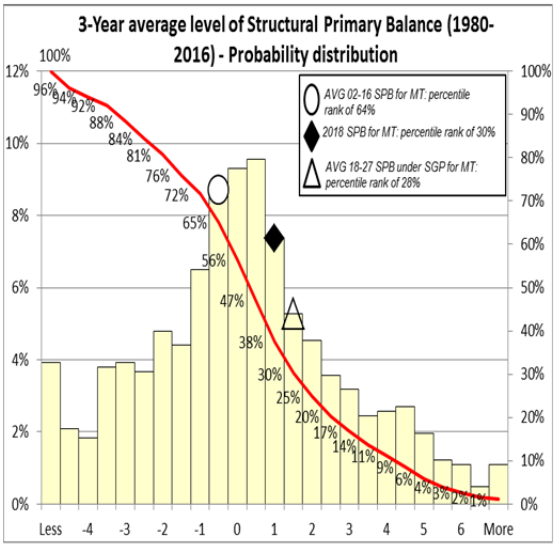
Government's contingent liability risks from banking sector - MT (2015):	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	Change in nominal house price index:	NPL coverage ratio	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8%	bank recap. at 10.5%
	3	57.2	2.9	-0.3	3.5	35.9	0.06%	0.17%

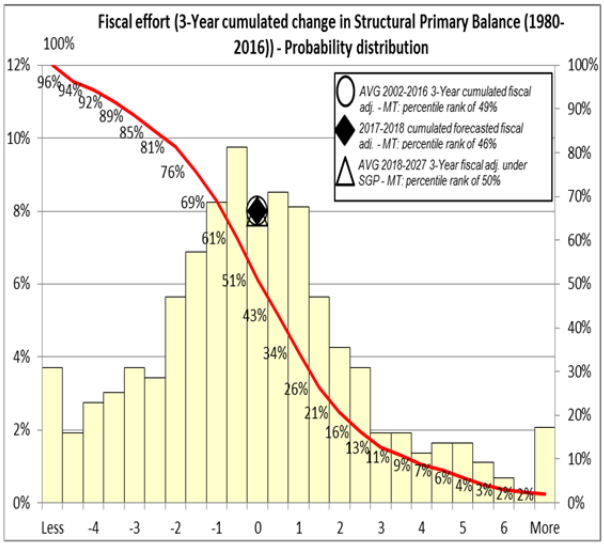
Financial market information

Sovereign Ratings as of Nov 15 2016, MT	**Local currency**		**Foreign currency**	
	long term	**short term**	**long term**	**short term**
Moody's	A3			
S&P	A-	A-2	A-	A-2
Fitch	A		A	F1

Financial market information as of November 2016, MT		
Sovereign yield spreads(bp)*	**10-year**	83.3
CDS (bp)	**5-year**	n.a.

Realism of baseline assumptions





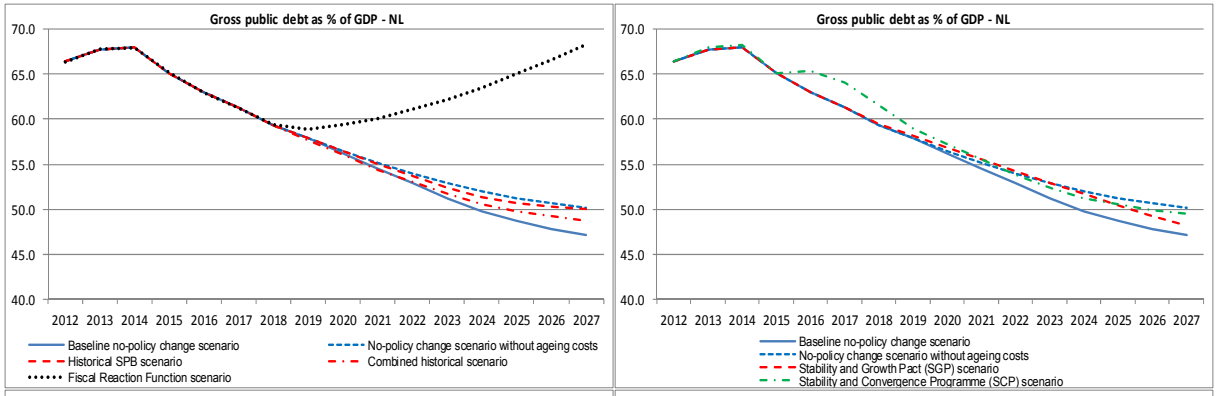
Underlying macro-fiscal assumptions

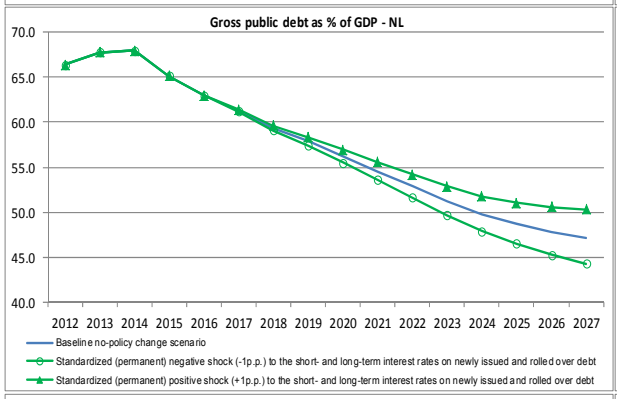
Macro-fiscal assumptions, Malta													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.2	1.6	1.5	1.4	1.2	1.0	0.8	0.9	0.7	0.6	0.4	0.5	0.3
Structural primary balance (before CoA)	0.4	1.1	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Real GDP growth	6.2	4.1	3.7	3.7	3.2	2.8	2.6	2.6	2.7	2.7	2.6	2.6	2.4
Potential GDP growth	5.0	4.7	4.5	4.1	3.1	2.7	2.6	2.6	2.7	2.7	2.6	2.6	2.4
Inflation rate	2.3	1.8	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.2	3.8	3.6	3.5	3.5	3.4	3.4	3.5	3.5	3.6	3.7	3.9	4.0
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.2	1.6	1.5	1.4	0.3	-0.1	-0.3	-0.4	-0.4	-0.5	-0.5	-0.5	-0.5
Structural primary balance (before CoA)	0.4	1.1	1.4	1.5	0.6	0.3	0.3	0.1	0.3	0.5	0.6	0.5	0.7
Real GDP growth	6.2	4.1	3.7	3.7	3.8	3.0	2.7	2.8	2.5	2.5	2.5	2.7	2.2
Potential GDP growth	5.0	4.7	4.5	4.1	3.7	2.9	2.6	2.8	2.5	2.5	2.5	2.7	2.2
Inflation rate	2.3	1.8	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.2	3.8	3.6	3.5	3.5	3.4	3.4	3.5	3.5	3.6	3.8	3.9	4.0
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.2	1.6	1.5	1.7	1.8	1.7	1.7	1.6	1.6	1.5	1.5	1.5	1.5
Structural primary balance (before CoA)	0.4	1.1	1.4	1.8	1.9	1.8	1.7	1.6	1.6	1.5	1.5	1.5	1.5
Real GDP growth	6.2	4.1	3.7	3.5	3.1	2.9	2.7	2.7	2.7	2.7	2.7	2.6	2.4
Potential GDP growth	5.0	4.7	4.5	3.8	3.0	2.8	2.6	2.7	2.7	2.7	2.7	2.6	2.4
Inflation rate	2.3	1.8	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.2	3.8	3.6	3.5	3.5	3.4	3.5	3.5	3.5	3.6	3.7	3.8	3.9
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.1	1.6	1.6	1.9	2.1	2.0	1.8	1.9	1.7	1.5	1.3	1.4	1.2
Structural primary balance (before CoA)	0.3	0.8	1.3	1.8	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Real GDP growth	6.3	4.2	3.1	2.9	2.4	2.7	2.9	2.9	2.9	2.9	2.9	2.6	2.2
Potential GDP growth	4.5	4.2	4.2	3.4	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.6	2.2
Inflation rate	2.3	2.6	2.5	1.9	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.2	3.9	3.8	3.8	3.8	3.9	3.9	3.9	3.9	4.0	4.0	4.0	4.1
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.2	1.6	1.5	1.4	0.7	0.1	-0.5	-0.9	-1.1	-1.3	-1.5	-1.4	-1.6
Structural primary balance (before CoA)	0.4	1.1	1.4	1.5	1.0	0.5	0.1	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Real GDP growth	6.2	4.1	3.7	3.7	3.5	3.1	3.0	3.0	2.7	2.7	2.6	2.6	2.4
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.2	1.6	1.5	1.4	0.7	0.1	-0.5	-0.9	-1.1	-1.3	-1.5	-1.4	-1.6
Structural primary balance (before CoA)	0.4	1.1	1.4	1.5	1.0	0.5	0.1	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Real GDP growth	6.2	4.1	3.7	3.7	3.8	3.6	3.3	3.1	2.8	2.8	2.8	2.8	2.8
Implicit interest rate (nominal)	4.2	3.8	3.6	3.5	3.5	3.5	3.5	3.7	3.8	3.9	4.0	4.1	4.1
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	4.2	3.8	3.8	3.7	3.7	3.7	3.8	3.9	4.0	4.1	4.3	4.5	4.6
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	4.2	3.8	3.5	3.3	3.2	3.1	3.1	3.1	3.1	3.1	3.2	3.3	3.3
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	4.2	3.8	3.9	3.9	4.0	3.9	4.0	4.1	4.1	4.3	4.4	4.6	4.7
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	6.2	4.1	4.2	4.2	3.7	3.3	3.1	3.1	3.2	3.2	3.1	3.1	2.9
Potential GDP growth	5.0	4.7	5.0	4.6	3.6	3.2	3.1	3.1	3.2	3.2	3.1	3.1	2.9
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	6.2	4.1	3.2	3.2	2.7	2.3	2.1	2.1	2.2	2.2	2.1	2.1	1.9
Potential GDP growth	5.0	4.7	4.0	3.6	2.6	2.2	2.1	2.1	2.2	2.2	2.1	2.1	1.9
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	6.2	4.1	5.1	5.1	3.7	3.3	3.1	3.1	3.2	3.2	3.1	3.1	2.9
Potential GDP growth	5.0	4.7	5.9	5.5	3.6	3.2	3.1	3.1	3.2	3.2	3.1	3.1	2.9
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	6.2	4.1	2.3	2.3	2.7	2.3	2.1	2.1	2.2	2.2	2.1	2.1	1.9
Potential GDP growth	5.0	4.7	3.1	2.6	2.6	2.2	2.1	2.1	2.2	2.2	2.1	2.1	1.9
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	2.3	1.8	2.7	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	2.3	1.8	1.7	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.2	1.6	1.3	1.2	1.0	0.8	0.7	0.8	0.6	0.4	0.2	0.3	0.1
Structural primary balance (before CoA)	0.4	1.1	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Real GDP growth	6.2	4.1	3.8	3.7	3.2	2.8	2.6	2.6	2.7	2.7	2.6	2.6	2.4
Potential GDP growth	5.0	4.7	4.7	4.0	3.1	2.7	2.6	2.6	2.7	2.7	2.6	2.6	2.4
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	4.2	3.8	3.6	3.5	3.5	3.4	3.4	3.5	3.5	3.6	3.7	3.9	4.0

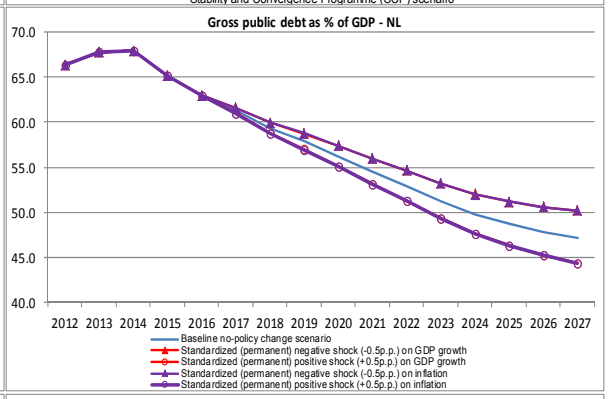
18. Netherlands

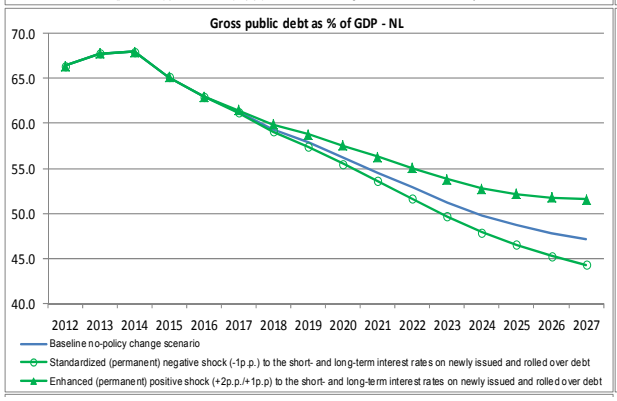
Public debt projections under baseline and alternative scenarios and sensitivity tests

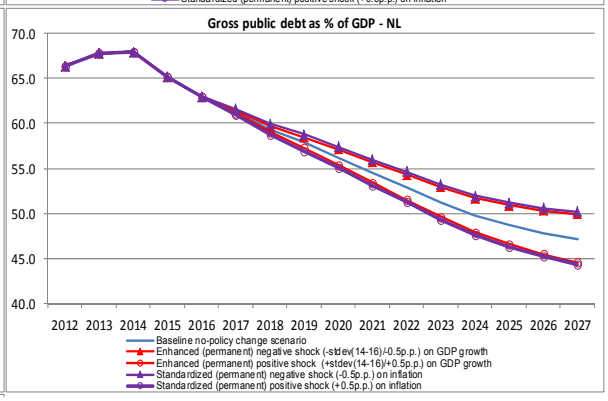
NL - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**67.9**	**65.1**	**63.0**	**61.3**	**59.3**	**57.8**	**56.2**	**54.5**	**52.9**	**51.2**	**49.8**	**48.7**	**47.8**	**47.2**
Changes in the ratio (-1+2+3)	*0.2*	*-2.8*	*-2.2*	*-1.7*	*-1.9*	*-1.5*	*-1.6*	*-1.7*	*-1.6*	*-1.7*	*-1.5*	*-1.1*	*-0.9*	*-0.7*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-0.8**	**-0.6**	**0.3**	**0.7**	**0.8**	**0.8**	**1.0**	**1.1**	**1.3**	**1.4**	**1.3**	**1.0**	**1.0**	**0.8**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***0.7***	***0.1***	***0.6***	***0.8***	***0.9***	***0.9***	***1.0***	***1.1***	***1.3***	***1.4***	***1.3***	***1.0***	***1.0***	***0.8***
(1.1.1) Structural Primary Balance (before CoA)	*0.7*	*0.1*	*0.6*	*0.8*	*0.9*	*0.9*	*0.9*	*0.9*	*0.9*	*0.9*	*0.9*	*0.9*	*0.9*	*0.9*
(1.1.2) Cost of ageing						*0.0*	*-0.1*	*-0.2*	*-0.3*	*-0.4*	*-0.2*	*0.0*	*0.1*	*0.2*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.2*	*0.1*	*0.2*	*0.2*
(1.2) Cyclical component	***-1.5***	***-0.8***	***-0.5***	***-0.3***	***-0.1***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-0.1***	***0.1***	***0.2***	***0.3***	***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)	**0.4**	**-0.1**	**-0.1**	**-0.8**	**-0.9**	**-0.7**	**-0.6**	**-0.5**	**-0.4**	**-0.3**	**-0.2**	**0.0**	**0.1**	**0.2**
(2.1) Interest expenditure	*1.4*	*1.3*	*1.1*	*1.0*	*0.9*	*0.9*	*1.0*	*1.1*	*1.1*	*1.2*	*1.3*	*1.4*	*1.5*	*1.5*
(2.2) Growth effect	*-0.9*	*-1.3*	*-1.1*	*-1.0*	*-1.0*	*-0.7*	*-0.6*	*-0.5*	*-0.4*	*-0.5*	*-0.5*	*-0.4*	*-0.4*	*-0.4*
(2.3) Inflation effect	*-0.1*	*-0.1*	*-0.2*	*-0.7*	*-0.8*	*-0.9*	*-1.0*	*-1.1*	*-1.1*	*-1.0*	*-1.0*	*-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	**-1.0**	**-3.4**	**-1.7**	**-0.2**	**-0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-1.0*	*-3.5*	*-1.7*	*-0.2*	*-0.2*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-0.7	-1.1	-0.5	-0.2	0.0	0.0	0.0	0.1	0.1	0.2	0.0	-0.4	-0.5	-0.7

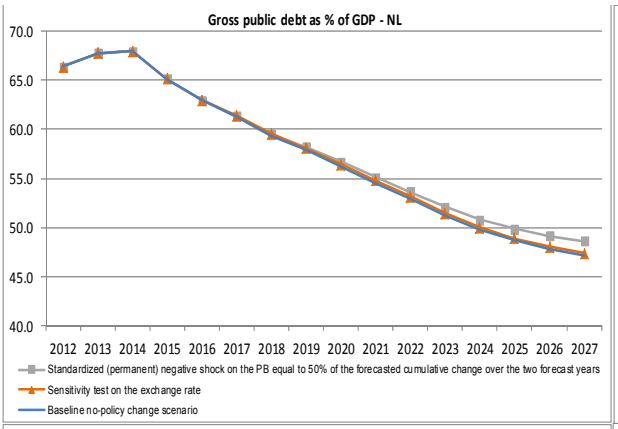


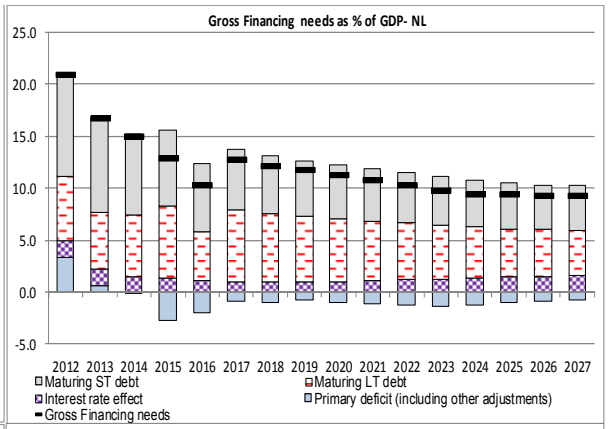


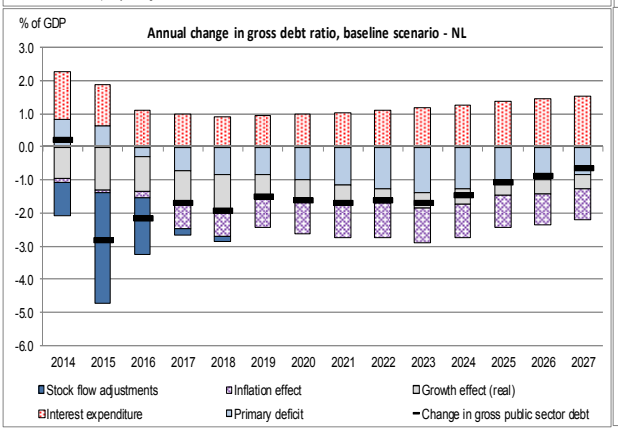


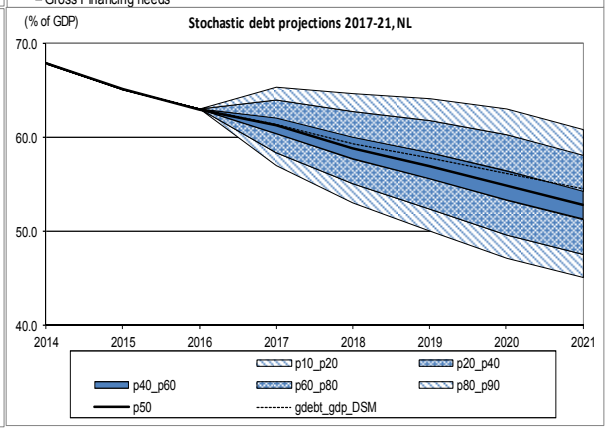












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	25.4	26.2	25.8	25.7	25.4	25.3	25.3	25.2	25.3	26.3
Revenues from pensions taxation	2.8	2.9	3.0	3.0	3.0	3.0	3.0	3.0	3.2	3.7
Property incomes	3.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.1	1.9

Sustainability indicators

S0 indicator	**2009**	**2016**	**Critical threshold**
Overall index	**0.41**	**0.20**	**0.46**
Fiscal sub-index	0.57	0.00	0.36
Financial competitiveness sub-index	0.33	0.31	0.49

S1 indicator	**COM no-policy change scenario**	**Historical SPB scenario**	**AWG risk scenario**	**SCP scenario**	**2015 Sustainability Report**
Overall index	**-1.1**	**-1.2**	**-0.9**	**-1.1**	**0.6**
of which *Initial Budgetary position*	*-0.7*	*-0.1*	*-0.7*	*-0.6*	*0.3*
*Cost of delaying adjustment***	*-0.2*	*-0.3*	*-0.1*	*-0.2*	*0.1*
*Debt requirement****	*0.0*	*-0.7*	*0.0*	*-0.1*	*0.5*
Ageing costs	*-0.2*	*-0.1*	*0.0*	*-0.2*	*-0.3*
Required structural primary balance related to S1	**-0.3**	**-0.7**	**-0.1**	**-0.4**	**0.2**

S2 indicator	**COM no-policy change scenario**	**Historical SPB scenario**	**AWG risk scenario**	**SCP scenario**	**2015 Sustainability Report**
Overall index	**3.1**	**3.7**	**3.9**	**3.5**	**4.5**
of which Initial Budgetary position	0.8	1.2	0.8	1.0	2.3
Long term component	2.4	2.5	3.1	2.5	2.3
of which Pensions	*0.1*	*0.2*	*0.1*	*0.2*	*0.1*
Health care	*0.6*	*0.7*	*1.0*	*0.6*	*0.7*
Long-term care	*2.6*	*2.8*	*2.9*	*2.6*	*2.7*
Others	*-1.1*	*-1.1*	*-1.0*	*-0.9*	*-1.2*
Required structural primary balance related to S2	**4.0**	**4.3**	**4.8**	**4.2**	**4.2**

Risks related to the structure of public debt financing

Public debt structure - NL (2015):	Share of short-term public debt (p.p.) out of total debt	Share of public debt by non-residents (%):	Share of public debt in foreign currency (%):
	9.8	47.4	1

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015		NL	EU
State guarantees (% GDP) (2014)		4.0	9.2
of which One-off guarantees		*3.6*	*8.8*
Standardised guarantees		*0.4*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee [a]	0.00	2.74
	Securities issued under liquidity schemes	0.00	0.07
	Special purpose entity	0.00	0.48
	Total	0.00	3.29

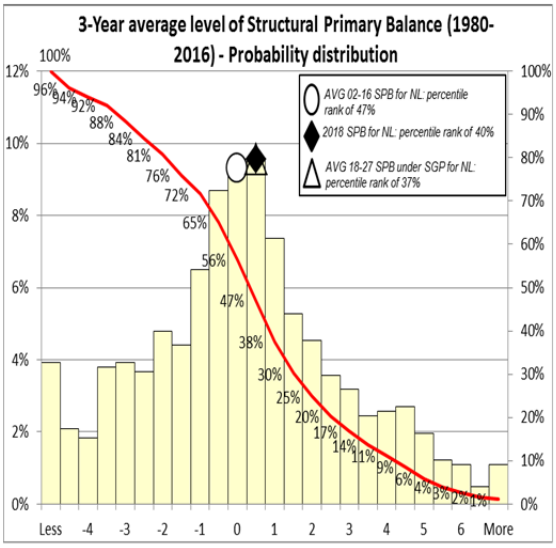
Government's contingent liability risks from banking sector - NL (2015):	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	Change in nominal house price index:	NPL coverage ratio	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):	
							bank recap. at 8%	bank recap. at 10.5%
	-1.6	130.1	2.8	-0.5	3.6	37.7	0.03%	0.07%

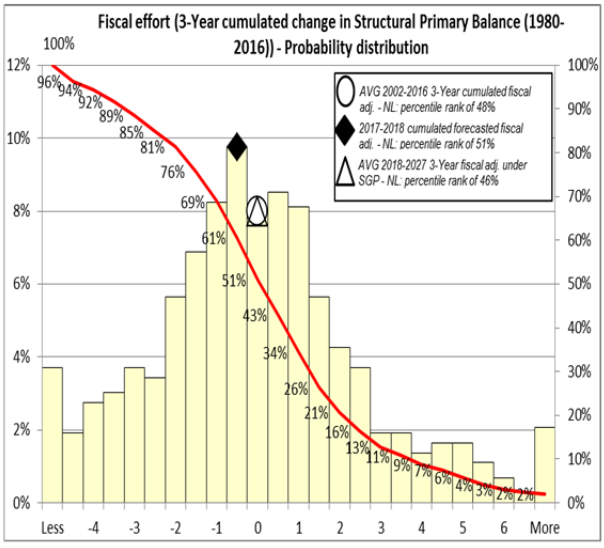
Financial market information

Sovereign Ratings as of Nov 15 2016, NL	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aaa		Aaa	P-1
S&P	AAA	A-1+	AAA	A-1+
Fitch	AAA		AAA	

Financial market information as of November 2016, NL		
Sovereign yield spreads(bp)*	10-year	18
CDS (bp)	5-year	25.7

Realism of baseline assumptions





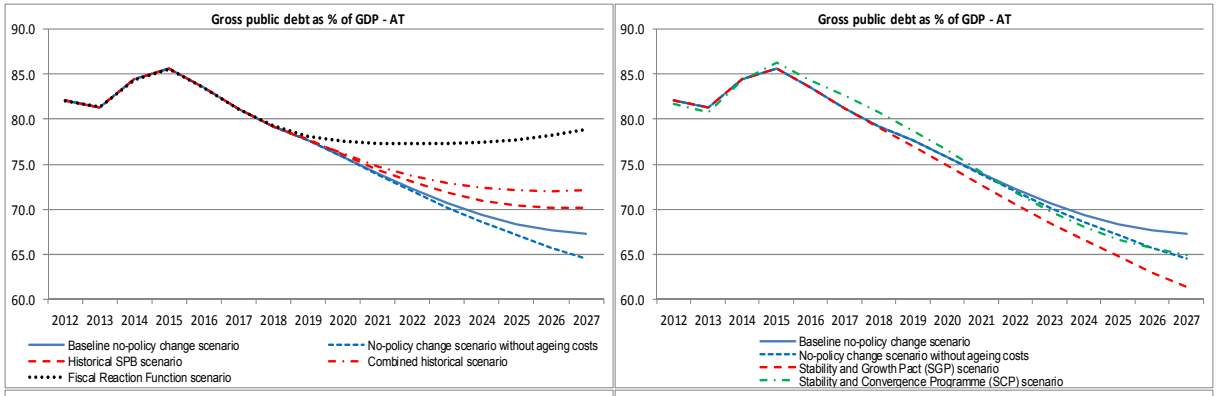
Underlying macro-fiscal assumptions

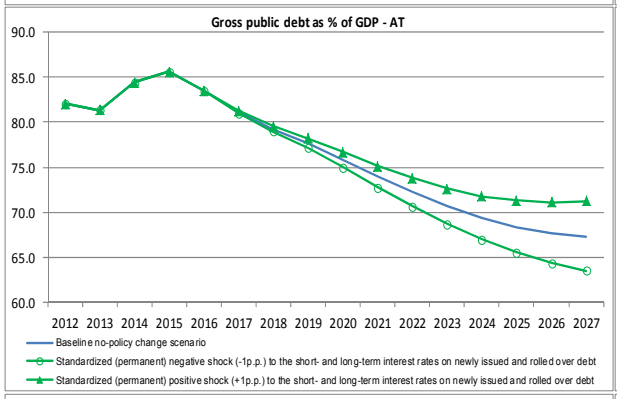
Macro-fiscal assumptions, Netherlands													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.6	0.3	0.7	0.8	0.8	1.0	1.1	1.3	1.4	1.3	1.0	1.0	0.8
Structural primary balance (before CoA)	0.1	0.6	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Real GDP growth	2.0	1.7	1.7	1.8	1.2	1.1	0.9	0.8	0.9	0.9	0.9	0.9	0.9
Potential GDP growth	0.9	1.2	1.4	1.4	1.1	1.0	0.8	0.8	0.9	0.9	0.9	0.9	0.9
Inflation rate	0.1	0.3	1.2	1.3	1.5	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.9	1.7	1.6	1.5	1.6	1.8	1.9	2.1	2.3	2.6	2.8	3.1	3.3
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.6	0.3	0.7	0.8	-1.0	-1.3	-1.4	-1.4	-1.4	-1.3	-1.3	-1.2	-1.1
Structural primary balance (before CoA)	0.1	0.6	0.8	0.9	-0.9	-1.4	-1.7	-1.8	-1.9	-1.8	-1.4	-1.3	-1.1
Real GDP growth	2.0	1.7	1.7	1.8	2.6	1.4	1.1	0.9	1.0	0.8	0.7	0.8	0.7
Potential GDP growth	0.9	1.2	1.4	1.4	2.5	1.4	1.0	0.9	1.0	0.8	0.7	0.8	0.7
Inflation rate	0.1	0.3	1.2	1.3	1.5	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.9	1.7	1.6	1.5	1.6	1.8	2.0	2.2	2.5	2.8	3.1	3.4	3.6
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.6	0.3	0.7	0.7	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4
Structural primary balance (before CoA)	0.1	0.6	0.8	0.7	0.7	0.8	0.8	0.9	1.0	1.1	1.2	1.3	1.4
Real GDP growth	2.0	1.7	1.7	1.9	1.2	1.1	0.9	0.7	0.8	0.9	0.8	0.8	0.9
Potential GDP growth	0.9	1.2	1.4	1.6	1.1	1.0	0.8	0.7	0.8	0.9	0.8	0.8	0.9
Inflation rate	0.1	0.3	1.2	1.3	1.5	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.9	1.7	1.6	1.5	1.6	1.8	1.9	2.1	2.4	2.6	2.9	3.2	3.3
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.6	-0.5	0.0	0.6	1.0	0.8	0.9	1.0	1.2	1.0	0.8	0.7	0.6
Structural primary balance (before CoA)	0.4	-0.2	0.2	0.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Real GDP growth	2.0	1.8	2.0	1.9	1.8	1.0	1.0	1.0	1.1	1.1	1.1	1.0	1.0
Potential GDP growth	0.6	1.1	1.3	1.6	1.5	1.0	1.0	1.0	1.1	1.1	1.1	1.0	1.0
Inflation rate	0.5	1.1	0.9	1.4	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	0.7	0.6	0.6	0.8	1.2	1.4	1.6	1.9	2.5	3.0	3.2	3.3	3.5
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.6	0.3	0.7	0.8	0.7	0.8	0.8	0.9	1.0	0.9	0.6	0.6	0.5
Structural primary balance (before CoA)	0.1	0.6	0.8	0.9	0.8	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.5
Real GDP growth	2.0	1.7	1.7	1.8	1.3	1.2	1.0	0.9	0.9	0.9	0.9	0.9	0.9
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.6	0.3	0.7	0.8	0.7	0.8	0.8	0.9	1.0	0.9	0.6	0.6	0.5
Structural primary balance (before CoA)	0.1	0.6	0.8	0.9	0.8	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.5
Real GDP growth	2.0	1.7	1.7	1.8	1.7	1.6	1.5	1.3	1.2	1.2	1.2	1.2	1.2
Implicit interest rate (nominal)	1.9	1.7	1.6	1.5	1.6	1.8	2.1	2.4	2.6	2.8	3.0	3.2	3.3
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	1.9	1.7	1.8	1.8	2.0	2.2	2.4	2.7	3.0	3.3	3.6	3.9	4.2
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	1.9	1.7	1.4	1.2	1.3	1.3	1.4	1.6	1.7	1.9	2.1	2.4	2.5
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	1.9	1.7	1.9	2.1	2.4	2.4	2.7	2.9	3.1	3.4	3.7	4.0	4.3
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	2.0	1.7	2.2	2.3	1.7	1.6	1.4	1.3	1.4	1.4	1.4	1.4	1.4
Potential GDP growth	0.9	1.2	1.9	1.9	1.6	1.5	1.3	1.3	1.4	1.4	1.4	1.4	1.4
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	2.0	1.7	1.2	1.3	0.7	0.6	0.4	0.3	0.4	0.4	0.4	0.4	0.4
Potential GDP growth	0.9	1.2	0.9	0.9	0.6	0.5	0.3	0.3	0.4	0.4	0.4	0.4	0.4
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	2.0	1.7	1.9	2.0	1.7	1.6	1.4	1.3	1.4	1.4	1.4	1.4	1.4
Potential GDP growth	0.9	1.2	1.6	1.7	1.6	1.5	1.3	1.3	1.4	1.4	1.4	1.4	1.4
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	2.0	1.7	1.4	1.5	0.7	0.6	0.4	0.3	0.4	0.4	0.4	0.4	0.4
Potential GDP growth	0.9	1.2	1.1	1.2	0.6	0.5	0.3	0.3	0.4	0.4	0.4	0.4	0.4
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.1	0.3	1.7	1.8	2.0	2.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.1	0.3	0.7	0.8	1.0	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.6	0.3	0.6	0.7	0.7	0.9	1.0	1.1	1.2	1.1	0.9	0.8	0.7
Structural primary balance (before CoA)	0.1	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Real GDP growth	2.0	1.7	1.7	1.8	1.2	1.1	0.9	0.8	0.9	0.9	0.9	0.9	0.9
Potential GDP growth	0.9	1.2	1.5	1.5	1.1	1.0	0.8	0.8	0.9	0.9	0.9	0.9	0.9
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	1.9	1.7	1.6	1.5	1.6	1.8	1.9	2.1	2.3	2.6	2.8	3.1	3.3

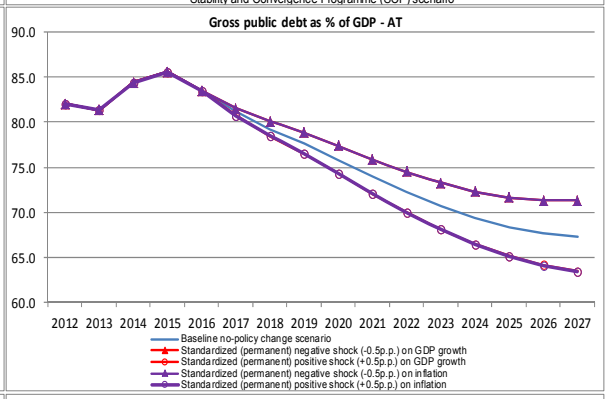
19. Austria

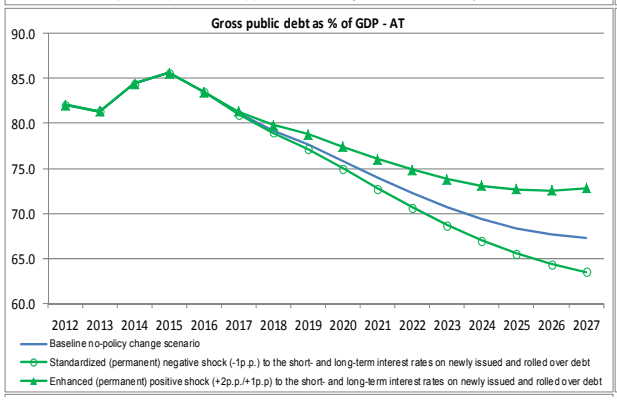
Public debt projections under baseline and alternative scenarios and sensitivity tests

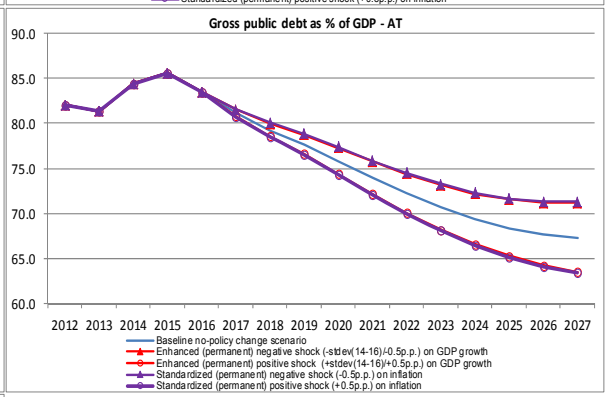
AT - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**84.4**	**85.5**	**83.5**	**81.1**	**79.2**	**77.7**	**75.8**	**73.9**	**72.2**	**70.6**	**69.3**	**68.3**	**67.6**	**67.2**
Changes in the ratio (-1+2+3)	*3.1*	*1.1*	*-2.0*	*-2.4*	*-1.9*	*-1.6*	*-1.8*	*-1.9*	*-1.7*	*-1.6*	*-1.3*	*-1.0*	*-0.7*	*-0.4*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-0.3**	**1.3**	**0.7**	**0.8**	**1.0**	**1.1**	**1.1**	**1.2**	**1.1**	**1.0**	**0.9**	**0.8**	**0.6**	**0.5**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***1.7***	***2.4***	***1.2***	***1.3***	***1.2***	***1.2***	***1.2***	***1.2***	***1.1***	***1.0***	***0.9***	***0.8***	***0.6***	***0.5***
(1.1.1) Structural Primary Balance (before CoA)	*1.7*	*2.4*	*1.2*	*1.3*	*1.2*	*1.2*	*1.2*	*1.2*	*1.2*	*1.2*	*1.2*	*1.2*	*1.2*	*1.2*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.1*	*0.2*	*0.3*	*0.5*	*0.6*	*0.8*
(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	***-0.5***	***-0.5***	***-0.4***	***-0.3***	***-0.2***	***-0.1***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-1.5***	***-0.5***	***-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)	**0.5**	**0.0**	**-0.6**	**-0.5**	**-0.5**	**-0.5**	**-0.7**	**-0.7**	**-0.6**	**-0.5**	**-0.4**	**-0.2**	**-0.1**	**0.1**
(2.1) Interest expenditure	*2.5*	*2.4*	*2.2*	*2.2*	*2.2*	*2.1*	*2.0*	*2.0*	*2.0*	*2.1*	*2.1*	*2.2*	*2.3*	*2.4*
(2.2) Growth effect	*-0.5*	*-0.8*	*-1.2*	*-1.3*	*-1.3*	*-1.2*	*-1.3*	*-1.3*	*-1.2*	*-1.2*	*-1.2*	*-1.1*	*-1.1*	*-1.0*
(2.3) Inflation effect	*-1.4*	*-1.6*	*-1.6*	*-1.4*	*-1.4*	*-1.4*	*-1.5*	*-1.5*	*-1.4*	*-1.4*	*-1.4*	*-1.4*	*-1.3*	*-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	**2.3**	**2.4**	**-0.7**	**-1.0**	**-0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*2.3*	*2.1*	*-0.7*	*-1.1*	*-0.4*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*0.3*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-0.7	0.3	-1.0	-0.9	-1.0	-0.9	-0.8	-0.8	-0.9	-1.0	-1.2	-1.5	-1.7	-2.0

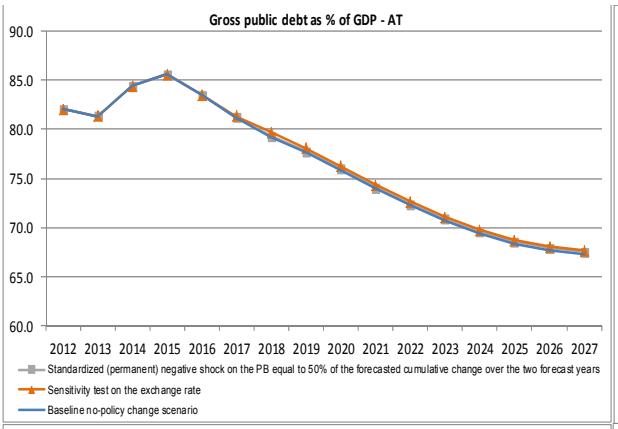


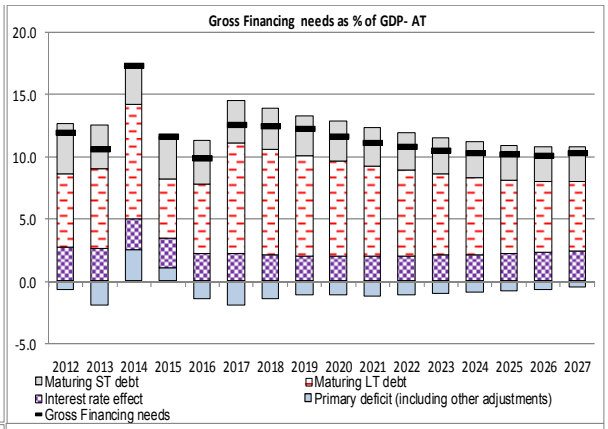


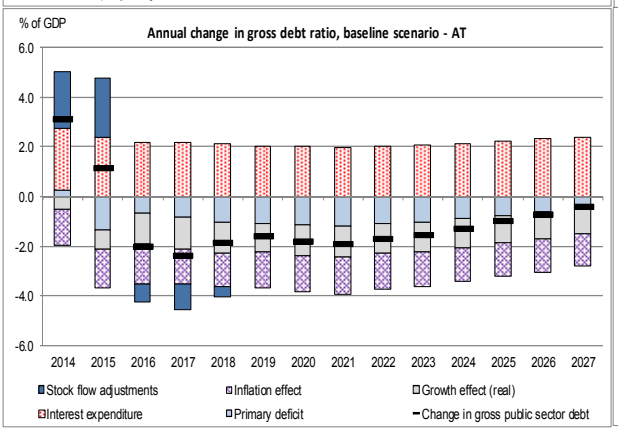


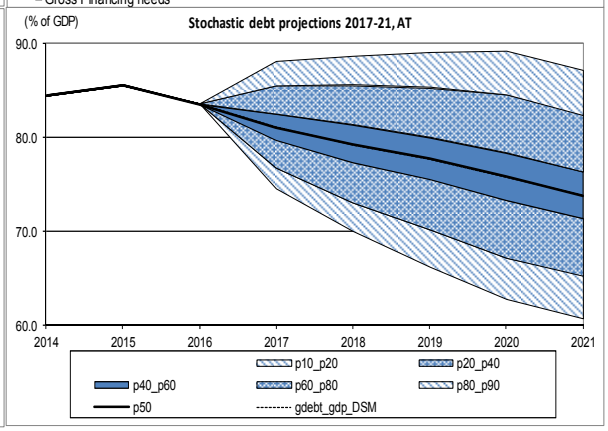












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	27.9	27.9	27.8	27.8	27.8	27.8	27.8	27.8	28.3	29.1
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.1

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.31**	**0.15**	**0.46**
Fiscal sub-index	0.64	0.07	0.36
Financial competitiveness sub-index	0.16	0.19	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**0.8**	**2.0**	**1.1**	**0.6**	**1.3**
of which *Initial Budgetary position*	*-1.4*	*-0.7*	*-1.4*	*-1.8*	*-1.2*
*Cost of delaying adjustment***	*0.1*	*0.4*	*0.2*	*0.1*	*0.2*
*Debt requirement****	*1.5*	*1.4*	*1.5*	*1.7*	*1.9*
Ageing costs	*0.6*	*0.8*	*0.8*	*0.6*	*0.5*
Required structural primary balance related to S1	**2.0**	**2.8**	**2.3**	**1.9**	**2.3**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**2.4**	**3.0**	**3.9**	**2.4**	**2.7**
of which Initial Budgetary position	-0.1	0.4	-0.1	-0.2	0.2
Long term component	2.5	2.6	4.0	2.5	2.4
of which Pensions	*0.5*	*0.5*	*0.5*	*0.6*	*0.5*
Health care	*0.9*	*1.0*	*1.4*	*0.9*	*0.9*
Long-term care	*0.9*	*1.0*	*2.0*	*0.9*	*0.9*
Others	*0.1*	*0.1*	*0.1*	*0.2*	*0.1*
Required structural primary balance related to S2	**3.6**	**3.9**	**5.1**	**3.7**	**3.7**

Risks related to the structure of public debt financing

Public debt structure - AT (2015):	Share of short-term public debt (p.p.) out of total debt: 5.2	Share of public debt by non-residents (%): 74.5	Share of public debt in foreign currency (%): 1.2

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		AT	EU
State guarantees (% GDP) (2014)		26.5	9.2
of which One-off guarantees		*26.5*	*8.8*
Standardised guarantees		*0.0*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** [x]	**0.50**	**2.74**
	Securities issued under liquidity schemes	**0.00**	**0.07**
	Special purpose entity	**0.00**	**0.48**
	Total	**0.50**	**3.29**

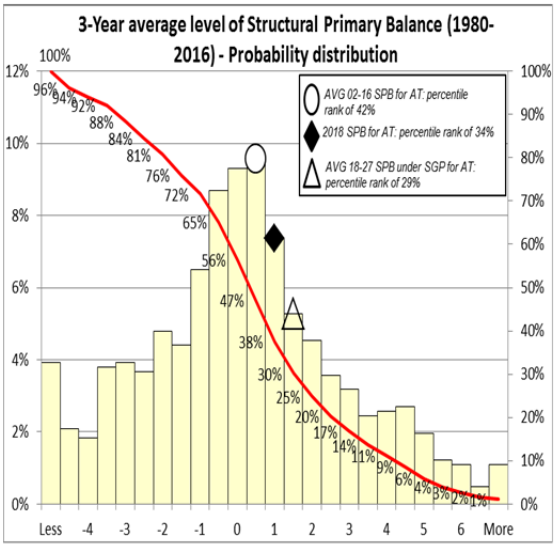
Government's contingent liability risks from banking sector - AT (2015):	Private sector credit flow (% GDP): 2.1	Bank loans-to-deposits ratio (p.p.): 107.6	Share of non-performing loans (%): 6.9	Change in share of non-performing loans (p.p): -1.2	Change in nominal house price index: 4.9	NPL coverage ratio: 55.6	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8%: 0.00%	bank recap. at 10.5%: 0.00%

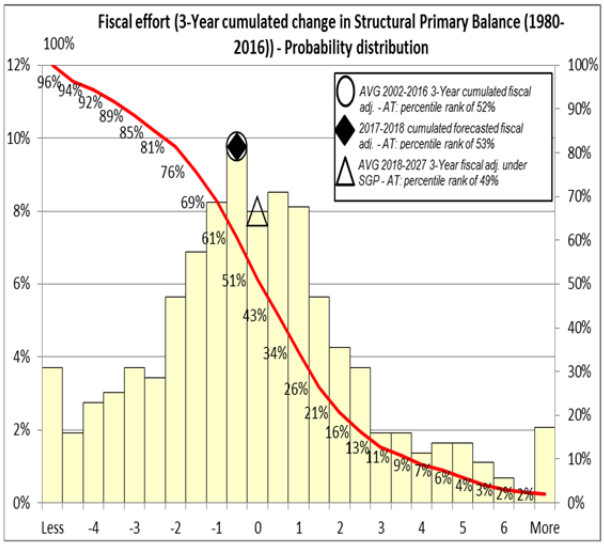
Financial market information

Sovereign Ratings as of Nov 15 2016, AT	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aa1		Aa1	P-1
S&P	AA+	A-1+	AA+	A-1+
Fitch	AA+		AA+	F1+

Financial market information as of November 2016, AT		
Sovereign yield spreads(bp)*	10-year	26
CDS (bp)	5-year	28.4

Realism of baseline assumptions





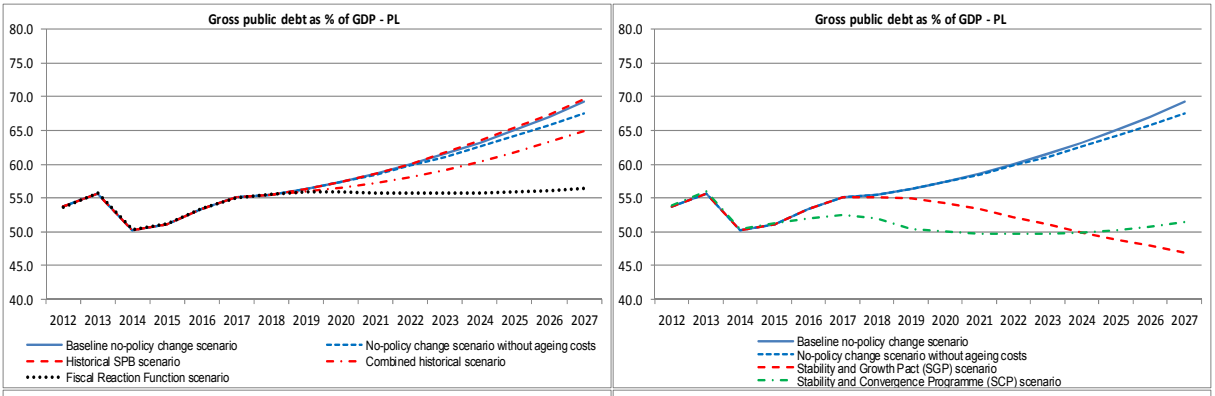
Underlying macro-fiscal assumptions

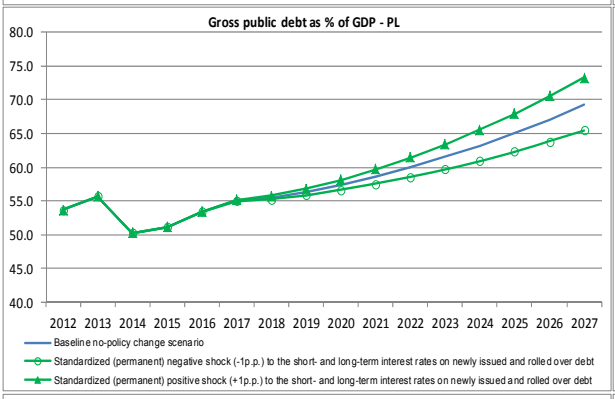
Macro-fiscal assumptions, Austria													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.3	0.7	0.8	1.0	1.1	1.1	1.2	1.1	1.0	0.9	0.8	0.6	0.5
Structural primary balance (before CoA)	2.4	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Real GDP growth	1.0	1.5	1.6	1.6	1.5	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6
Potential GDP growth	1.0	1.3	1.3	1.4	1.4	1.6	1.6	1.7	1.7	1.7	1.6	1.6	1.6
Inflation rate	1.9	1.9	1.7	1.7	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.9	2.7	2.7	2.7	2.7	2.7	2.7	2.8	3.0	3.1	3.3	3.5	3.7
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.3	0.7	0.8	1.0	0.0	-0.5	-0.6	-0.5	-0.5	-0.5	-0.4	-0.4	-0.4
Structural primary balance (before CoA)	2.4	1.2	1.3	1.2	0.1	-0.4	-0.6	-0.4	-0.4	-0.2	0.0	0.2	0.4
Real GDP growth	1.0	1.5	1.6	1.6	2.3	2.0	1.8	1.6	1.6	1.6	1.5	1.5	1.4
Potential GDP growth	1.0	1.3	1.3	1.4	2.2	1.9	1.7	1.6	1.6	1.6	1.5	1.5	1.4
Inflation rate	1.9	1.9	1.7	1.7	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.9	2.7	2.7	2.7	2.7	2.7	2.7	2.8	3.0	3.2	3.4	3.6	3.8
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.3	0.7	0.8	1.5	1.4	1.4	1.5	1.5	1.5	1.6	1.6	1.7	1.7
Structural primary balance (before CoA)	2.4	1.2	1.3	1.7	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.7	1.7
Real GDP growth	1.0	1.5	1.6	1.2	1.6	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.5
Potential GDP growth	1.0	1.3	1.3	1.1	1.5	1.6	1.6	1.7	1.7	1.7	1.6	1.6	1.5
Inflation rate	1.9	1.9	1.7	1.7	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.9	2.7	2.7	2.7	2.7	2.7	2.7	2.8	3.0	3.1	3.3	3.5	3.6
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.2	0.6	0.8	1.1	1.2	1.3	1.3	1.2	1.1	1.0	0.9	0.7	0.6
Structural primary balance (before CoA)	2.5	1.3	1.0	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Real GDP growth	0.9	1.6	1.6	1.6	1.5	1.5	1.7	1.7	1.6	1.5	1.6	1.5	1.5
Potential GDP growth	1.2	1.3	1.2	1.4	1.4	1.3	1.7	1.7	1.6	1.5	1.6	1.5	1.5
Inflation rate	1.5	2.0	1.6	1.5	1.6	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.7	2.6	2.5	2.3	2.3	2.2	2.2	2.2	2.2	2.5	2.8	3.2	3.3
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.3	0.7	0.8	1.0	1.0	0.9	0.9	0.7	0.6	0.5	0.3	0.2	0.0
Structural primary balance (before CoA)	2.4	1.2	1.3	1.2	1.1	1.0	0.9	0.8	0.8	0.8	0.8	0.8	0.8
Real GDP growth	1.0	1.5	1.6	1.6	1.6	1.7	1.8	1.8	1.7	1.7	1.6	1.6	1.6
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.3	0.7	0.8	1.0	1.0	0.9	0.9	0.7	0.6	0.5	0.3	0.2	0.0
Structural primary balance (before CoA)	2.4	1.2	1.3	1.2	1.1	1.0	0.9	0.8	0.8	0.8	0.8	0.8	0.8
Real GDP growth	1.0	1.5	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5
Implicit interest rate (nominal)	2.9	2.7	2.7	2.7	2.7	2.7	2.9	3.1	3.2	3.4	3.5	3.6	3.7
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.9	2.7	2.8	3.0	3.0	3.1	3.2	3.4	3.6	3.8	4.0	4.3	4.5
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.9	2.7	2.6	2.5	2.4	2.3	2.3	2.3	2.4	2.5	2.6	2.8	2.9
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.9	2.7	3.0	3.2	3.3	3.3	3.4	3.6	3.7	3.9	4.2	4.4	4.6
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.0	1.5	2.1	2.1	2.0	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1
Potential GDP growth	1.0	1.3	1.8	1.9	1.9	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.0	1.5	1.1	1.1	1.0	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1
Potential GDP growth	1.0	1.3	0.8	0.9	0.9	1.1	1.1	1.2	1.2	1.2	1.1	1.1	1.1
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.0	1.5	2.0	2.0	2.0	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1
Potential GDP growth	1.0	1.3	1.7	1.9	1.9	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.0	1.5	1.2	1.2	1.0	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1
Potential GDP growth	1.0	1.3	0.9	1.0	0.9	1.1	1.1	1.2	1.2	1.2	1.1	1.1	1.1
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	1.9	1.9	2.2	2.2	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	1.9	1.9	1.2	1.2	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	1.3	0.7	0.8	1.0	1.0	1.1	1.1	1.1	1.0	0.9	0.7	0.6	0.4
Structural primary balance (before CoA)	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Real GDP growth	1.0	1.5	1.6	1.6	1.5	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6
Potential GDP growth	1.0	1.3	1.4	1.4	1.4	1.6	1.6	1.7	1.7	1.7	1.6	1.6	1.6
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	2.9	2.7	2.7	2.7	2.7	2.7	2.7	2.8	3.0	3.1	3.3	3.5	3.7

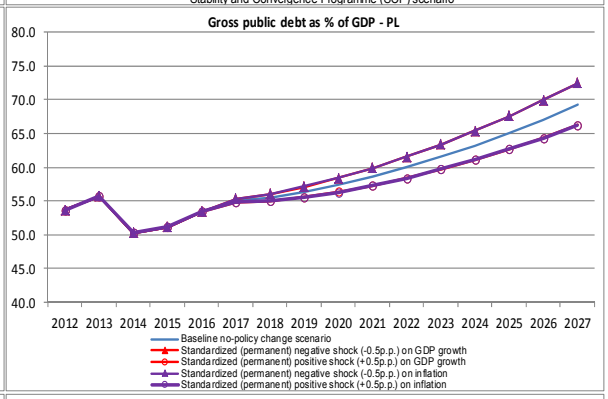
20. Poland

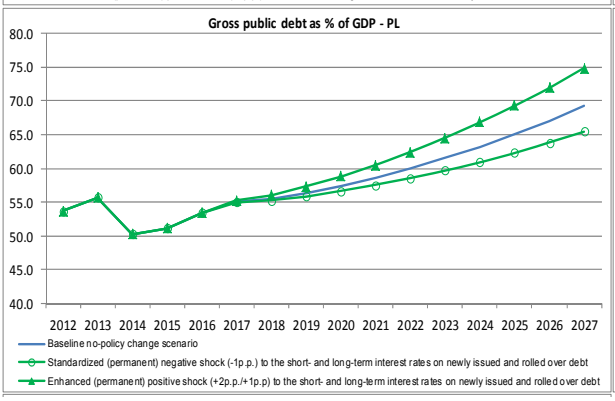
Public debt projections under baseline and alternative scenarios and sensitivity tests

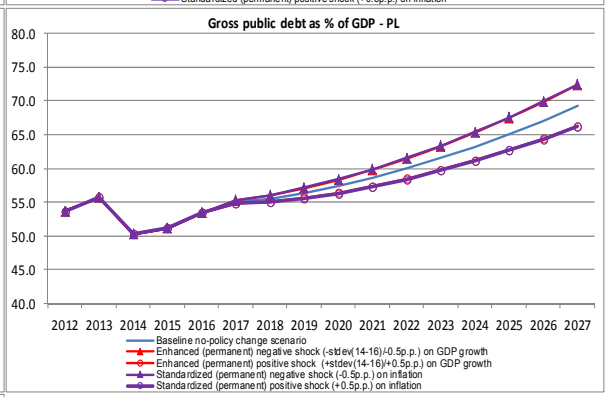
PL - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**50.2**	**51.1**	**53.4**	**55.0**	**55.5**	**56.3**	**57.4**	**58.6**	**59.9**	**61.5**	**63.2**	**65.1**	**67.0**	**69.2**
Changes in the ratio (-1+2+3)	*-5.5*	*0.9*	*2.2*	*1.7*	*0.5*	*0.8*	*1.0*	*1.2*	*1.4*	*1.6*	*1.7*	*1.8*	*2.0*	*2.2*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-1.5**	**-0.8**	**-0.8**	**-1.3**	**-1.5**	**-1.5**	**-1.6**	**-1.7**	**-1.8**	**-1.9**	**-2.0**	**-2.0**	**-2.1**	**-2.1**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***-0.7***	***-0.6***	***-1.2***	***-1.5***	***-1.7***	***-1.7***	***-1.7***	***-1.7***	***-1.8***	***-1.9***	***-2.0***	***-2.0***	***-2.1***	***-2.1***
(1.1.1) Structural Primary Balance (before CoA)	*-0.7*	*-0.6*	*-1.2*	*-1.5*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.0*	*0.1*	*0.2*	*0.2*	*0.3*	*0.3*	*0.4*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.0*	*0.0*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*
(1.2) Cyclical component	***-0.6***	***-0.2***	***-0.1***	***0.2***	***0.2***	***0.1***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-0.2***	***0.0***	***0.5***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-0.1**	**-0.4**	**0.0**	**-0.8**	**-1.0**	**-0.7**	**-0.6**	**-0.5**	**-0.5**	**-0.4**	**-0.3**	**-0.2**	**-0.1**	**0.0**
(2.1) Interest expenditure	*1.9*	*1.8*	*1.7*	*1.6*	*1.6*	*1.7*	*1.8*	*1.9*	*2.0*	*2.1*	*2.2*	*2.4*	*2.6*	*2.8*
(2.2) Growth effect	*-1.8*	*-1.9*	*-1.6*	*-1.8*	*-1.7*	*-1.4*	*-1.3*	*-1.3*	*-1.3*	*-1.3*	*-1.3*	*-1.4*	*-1.4*	*-1.4*
(2.3) Inflation effect	*-0.3*	*-0.3*	*-0.2*	*-0.6*	*-0.9*	*-1.0*	*-1.1*	*-1.1*	*-1.1*	*-1.2*	*-1.2*	*-1.2*	*-1.3*	*-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	**-6.8**	**0.5**	**1.5**	**1.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-6.8*	*0.1*	*0.9*	*1.2*	*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	*-0.1*	*0.5*	*0.6*	*-0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-2.7	-1.9	-2.8	-3.1	-3.3	-3.4	-3.5	-3.6	-3.8	-4.0	-4.2	-4.4	-4.7	-4.9

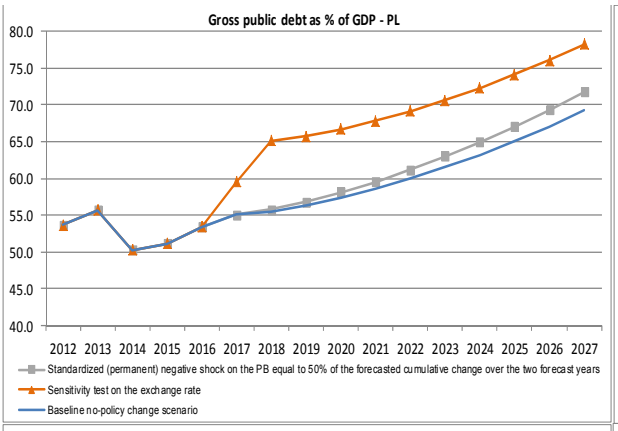


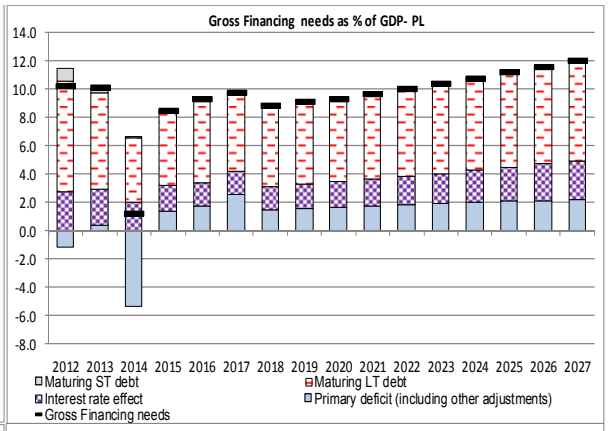


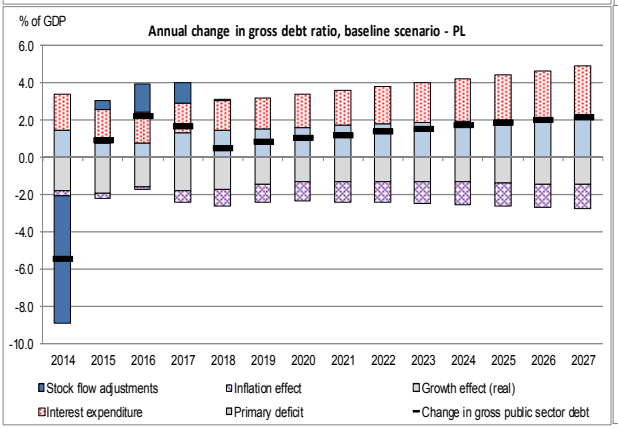


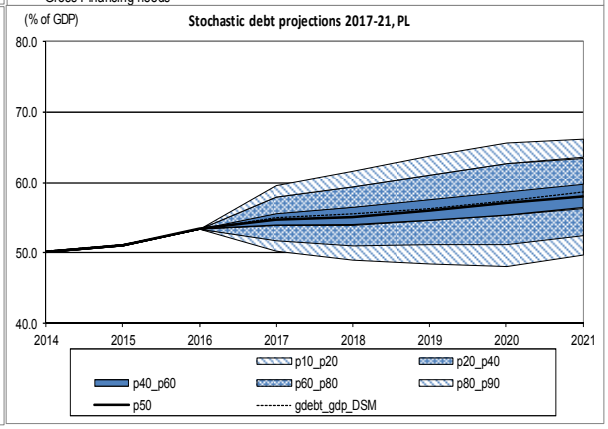












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	20.9	20.6	20.5	20.4	20.3	20.2	20.2	20.2	20.5	20.6
Revenues from pensions taxation	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2
Property incomes	1.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.55**	**0.29**	**0.46**
Fiscal sub-index	0.22	0.08	0.36
Financial competitiveness sub-index	0.73	0.41	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**1.8**	**3.0**	**2.1**	**-0.7**	**1.0**
of which *Initial Budgetary position*	*1.6*	*2.0*	*1.6*	*0.0*	*1.2*
*Cost of delaying adjustment***	*0.3*	*0.7*	*0.3*	*-0.1*	*0.1*
*Debt requirement****	*-0.3*	*0.0*	*-0.3*	*-0.9*	*-0.5*
Ageing costs	*0.3*	*0.3*	*0.6*	*0.3*	*0.2*
Required structural primary balance related to S1	**0.1**	**1.2**	**0.5**	**-0.8**	**-0.3**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**3.8**	**4.1**	**5.0**	**2.2**	**3.5**
of which Initial Budgetary position	2.6	2.9	2.6	1.0	2.4
Long term component	1.2	1.3	2.4	1.2	1.1
of which Pensions	*-0.2*	*-0.2*	*-0.2*	*-0.1*	*-0.2*
Health care	*0.8*	*0.9*	*1.4*	*0.8*	*0.8*
Long-term care	*0.6*	*0.6*	*1.2*	*0.6*	*0.6*
Others	*0.0*	*0.0*	*0.0*	*0.0*	*-0.1*
Required structural primary balance related to S2	**2.1**	**2.4**	**3.3**	**2.1**	**2.2**

Risks related to the structure of public debt financing

Public debt structure - PL (2015):	Share of short-term public debt (p.p.) out of total debt 0.8	Share of public debt by non-residents (%): 58	Share of public debt in foreign currency (%): 35

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		PL	EU
State guarantees (% GDP) (2014)		7.0	9.2
of which One-off guarantees		*6.4*	*8.8*
Standardised guarantees		*0.5*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** *	:	**2.74**
	Securities issued under liquidity schemes	:	**0.07**
	Special purpose entity	:	**0.48**
	Total	**0.00**	**3.29**

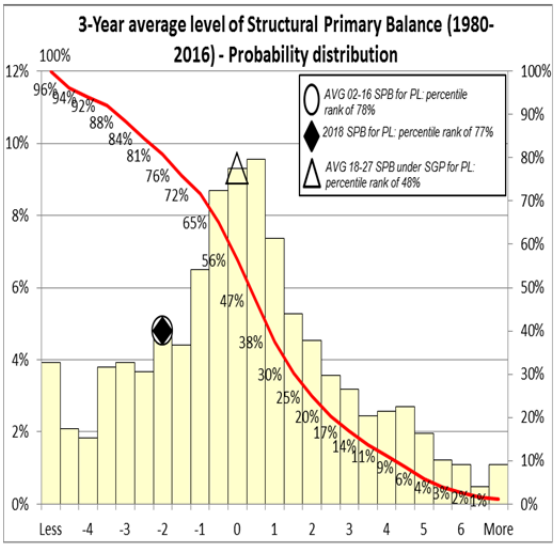
Government's contingent liability risks from banking sector - PL (2015):	Private sector credit flow (% GDP): 3.6	Bank loans-to-deposits ratio (%): 96.7	Share of non-performing loans (%): 6.8	Change in share of non-performing loans (p.p): -0.5	Change in nominal house price index: 1.5	NPL coverage ratio 58.6	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8% 0.00%	bank recap. at 10.5% 0.00%

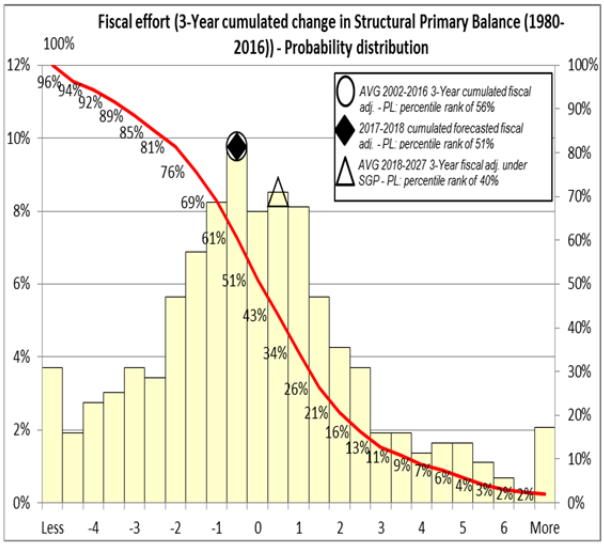
Financial market information

Sovereign Ratings as of Nov 15 2016, 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-2	BBB+	A-2
Fitch	A-		A-	

Financial market information as of November 2016, PL		
Sovereign yield spreads(bp)*	10-year	303
CDS (bp)	5-year	70.5

Realism of baseline assumptions





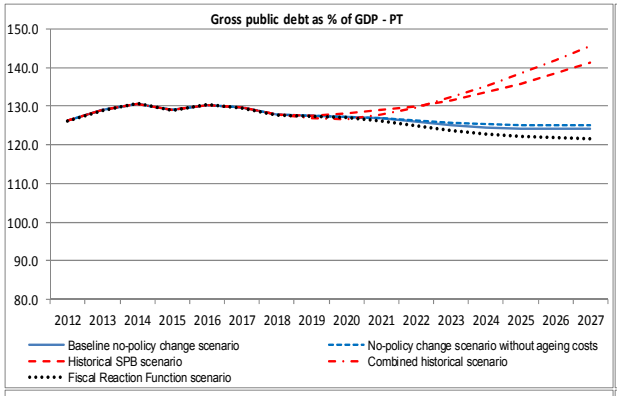
Underlying macro-fiscal assumptions

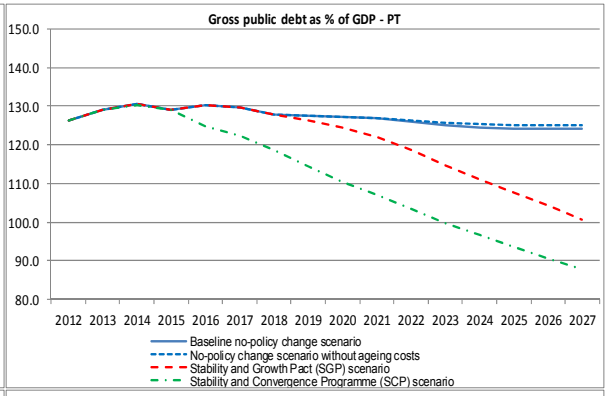
Macro-fiscal assumptions, Poland													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.8	-0.8	-1.3	-1.5	-1.5	-1.6	-1.7	-1.8	-1.9	-2.0	-2.0	-2.1	-2.1
Structural primary balance (before CoA)	-0.6	-1.2	-1.5	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7
Real GDP growth	3.9	3.1	3.4	3.2	2.7	2.4	2.3	2.3	2.2	2.2	2.2	2.3	2.2
Potential GDP growth	3.1	2.9	3.0	3.1	2.8	2.6	2.5	2.3	2.2	2.2	2.2	2.3	2.2
Inflation rate	0.6	0.3	1.2	1.7	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.7	3.4	3.2	3.1	3.2	3.3	3.4	3.5	3.7	3.8	4.0	4.2	4.3
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.8	-0.8	-1.3	-1.5	-0.7	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
Structural primary balance (before CoA)	-0.6	-1.2	-1.5	-1.7	-0.8	-0.5	-0.3	-0.2	-0.1	0.0	0.0	0.1	0.2
Real GDP growth	3.9	3.1	3.4	3.2	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.1
Potential GDP growth	3.1	2.9	3.0	3.1	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.1
Inflation rate	0.6	0.3	1.2	1.7	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.7	3.4	3.2	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.9	4.1	4.2
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.8	-0.8	-1.3	-0.7	-0.3	0.2	0.7	0.8	0.8	0.8	0.8	0.9	0.9
Structural primary balance (before CoA)	-0.6	-1.2	-1.5	-1.0	-0.4	0.1	0.7	0.8	0.8	0.8	0.8	0.9	0.9
Real GDP growth	3.9	3.1	3.4	2.7	2.3	2.0	1.9	2.2	2.2	2.2	2.2	2.2	2.2
Potential GDP growth	3.1	2.9	3.0	2.6	2.4	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2
Inflation rate	0.6	0.3	1.2	1.7	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.7	3.4	3.2	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	4.0	4.1
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.8	-1.1	-1.3	-0.5	0.1	-0.1	-0.2	-0.2	-0.3	-0.4	-0.4	-0.5	-0.6
Structural primary balance (before CoA)	-0.5	-1.3	-1.2	-0.6	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Real GDP growth	3.6	3.8	3.9	4.0	4.1	2.2	2.1	2.0	2.1	2.1	2.2	2.2	2.2
Potential GDP growth	3.1	3.5	3.9	4.0	4.1	2.3	2.1	2.0	2.1	2.1	2.2	2.2	2.2
Inflation rate	0.4	0.4	1.6	1.9	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.7	3.3	3.0	3.1	3.1	3.1	3.2	3.4	3.6	3.8	4.0	4.2	4.4
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.8	-0.8	-1.3	-1.5	-1.6	-1.6	-1.8	-1.9	-2.0	-2.0	-2.1	-2.1	-2.2
Structural primary balance (before CoA)	-0.6	-1.2	-1.5	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7
Real GDP growth	3.9	3.1	3.4	3.2	2.7	2.4	2.3	2.3	2.2	2.2	2.2	2.3	2.2
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.8	-0.8	-1.3	-1.5	-1.6	-1.6	-1.8	-1.9	-2.0	-2.0	-2.1	-2.1	-2.2
Structural primary balance (before CoA)	-0.6	-1.2	-1.5	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7
Real GDP growth	3.9	3.1	3.4	3.2	3.3	3.4	3.5	3.6	3.6	3.6	3.6	3.6	3.6
Implicit interest rate (nominal)	3.7	3.4	3.2	3.1	3.2	3.3	3.5	3.8	4.0	4.2	4.4	4.5	4.6
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.7	3.4	3.4	3.4	3.6	3.8	4.0	4.2	4.4	4.6	4.8	5.0	5.2
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.7	3.4	3.0	2.8	2.8	2.8	2.8	2.8	2.9	3.0	3.2	3.3	3.4
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.7	3.4	3.5	3.8	4.0	4.2	4.3	4.4	4.6	4.8	5.0	5.1	5.3
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.9	3.1	3.9	3.7	3.2	2.9	2.8	2.8	2.7	2.7	2.7	2.8	2.7
Potential GDP growth	3.1	2.9	3.5	3.6	3.3	3.1	3.0	2.8	2.7	2.7	2.7	2.8	2.7
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.9	3.1	2.9	2.7	2.2	1.9	1.8	1.8	1.7	1.7	1.7	1.8	1.7
Potential GDP growth	3.1	2.9	2.5	2.6	2.3	2.1	2.0	1.8	1.7	1.7	1.7	1.8	1.7
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.9	3.1	3.9	3.7	3.2	2.9	2.8	2.8	2.7	2.7	2.7	2.8	2.7
Potential GDP growth	3.1	2.9	3.4	3.5	3.3	3.1	3.0	2.8	2.7	2.7	2.7	2.8	2.7
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.9	3.1	3.0	2.8	2.2	1.9	1.8	1.8	1.7	1.7	1.7	1.8	1.7
Potential GDP growth	3.1	2.9	2.6	2.7	2.3	2.1	2.0	1.8	1.7	1.7	1.7	1.8	1.7
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.6	0.3	1.7	2.2	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.6	0.3	0.7	1.2	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-0.8	-0.8	-1.4	-1.7	-1.8	-1.9	-2.0	-2.1	-2.2	-2.2	-2.3	-2.3	-2.4
Structural primary balance (before CoA)	-0.6	-1.2	-1.5	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9
Real GDP growth	3.9	3.1	3.5	3.4	2.7	2.4	2.3	2.3	2.2	2.2	2.2	2.3	2.2
Potential GDP growth	3.1	2.9	3.1	3.3	2.8	2.6	2.5	2.3	2.2	2.2	2.2	2.3	2.2
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	23.2%	23.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	3.7	3.4	3.2	3.1	3.2	3.3	3.4	3.5	3.6	3.8	4.0	4.1	4.3

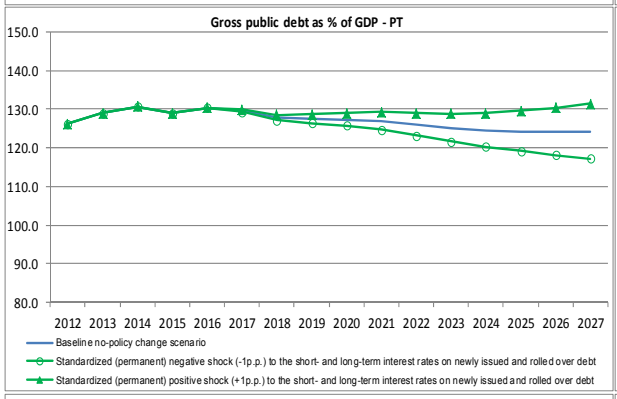
21. Portugal

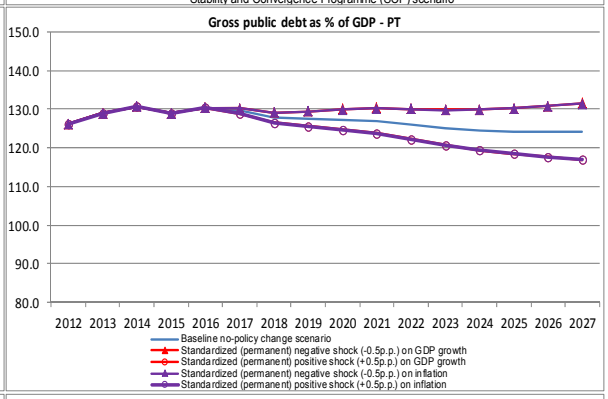
Public debt projections under baseline and alternative scenarios and sensitivity tests

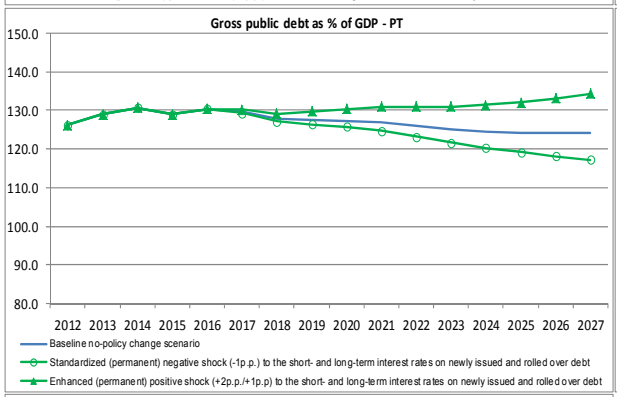
PT - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**130.6**	**129.0**	**130.3**	**129.5**	**127.8**	**127.5**	**127.3**	**127.0**	**126.0**	**125.2**	**124.5**	**124.2**	**124.1**	**124.0**
Changes in the ratio (-1+2+3)	*1.6*	*-1.6*	*1.3*	*-0.8*	*-1.8*	*-0.3*	*-0.2*	*-0.4*	*-0.9*	*-0.9*	*-0.6*	*-0.4*	*-0.1*	*0.0*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-2.3**	**0.2**	**1.7**	**2.2**	**1.8**	**1.7**	**1.6**	**1.6**	**1.7**	**1.7**	**1.5**	**1.5**	**1.4**	**1.4**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***3.0***	***2.3***	***2.0***	***2.0***	***1.5***	***1.4***	***1.5***	***1.6***	***1.7***	***1.7***	***1.5***	***1.5***	***1.4***	***1.4***
(1.1.1) Structural Primary Balance (before CoA)	*3.0*	*2.3*	*2.0*	*2.0*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*	*1.5*
(1.1.2) Cost of ageing						*0.1*	*0.0*	*-0.1*	*-0.3*	*-0.3*	*-0.1*	*-0.1*	*0.0*	*0.0*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.0*	*0.0*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*
(1.2) Cyclical component	***-1.5***	***-0.7***	***-0.4***	***0.0***	***0.3***	***0.2***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-3.8***	***-1.3***	***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)	**2.8**	**-0.1**	**0.9**	**0.7**	**0.4**	**1.4**	**1.4**	**1.2**	**0.8**	**0.8**	**0.9**	**1.1**	**1.3**	**1.4**
(2.1) Interest expenditure	*4.9*	*4.6*	*4.3*	*4.4*	*4.3*	*4.3*	*4.3*	*4.4*	*4.4*	*4.5*	*4.6*	*4.8*	*5.0*	*5.1*
(2.2) Growth effect	*-1.1*	*-2.0*	*-1.2*	*-1.6*	*-1.7*	*-0.6*	*-0.5*	*-0.7*	*-1.1*	*-1.2*	*-1.2*	*-1.3*	*-1.2*	*-1.3*
(2.3) Inflation effect	*-1.0*	*-2.7*	*-2.2*	*-2.1*	*-2.2*	*-2.3*	*-2.4*	*-2.5*	*-2.5*	*-2.5*	*-2.5*	*-2.4*	*-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	**-3.5**	**-1.3**	**2.1**	**0.8**	**-0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-3.5*	*-1.8*	*2.1*	*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	*0.0*	*0.5*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-1.9	-1.8	-2.4	-2.4	-2.7	-2.8	-2.8	-2.8	-2.7	-2.8	-3.1	-3.3	-3.6	-3.7

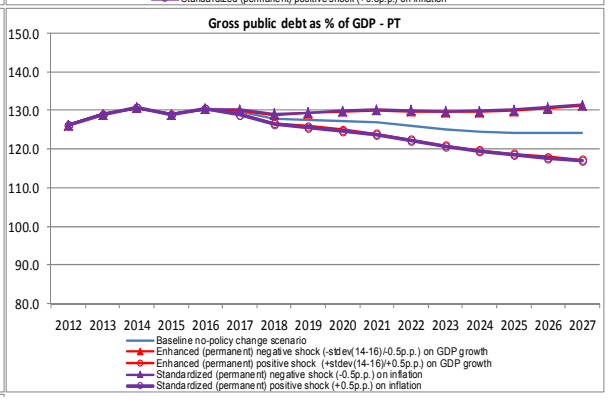


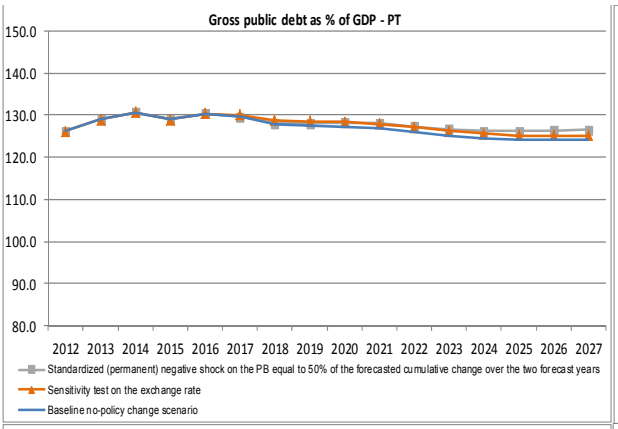


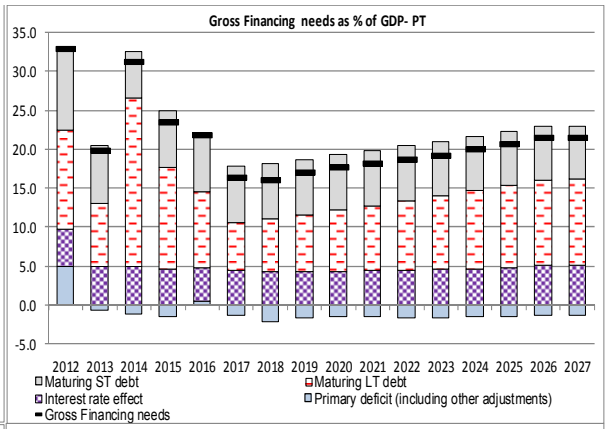


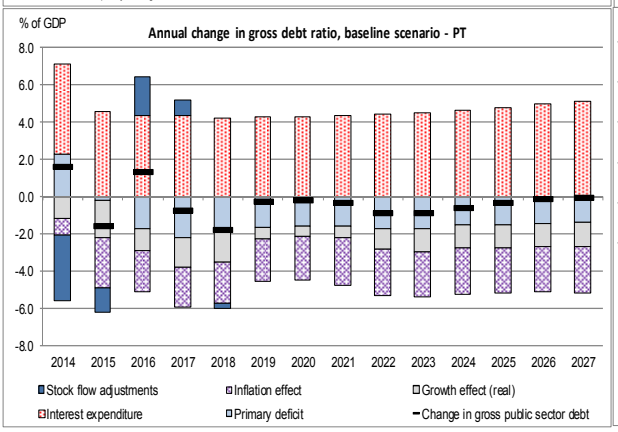


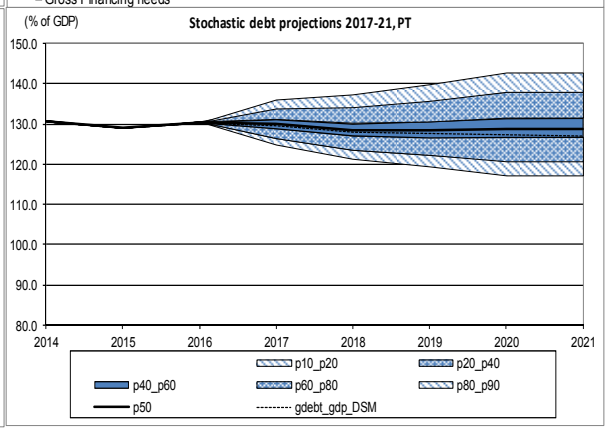












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	27.0	26.8	26.6	26.8	27.0	27.2	27.2	27.2	27.1	27.3
Revenues from pensions taxation	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2
Property incomes	1.2	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.8	0.7

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.82**	**0.41**	**0.46**
Fiscal sub-index	1.00	0.31	0.36
Financial competitiveness sub-index	0.72	0.46	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**6.1**	**14.9**	**6.4**	**2.7**	**4.7**
of which *Initial Budgetary position*	*0.2*	*4.1*	*0.3*	*-2.6*	*-0.5*
*Cost of delaying adjustment***	*1.0*	*3.5*	*1.1*	*0.5*	*0.8*
*Debt requirement****	*4.9*	*7.3*	*4.9*	*4.8*	*4.4*
Ageing costs	*-0.1*	*-0.1*	*0.2*	*-0.1*	*0.1*
Required structural primary balance related to S1	**7.6**	**13.9**	**8.0**	**6.2**	**6.6**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**1.3**	**4.1**	**3.0**	**-0.9**	**0.7**
of which Initial Budgetary position	1.0	3.7	1.0	-1.3	0.2
Long term component	0.4	0.4	2.0	0.4	0.5
of which Pensions	*-0.3*	*-0.4*	*-0.3*	*-0.6*	*-0.2*
Health care	*1.7*	*1.8*	*2.4*	*1.6*	*1.7*
Long-term care	*0.2*	*0.3*	*1.2*	*0.2*	*0.2*
Others	*-1.2*	*-1.3*	*-1.2*	*-0.9*	*-1.3*
Required structural primary balance related to S2	**2.9**	**3.0**	**4.5**	**2.6**	**2.7**

Risks related to the structure of public debt financing

Public debt structure - PT (2015):	Share of short-term public debt (p.p.) out of total debt	Share of public debt by non-residents (%):	Share of public debt in foreign currency (%):
	14.1	66.6	10.9

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		PT	EU
State guarantees (% GDP) (2014)		7.2	9.2
of which One-off guarantees		7.2	8.8
Standardised guarantees		.	0.5
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee [1]	3.51	2.74
	Securities issued under liquidity schemes	0.00	0.07
	Special purpose entity	0.00	0.48
	Total	3.51	3.29

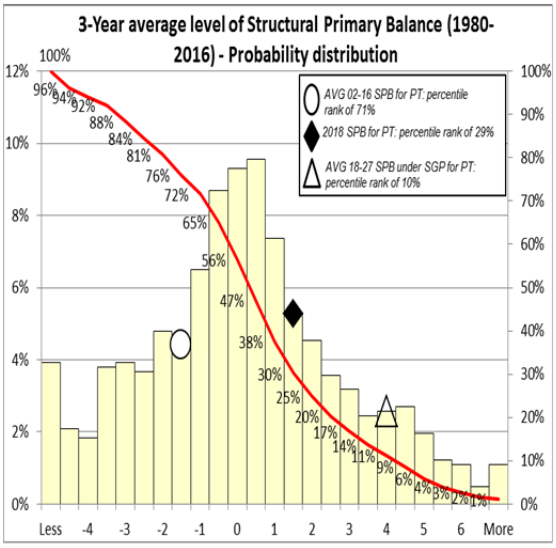
Government's contingent liability risks from banking sector - PT (2015):	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	Change in nominal house price index:	NPL coverage ratio	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):	
							bank recap. at 8%	bank recap. at 10.5%
	-2.2	95.4	19.1	1.1	3.1	39.4	0.03%	0.11%

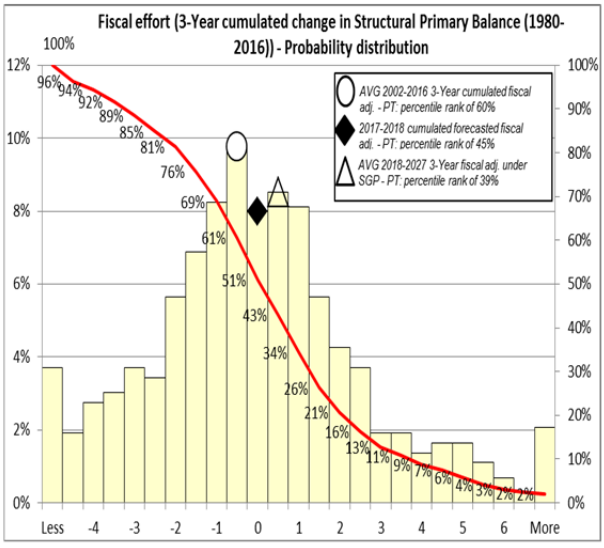
Financial market information

Sovereign Ratings as of Nov 15 2016, PT	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Ba1	(P)NP	Ba1	
S&P	BB+u	Bu	BB+u	Bu
Fitch	BB+		BB+	WD

Financial market information as of November 2016, PT		
Sovereign yield spreads(bp)*	10-year	317
CDS (bp)	5-year	276.9

Realism of baseline assumptions





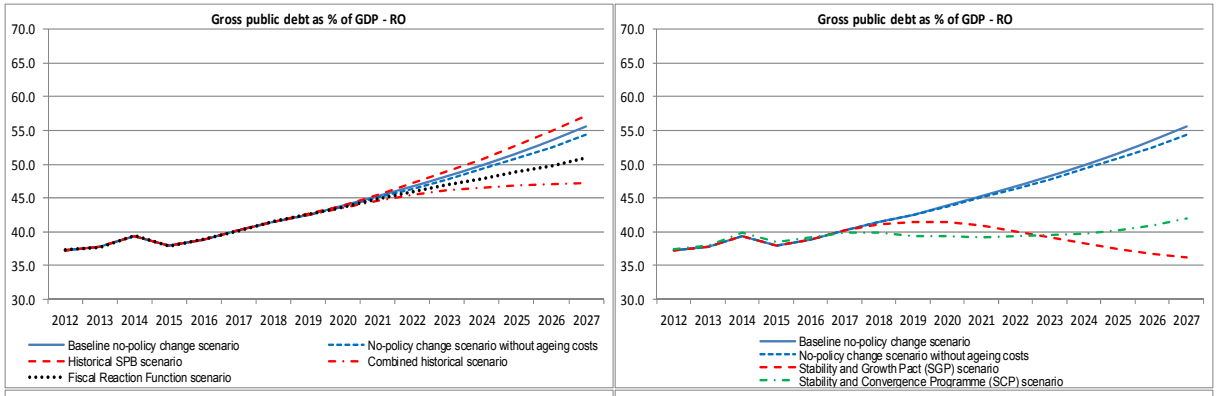
Underlying macro-fiscal assumptions

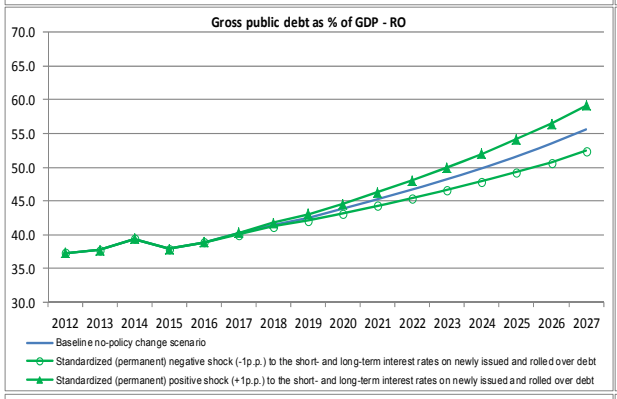
Macro-fiscal assumptions, Portugal													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.2	1.7	2.2	1.8	1.7	1.6	1.6	1.7	1.7	1.5	1.5	1.4	1.4
Structural primary balance (before CoA)	2.3	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Real GDP growth	1.6	0.9	1.2	1.4	0.5	0.4	0.5	0.9	1.0	1.0	1.0	1.0	1.1
Potential GDP growth	0.1	0.2	0.5	0.7	0.7	0.6	0.7	0.9	1.0	1.0	1.0	1.0	1.1
Inflation rate	2.1	1.8	1.7	1.7	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.5	3.5	3.4	3.4	3.4	3.5	3.6	3.7	3.8	4.0	4.1	4.2
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.2	1.7	2.2	1.8	2.0	2.0	2.0	1.9	1.9	1.8	1.7	1.6	1.6
Structural primary balance (before CoA)	2.3	2.0	2.0	1.5	1.9	2.0	1.9	1.7	1.7	1.8	1.8	1.7	1.7
Real GDP growth	1.6	0.9	1.2	1.4	0.2	0.4	0.5	1.1	1.0	1.0	1.1	1.0	1.1
Potential GDP growth	0.1	0.2	0.5	0.7	0.4	0.6	0.8	1.1	1.0	1.0	1.1	1.0	1.1
Inflation rate	2.1	1.8	1.7	1.7	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.5	3.5	3.4	3.4	3.4	3.5	3.6	3.7	3.8	4.0	4.1	4.2
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.2	1.7	2.2	2.8	3.3	3.8	4.3	4.5	4.5	4.5	4.5	4.5	4.5
Structural primary balance (before CoA)	2.3	2.0	2.0	2.5	3.1	3.7	4.3	4.5	4.5	4.5	4.5	4.5	4.5
Real GDP growth	1.6	0.9	1.2	0.6	0.0	0.0	0.1	0.7	1.0	1.0	1.0	1.0	1.1
Potential GDP growth	0.1	0.2	0.5	0.0	0.2	0.2	0.3	0.7	1.0	1.0	1.0	1.0	1.1
Inflation rate	2.1	1.8	1.7	1.7	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.5	3.5	3.4	3.4	3.5	3.5	3.6	3.7	3.8	3.9	4.1	4.2
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.2	2.2	2.8	3.2	3.9	4.2	3.6	3.8	3.8	3.6	3.5	3.5	3.4
Structural primary balance (before CoA)	2.6	2.7	2.9	3.2	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Real GDP growth	1.5	1.8	1.8	1.9	2.0	2.1	1.1	1.3	1.4	1.4	1.4	1.4	1.3
Potential GDP growth	0.0	0.6	1.1	1.3	1.4	1.5	1.1	1.3	1.4	1.4	1.4	1.4	1.3
Inflation rate	1.9	2.1	1.6	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.6	3.5	3.5	3.5	3.4	3.5	3.5	3.6	3.8	3.9	4.0	4.0
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.2	1.7	2.2	1.8	1.0	0.3	-0.3	-0.8	-0.8	-1.0	-1.1	-1.1	-1.1
Structural primary balance (before CoA)	2.3	2.0	2.0	1.5	0.9	0.3	-0.4	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Real GDP growth	1.6	0.9	1.2	1.4	1.0	0.9	1.0	1.4	1.0	1.0	1.0	1.0	1.1
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.2	1.7	2.2	1.8	1.0	0.3	-0.3	-0.8	-0.8	-1.0	-1.1	-1.1	-1.1
Structural primary balance (before CoA)	2.3	2.0	2.0	1.5	0.9	0.3	-0.4	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Real GDP growth	1.6	0.9	1.2	1.4	1.6	1.3	1.1	0.8	0.3	0.3	0.3	0.3	0.3
Implicit interest rate (nominal)	3.6	3.5	3.5	3.4	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.1
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.6	3.5	3.7	3.7	3.8	3.9	4.0	4.1	4.3	4.4	4.6	4.9	5.0
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.6	3.5	3.2	3.1	3.1	3.0	3.1	3.1	3.1	3.2	3.3	3.4	3.5
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.6	3.5	3.9	4.0	4.1	4.1	4.2	4.3	4.4	4.6	4.8	5.0	5.1
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.6	0.9	1.7	1.9	1.0	0.9	1.0	1.4	1.5	1.5	1.5	1.5	1.6
Potential GDP growth	0.1	0.2	1.0	1.2	1.2	1.1	1.2	1.4	1.5	1.5	1.5	1.5	1.6
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.6	0.9	0.7	0.9	0.0	-0.1	0.0	0.4	0.5	0.5	0.5	0.5	0.6
Potential GDP growth	0.1	0.2	0.0	0.2	0.2	0.1	0.2	0.4	0.5	0.5	0.5	0.5	0.6
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.6	0.9	1.6	1.8	1.0	0.9	1.0	1.4	1.5	1.5	1.5	1.5	1.6
Potential GDP growth	0.1	0.2	0.9	1.1	1.2	1.1	1.2	1.4	1.5	1.5	1.5	1.5	1.6
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	1.6	0.9	0.8	1.0	0.0	-0.1	0.0	0.4	0.5	0.5	0.5	0.5	0.6
Potential GDP growth	0.1	0.2	0.1	0.3	0.2	0.1	0.2	0.4	0.5	0.5	0.5	0.5	0.6
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	2.1	1.8	2.2	2.2	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	2.1	1.8	1.2	1.2	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.2	1.7	1.9	1.6	1.4	1.3	1.3	1.5	1.5	1.3	1.2	1.2	1.2
Structural primary balance (before CoA)	2.3	2.0	1.6	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Real GDP growth	1.6	0.9	1.5	1.3	0.5	0.4	0.5	0.9	1.0	1.0	1.0	1.0	1.1
Potential GDP growth	0.1	0.2	0.7	0.6	0.7	0.6	0.7	0.9	1.0	1.0	1.0	1.0	1.1
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	3.6	3.5	3.5	3.4	3.4	3.4	3.5	3.6	3.7	3.8	4.0	4.1	4.2

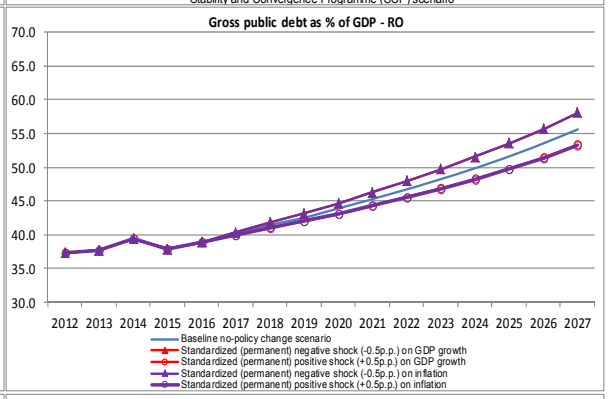
22. Romania

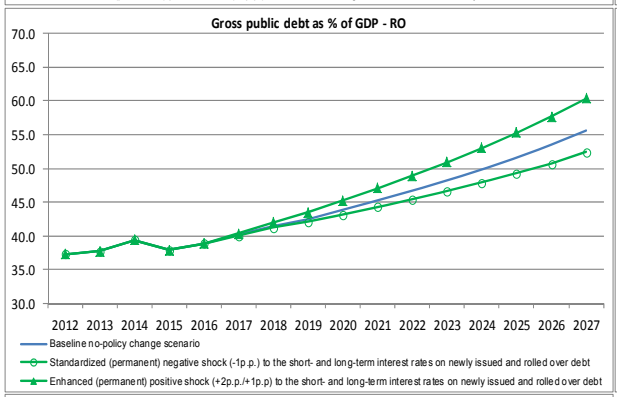
Public debt projections under baseline and alternative scenarios and sensitivity tests

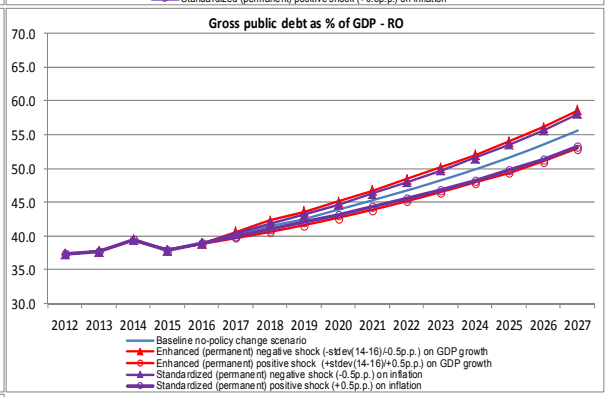
RO - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**39.4**	**37.9**	**38.9**	**40.2**	**41.5**	**42.6**	**43.8**	**45.3**	**46.7**	**48.2**	**49.9**	**51.6**	**53.5**	**55.7**
Changes in the ratio (-1+2+3)	*1.6*	*-1.5*	*1.0*	*1.3*	*1.3*	*1.1*	*1.3*	*1.4*	*1.5*	*1.5*	*1.6*	*1.7*	*1.9*	*2.2*
of which														
(1) Primary balance (1.1+1.2+1.3)	**0.8**	**0.9**	**-1.3**	**-1.6**	**-1.5**	**-1.6**	**-1.7**	**-1.8**	**-1.8**	**-1.8**	**-1.9**	**-1.9**	**-2.0**	**-2.0**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***1.1***	***1.1***	***-1.0***	***-1.8***	***-1.7***	***-1.7***	***-1.7***	***-1.8***	***-1.8***	***-1.8***	***-1.9***	***-1.9***	***-2.0***	***-2.0***
(1.1.1) Structural Primary Balance (before CoA)	*1.1*	*1.1*	*-1.0*	*-1.8*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*
(1.1.2) Cost of ageing						*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.2*	*0.2*	*0.3*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(1.2) Cyclical component	***-0.8***	***-0.5***	***0.1***	***0.2***	***0.1***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.5***	***0.3***	***-0.3***	***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)	**-0.1**	**-0.8**	**-1.0**	**-0.6**	**-0.6**	**-0.5**	**-0.4**	**-0.4**	**-0.4**	**-0.3**	**-0.2**	**-0.2**	**-0.1**	**0.2**
(2.1) Interest expenditure	*1.6*	*1.6*	*1.6*	*1.6*	*1.7*	*1.7*	*1.7*	*1.8*	*1.8*	*1.9*	*2.0*	*2.1*	*2.3*	*2.4*
(2.2) Growth effect	*-1.1*	*-1.4*	*-1.9*	*-1.4*	*-1.4*	*-1.3*	*-1.3*	*-1.3*	*-1.3*	*-1.3*	*-1.3*	*-1.3*	*-1.4*	*-1.2*
(2.3) Inflation effect	*-0.6*	*-1.1*	*-0.7*	*-0.8*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-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	**2.5**	**0.2**	**0.7**	**0.3**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*2.4*	*-0.5*	*0.5*	*0.2*	*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	*0.1*	*0.7*	*0.2*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-0.5	0.2	-2.6	-3.4	-3.3	-3.4	-3.5	-3.6	-3.7	-3.8	-3.9	-4.0	-4.2	-4.4

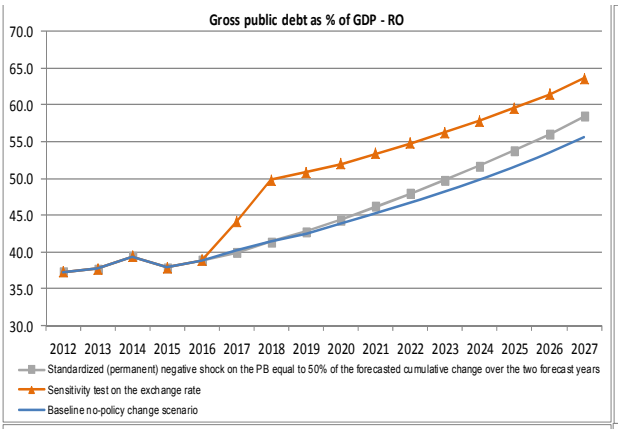


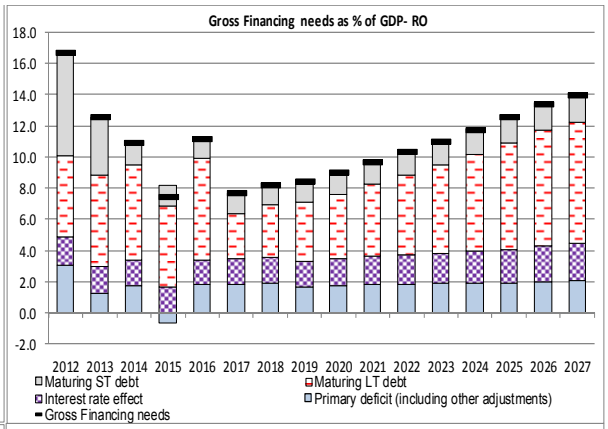


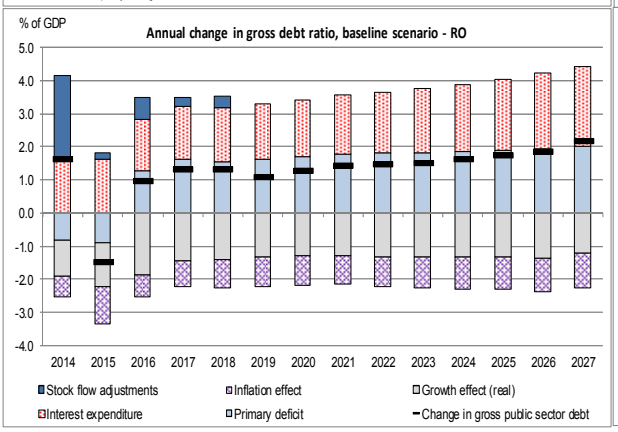


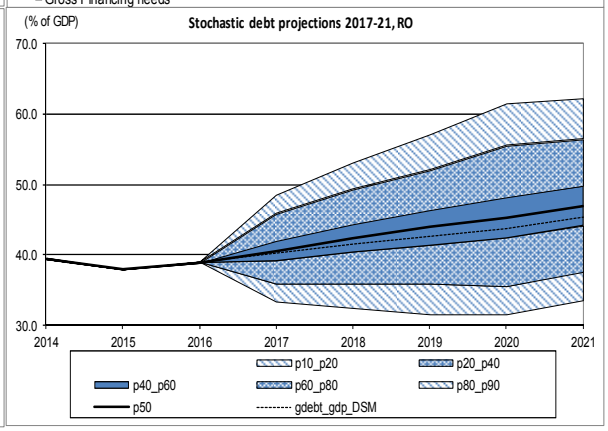












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	15.5	15.5	15.7	15.6	15.7	15.7	15.7	15.8	15.9	16.2
Revenues from pensions taxation	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Property incomes	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.70**	**0.26**	**0.46**
Fiscal sub-index	0.46	0.25	0.36
Financial competitiveness sub-index	0.81	0.26	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**0.7**	**1.4**	**1.0**	**-1.5**	**1.4**
of which *Initial Budgetary position*	*1.7*	*2.2*	*1.7*	*0.4*	*2.2*
*Cost of delaying adjustment***	*0.1*	*0.3*	*0.1*	*-0.3*	*0.2*
*Debt requirement****	*-1.4*	*-1.4*	*-1.4*	*-1.9*	*-1.3*
Ageing costs	*0.3*	*0.3*	*0.5*	*0.2*	*0.3*
Required structural primary balance related to S1	**-1.0**	**-0.4**	**-0.7**	**-2.0**	**-0.9**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**3.7**	**4.2**	**5.7**	**2.5**	**4.4**
of which Initial Budgetary position	2.3	2.6	2.3	1.1	2.9
Long term component	1.5	1.5	3.4	1.4	1.5
of which Pensions	*0.1*	*0.1*	*0.1*	*0.0*	*0.1*
Health care	*0.6*	*0.6*	*1.0*	*0.5*	*0.6*
Long-term care	*0.5*	*0.6*	*2.0*	*0.5*	*0.6*
Others	*0.3*	*0.3*	*0.3*	*0.3*	*0.3*
Required structural primary balance related to S2	**2.1**	**2.4**	**4.0**	**2.0**	**2.1**

Risks related to the structure of public debt financing

Public debt structure - RO (2015):	Share of short-term public debt (p.p.) out of total debt 6.5	Share of public debt by non-residents (%): 49.7	Share of public debt in foreign currency (%): 53.8

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		RO	EU
State guarantees (% GDP) (2014)		2.3	9.2
of which One-off guarantees		*0.7*	*8.8*
Standardised guarantees		*1.6*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** [k]	:	2.74
	Securities issued under liquidity schemes	:	0.07
	Special purpose entity	:	0.48
	Total	0.00	3.29

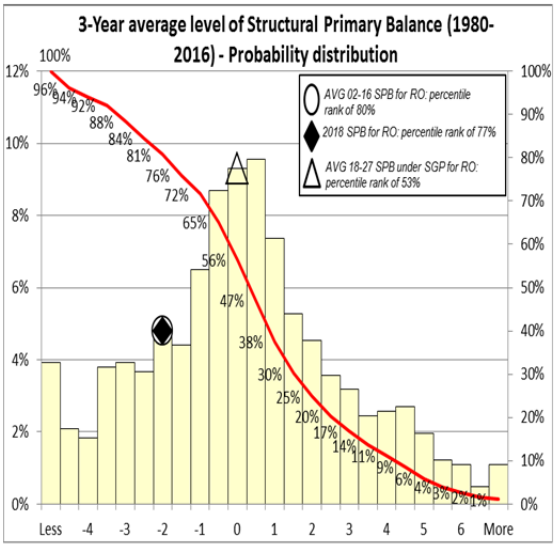
Government's contingent liability risks from banking sector - RO (2015):	Private sector credit flow (% GDP): 0.2	Bank loans-to-deposits ratio (%): 69.3	Share of non-performing loans (%): 14.6	Change in share of non-performing loans (p.p): -7.6	Change in nominal house price index: 2.9	NPL coverage ratio 65.5	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8% 0.00%	bank recap. at 10.5% 0.00%

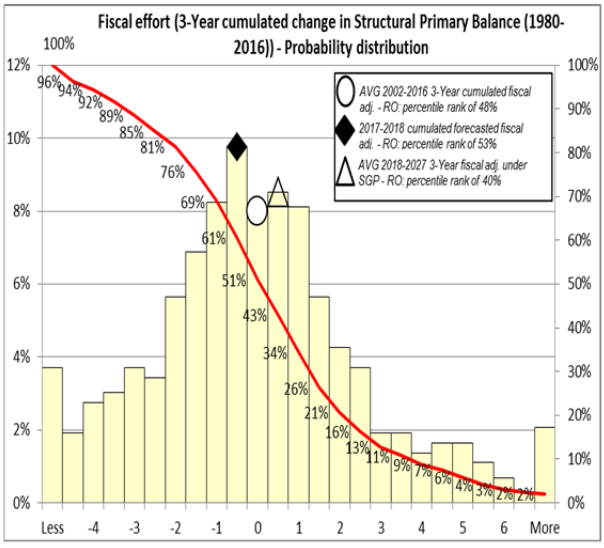
Financial market information

Sovereign Ratings as of Nov 15 2016, RO	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's			Baa3	
S&P	BBB-	A-3	BBB-	A-3
Fitch	BBB-		BBB-	F3

Financial market information as of November 2016, RO		
Sovereign yield spreads(bp)*	10-year	307
CDS (bp)	5-year	111.8

Realism of baseline assumptions





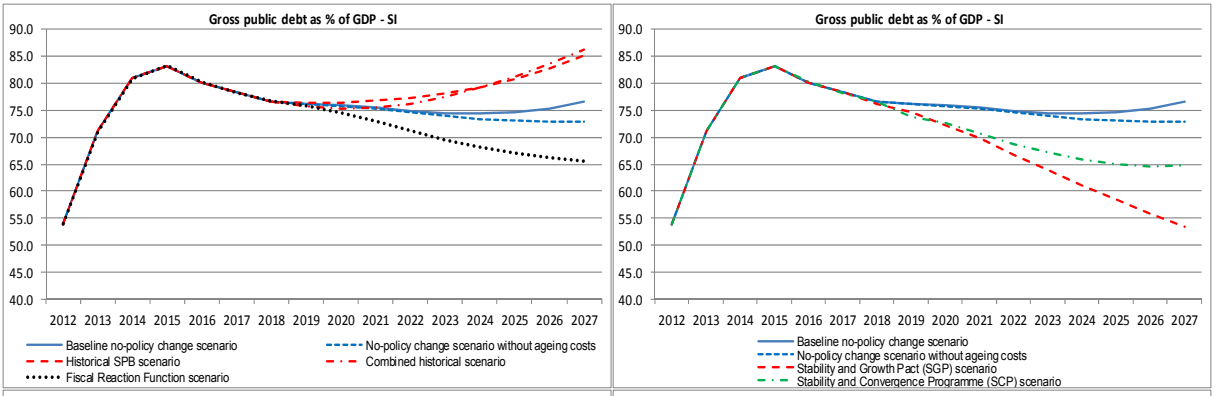
Underlying macro-fiscal assumptions

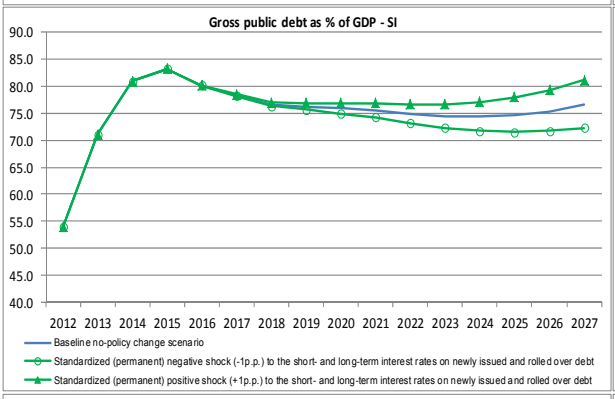
Macro-fiscal assumptions, Romania													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.9	-1.3	-1.6	-1.5	-1.6	-1.7	-1.8	-1.8	-1.8	-1.9	-1.9	-2.0	-2.0
Structural primary balance (before CoA)	1.1	-1.0	-1.8	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7
Real GDP growth	3.7	5.2	3.9	3.6	3.4	3.2	3.0	3.1	3.0	2.9	2.8	2.8	2.3
Potential GDP growth	2.8	3.4	3.7	3.8	3.5	3.3	3.2	3.1	3.0	2.9	2.8	2.8	2.3
Inflation rate	2.9	1.8	2.0	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.4	4.4	4.4	4.4	4.3	4.3	4.3	4.3	4.3	4.4	4.5	4.6	4.7
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.9	-1.3	-1.6	-1.5	-1.6	-1.5	-1.5	-1.4	-1.3	-1.2	-1.1	-1.0	-0.9
Structural primary balance (before CoA)	1.1	-1.0	-1.8	-1.7	-1.6	-1.5	-1.3	-1.2	-1.1	-1.0	-0.9	-0.7	-0.6
Real GDP growth	3.7	5.2	3.9	3.6	3.4	3.1	2.9	3.0	2.9	2.8	2.7	2.6	2.2
Potential GDP growth	2.8	3.4	3.7	3.8	3.5	3.2	3.1	3.0	2.9	2.8	2.7	2.6	2.2
Inflation rate	2.9	1.8	2.0	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.4	4.4	4.4	4.4	4.3	4.3	4.3	4.3	4.3	4.4	4.5	4.6	4.7
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.9	-1.3	-1.6	-1.1	-0.7	-0.2	0.3	0.7	0.7	0.6	0.6	0.6	0.6
Structural primary balance (before CoA)	1.1	-1.0	-1.8	-1.3	-0.7	-0.2	0.3	0.7	0.7	0.6	0.6	0.6	0.6
Real GDP growth	3.7	5.2	3.9	3.3	3.0	2.8	2.7	2.8	3.0	2.9	2.8	2.8	2.3
Potential GDP growth	2.8	3.4	3.7	3.5	3.2	3.0	2.8	2.8	3.0	2.9	2.8	2.8	2.3
Inflation rate	2.9	1.8	2.0	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.4	4.4	4.4	4.4	4.3	4.3	4.3	4.3	4.3	4.4	4.5	4.6	4.7
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.9	-1.2	-1.3	-0.7	-0.2	-0.5	-0.6	-0.6	-0.6	-0.6	-0.7	-0.7	-0.8
Structural primary balance (before CoA)	1.1	-1.1	-1.3	-0.8	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Real GDP growth	3.8	4.2	4.3	4.5	4.7	3.3	3.3	3.1	3.0	2.8	2.8	2.4	2.0
Potential GDP growth	2.9	3.4	3.9	4.1	4.2	3.4	3.3	3.1	3.0	2.8	2.8	2.4	2.0
Inflation rate	2.9	2.0	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.4	4.5	4.8	4.4	4.2	3.9	3.7	3.7	3.8	4.0	4.2	4.4	4.5
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.9	-1.3	-1.6	-1.5	-1.7	-1.8	-2.0	-2.0	-2.1	-2.1	-2.1	-2.2	-2.2
Structural primary balance (before CoA)	1.1	-1.0	-1.8	-1.7	-1.7	-1.8	-1.8	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9
Real GDP growth	3.7	5.2	3.9	3.6	3.4	3.2	3.1	3.1	3.0	2.9	2.8	2.8	2.3
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.9	-1.3	-1.6	-1.5	-1.7	-1.8	-2.0	-2.0	-2.1	-2.1	-2.1	-2.2	-2.2
Structural primary balance (before CoA)	1.1	-1.0	-1.8	-1.7	-1.7	-1.8	-1.8	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9
Real GDP growth	3.7	5.2	3.9	3.6	3.6	3.6	3.6	3.5	3.5	3.5	3.5	3.5	3.5
Implicit interest rate (nominal)	4.4	4.4	4.4	4.4	4.3	4.0	3.4	2.8	2.2	1.8	1.5	1.2	0.9
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	4.4	4.4	4.7	4.8	4.8	4.9	4.9	5.0	5.1	5.3	5.4	5.5	5.6
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	4.4	4.4	4.1	3.9	3.8	3.7	3.6	3.6	3.6	3.6	3.7	3.7	3.8
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	4.4	4.4	5.0	5.2	5.4	5.3	5.3	5.3	5.3	5.4	5.5	5.6	5.7
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.7	5.2	4.4	4.1	3.9	3.7	3.5	3.6	3.5	3.4	3.3	3.3	2.8
Potential GDP growth	2.8	3.4	4.2	4.3	4.0	3.8	3.7	3.6	3.5	3.4	3.3	3.3	2.8
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.7	5.2	3.4	3.1	2.9	2.7	2.5	2.6	2.5	2.4	2.3	2.3	1.8
Potential GDP growth	2.8	3.4	3.2	3.3	3.0	2.8	2.7	2.6	2.5	2.4	2.3	2.3	1.8
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.7	5.2	5.0	4.8	3.9	3.7	3.5	3.6	3.5	3.4	3.3	3.3	2.8
Potential GDP growth	2.8	3.4	4.8	4.9	4.0	3.8	3.7	3.6	3.5	3.4	3.3	3.3	2.8
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.7	5.2	2.8	2.5	2.9	2.7	2.5	2.6	2.5	2.4	2.3	2.3	1.8
Potential GDP growth	2.8	3.4	2.5	2.6	3.0	2.8	2.7	2.6	2.5	2.4	2.3	2.3	1.8
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	2.9	1.8	2.5	2.7	2.7	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	2.9	1.8	1.5	1.7	1.7	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.9	-1.3	-1.3	-1.9	-2.0	-2.0	-2.1	-2.1	-2.2	-2.2	-2.2	-2.3	-2.3
Structural primary balance (before CoA)	1.1	-1.0	-1.5	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Real GDP growth	3.7	5.2	3.7	4.1	3.4	3.2	3.0	3.1	3.0	2.9	2.8	2.8	2.3
Potential GDP growth	2.8	3.4	3.4	4.2	3.5	3.3	3.2	3.1	3.0	2.9	2.8	2.8	2.3
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	15.1%	15.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	4.4	4.4	4.4	4.4	4.3	4.3	4.3	4.3	4.3	4.4	4.5	4.6	4.7

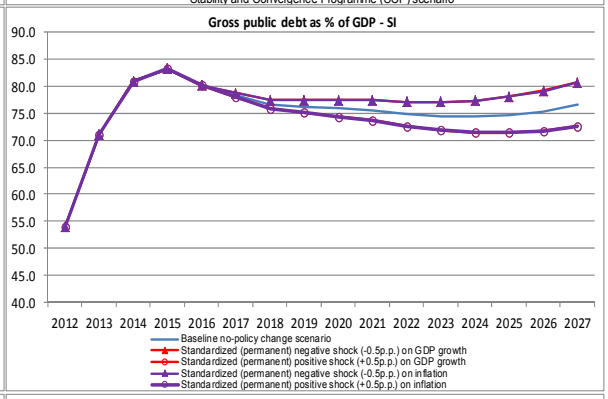
23. Slovenia

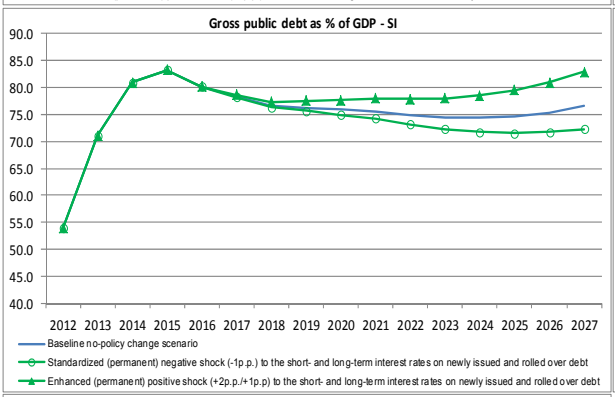
Public debt projections under baseline and alternative scenarios and sensitivity tests

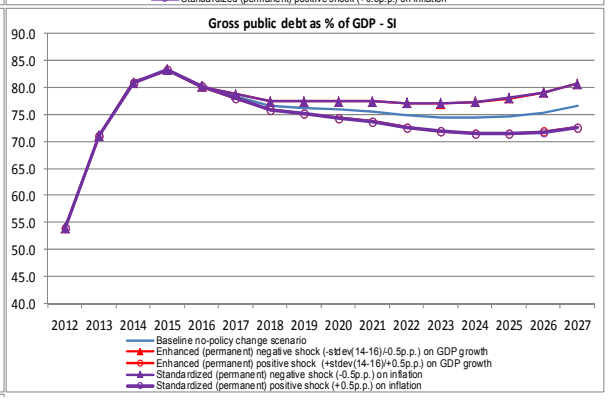
SI - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**80.9**	**83.1**	**80.2**	**78.3**	**76.6**	**76.2**	**75.8**	**75.5**	**74.8**	**74.4**	**74.3**	**74.6**	**75.3**	**76.5**
Changes in the ratio (-1+2+3)	*9.9*	*2.3*	*-3.0*	*-1.9*	*-1.7*	*-0.4*	*-0.4*	*-0.3*	*-0.7*	*-0.4*	*-0.1*	*0.3*	*0.7*	*1.2*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-1.9**	**0.3**	**0.4**	**0.7**	**0.9**	**0.6**	**0.4**	**0.2**	**0.1**	**0.0**	**-0.3**	**-0.6**	**-0.8**	**-1.0**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***0.7***	***1.1***	***0.7***	***0.4***	***0.2***	***0.1***	***0.1***	***0.2***	***0.1***	***0.0***	***-0.3***	***-0.6***	***-0.8***	***-1.0***
(1.1.1) Structural Primary Balance (before CoA)	*0.7*	*1.1*	*0.7*	*0.4*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*
(1.1.2) Cost of ageing						*0.1*	*0.1*	*0.0*	*0.0*	*0.2*	*0.5*	*0.7*	*0.9*	*1.2*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.0*	*0.0*	*0.0*	*-0.1*	*-0.1*	*-0.1*	*-0.1*	*-0.1*
(1.2) Cyclical component	***-1.4***	***-0.7***	***-0.1***	***0.4***	***0.8***	***0.5***	***0.3***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***-1.1***	***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***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**0.5**	**0.4**	**-0.2**	**-0.4**	**-0.4**	**0.3**	**0.0**	**-0.2**	**-0.5**	**-0.5**	**-0.4**	**-0.2**	**-0.1**	**0.2**
(2.1) Interest expenditure	*3.2*	*2.9*	*2.8*	*2.6*	*2.5*	*2.4*	*2.4*	*2.4*	*2.4*	*2.5*	*2.6*	*2.7*	*2.8*	*3.0*
(2.2) Growth effect	*-2.1*	*-1.8*	*-1.8*	*-2.0*	*-1.7*	*-0.9*	*-1.0*	*-1.1*	*-1.5*	*-1.5*	*-1.5*	*-1.5*	*-1.5*	*-1.3*
(2.3) Inflation effect	*-0.6*	*-0.8*	*-1.2*	*-1.1*	*-1.2*	*-1.3*	*-1.4*	*-1.5*	*-1.5*	*-1.5*	*-1.5*	*-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	**7.5**	**2.2**	**-2.4**	**-0.8**	**-0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*7.5*	*2.2*	*-2.4*	*-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	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-2.5	-1.9	-2.1	-2.3	-2.2	-2.3	-2.3	-2.2	-2.3	-2.5	-2.9	-3.2	-3.6	-4.0

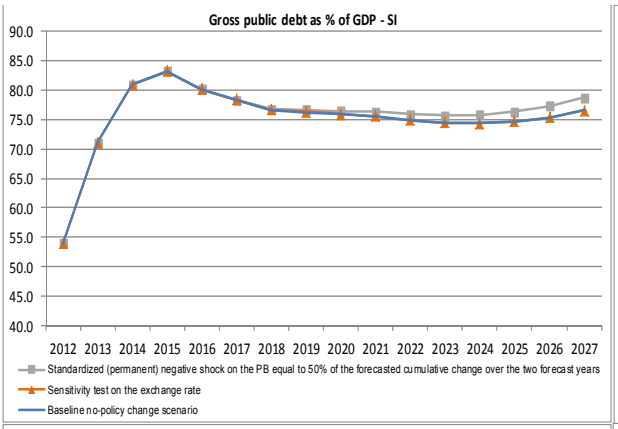


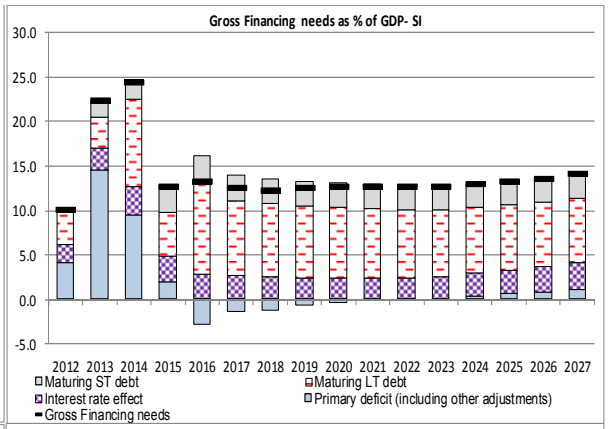


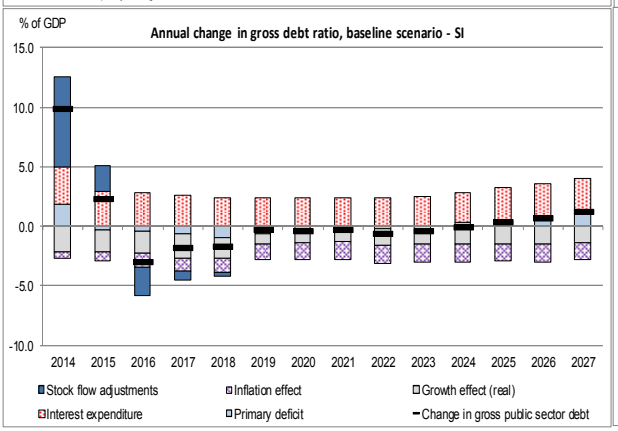


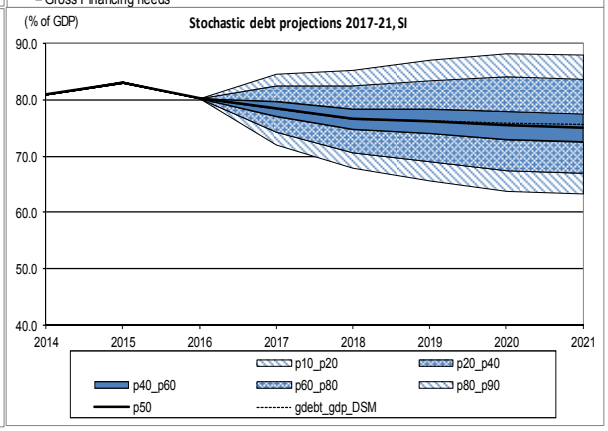












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	24.7	24.6	24.6	24.6	24.6	24.6	24.7	24.6	25.3	26.7
Revenues from pensions taxation	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Property incomes	1.4	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	0.9

Sustainability indicators

S0 indicator	**2009**	**2016**	**Critical threshold**
Overall index	**0.64**	**0.14**	**0.46**
Fiscal sub-index	0.56	0.08	0.36
Financial competitiveness sub-index	0.68	0.16	0.49

S1 indicator	**COM no-policy change scenario**	**Historical SPB scenario**	**AWG risk scenario**	**SCP scenario**	**2015 Sustainability Report**
Overall index	**2.4**	**6.1**	**2.8**	**0.9**	**3.0**
of which *Initial Budgetary position*	*-0.1*	*1.6*	*0.0*	*-1.2*	*0.5*
*Cost of delaying adjustment***	*0.4*	*1.4*	*0.4*	*0.2*	*0.5*
*Debt requirement****	*1.3*	*1.9*	*1.3*	*1.2*	*1.4*
Ageing costs	*0.9*	*1.2*	*1.2*	*0.7*	*0.7*
Required structural primary balance related to S1	**2.7**	**5.1**	**3.0**	**2.1**	**2.7**

S2 indicator	**COM no-policy change scenario**	**Historical SPB scenario**	**AWG risk scenario**	**SCP scenario**	**2015 Sustainability Report**
Overall index	**6.5**	**8.1**	**7.9**	**5.5**	**6.8**
of which Initial Budgetary position	0.9	2.2	0.9	-0.1	1.3
Long term component	5.6	5.9	7.0	5.6	5.5
of which Pensions	*3.4*	*3.6*	*3.4*	*3.4*	*3.2*
Health care	*0.9*	*0.9*	*1.4*	*0.8*	*0.9*
Long-term care	*1.0*	*1.1*	*1.9*	*1.0*	*1.0*
Others	*0.3*	*0.4*	*0.3*	*0.4*	*0.4*
Required structural primary balance related to S2	**6.7**	**6.8**	**8.1**	**6.7**	**6.5**

Risks related to the structure of public debt financing

Public debt structure - SI (2015):	Share of short-term public debt (p.p.) out of total debt: 5.5	Share of public debt by non-residents (%): 65.8	Share of public debt in foreign currency (%): 0.1

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		SI	EU
State guarantees (% GDP) (2014)		12.4	9.2
of which One-off guarantees		*12.4*	*8.8*
Standardised guarantees		*0.0*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** [k]	**0.00**	**2.74**
	Securities issued under liquidity schemes	:	**0.07**
	Special purpose entity	:	**0.48**
	Total	**0.00**	**3.29**

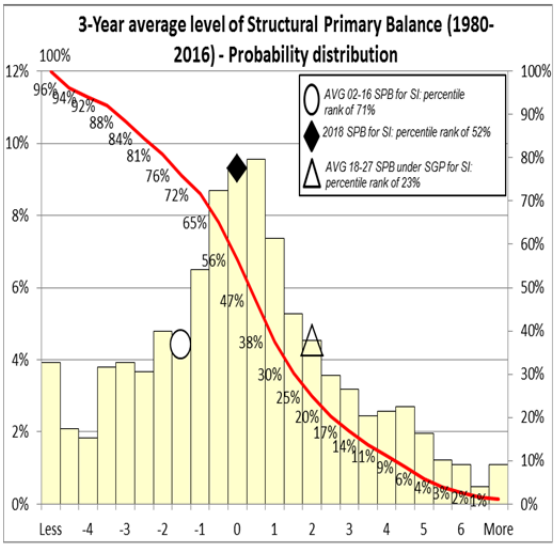
PGovernment's contingent liability risks from banking sector - SI (2015):	Private sector credit flow (% GDP): -5.5	Bank loans-to-deposits ratio (%): 72.2	Share of non-performing loans (%): 13.3	Change in share of non-performing loans (p.p): -3.3	Change in nominal house price index: 0.8	NPL coverage ratio: 62.7	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8%: 0.00%	bank recap. at 10.5%: 0.02%

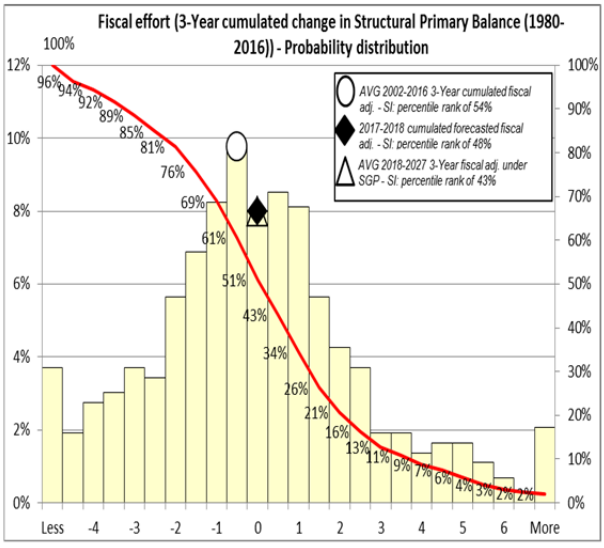
Financial market information

Sovereign Ratings as of Nov 15 2016, SI	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Baa3		Baa3	
S&P	A	A-1	A	A-1
Fitch	A-		A-	

Financial market information as of November 2016, SI		
Sovereign yield spreads(bp)*	10-year	113
CDS (bp)	5-year	102.4

Realism of baseline assumptions





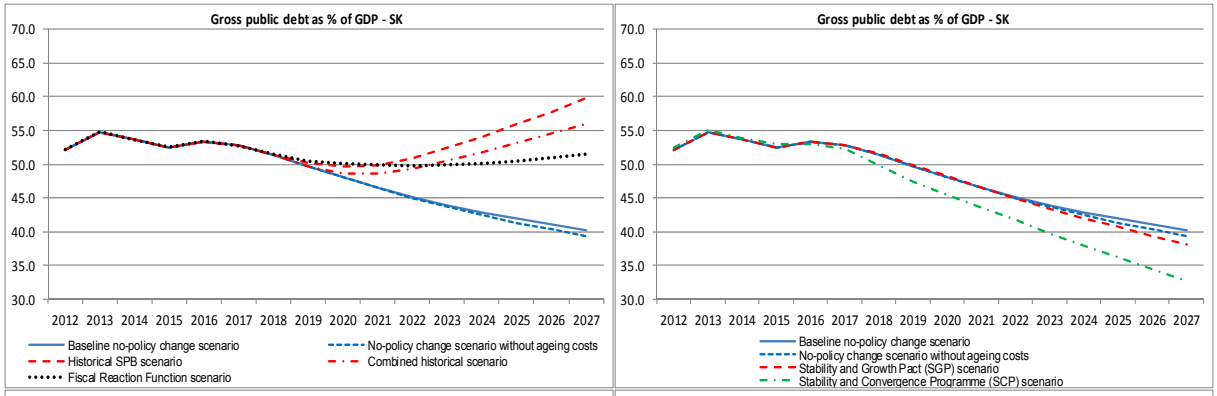
Underlying macro-fiscal assumptions

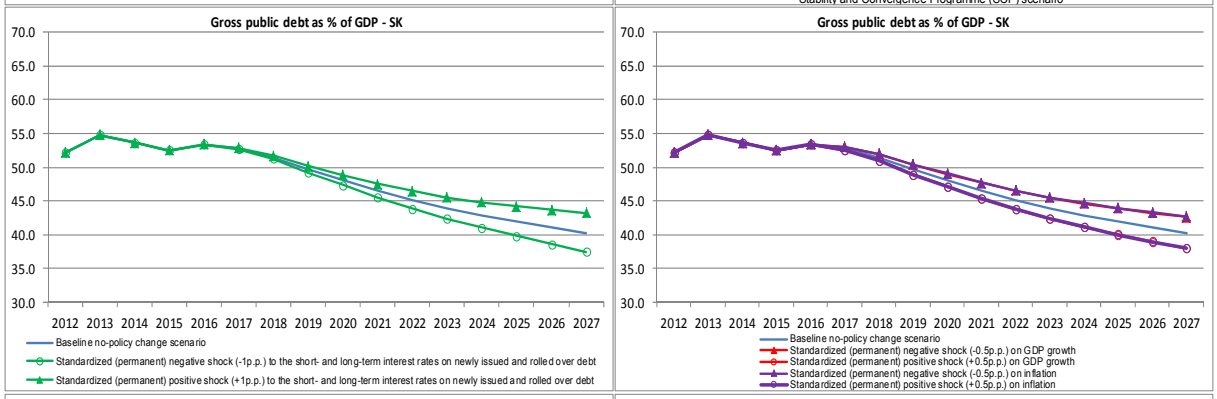
Macro-fiscal assumptions, Slovenia													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.3	0.4	0.7	0.9	0.6	0.4	0.2	0.1	0.0	-0.3	-0.6	-0.8	-1.0
Structural primary balance (before CoA)	1.1	0.7	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Real GDP growth	2.3	2.2	2.6	2.2	1.1	1.4	1.5	2.0	2.1	2.1	2.1	2.1	1.8
Potential GDP growth	0.8	0.9	1.3	1.5	1.7	1.9	2.0	2.0	2.1	2.1	2.1	2.1	1.8
Inflation rate	1.0	1.5	1.3	1.6	1.7	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.8	3.5	3.4	3.3	3.2	3.2	3.3	3.3	3.4	3.6	3.8	4.0	4.1
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.3	0.4	0.7	0.9	1.4	1.5	1.4	1.3	1.2	1.0	0.9	0.8	0.7
Structural primary balance (before CoA)	1.1	0.7	0.4	0.2	1.0	1.3	1.5	1.4	1.5	1.6	1.7	1.8	2.0
Real GDP growth	2.3	2.2	2.6	2.2	0.6	1.1	1.3	2.1	2.1	2.0	2.0	2.0	1.7
Potential GDP growth	0.8	0.9	1.3	1.5	1.1	1.6	1.9	2.1	2.1	2.0	2.0	2.0	1.7
Inflation rate	1.0	1.5	1.3	1.6	1.7	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.8	3.5	3.4	3.3	3.2	3.2	3.3	3.3	3.4	3.6	3.7	3.9	4.0
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.3	0.4	0.7	1.9	2.2	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4
Structural primary balance (before CoA)	1.1	0.7	0.4	1.2	1.7	2.3	2.5	2.5	2.4	2.4	2.4	2.4	2.4
Real GDP growth	2.3	2.2	2.6	1.5	0.8	1.0	1.3	2.1	2.1	2.1	2.1	2.1	1.9
Potential GDP growth	0.8	0.9	1.3	0.8	1.3	1.5	1.8	2.1	2.1	2.1	2.1	2.1	1.9
Inflation rate	1.0	1.5	1.3	1.6	1.7	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.8	3.5	3.4	3.3	3.2	3.2	3.3	3.3	3.4	3.5	3.7	3.8	3.9
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.0	0.7	1.0	1.5	2.0	1.2	1.3	1.2	1.1	0.8	0.5	0.3	0.1
Structural primary balance (before CoA)	0.3	0.7	0.6	0.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Real GDP growth	2.9	1.7	2.4	2.3	2.3	1.1	2.0	2.1	2.1	2.1	2.2	1.9	1.7
Potential GDP growth	1.1	1.5	1.6	1.8	1.9	1.8	2.0	2.1	2.1	2.1	2.2	1.9	1.7
Inflation rate	0.4	1.0	0.2	0.8	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.8	3.6	3.4	3.3	3.3	3.2	3.1	3.1	3.3	3.5	3.6	3.8	3.9
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.3	0.4	0.7	0.9	0.3	-0.2	-0.8	-1.1	-1.3	-1.6	-1.8	-2.0	-2.3
Structural primary balance (before CoA)	1.1	0.7	0.4	0.2	-0.1	-0.4	-0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Real GDP growth	2.3	2.2	2.6	2.2	1.4	1.6	1.7	2.3	2.1	2.1	2.1	2.1	1.8
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.3	0.4	0.7	0.9	0.3	-0.2	-0.8	-1.1	-1.3	-1.6	-1.8	-2.0	-2.3
Structural primary balance (before CoA)	1.1	0.7	0.4	0.2	-0.1	-0.4	-0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Real GDP growth	2.3	2.2	2.6	2.2	2.4	2.3	2.2	2.1	1.9	1.9	1.9	1.9	1.9
Implicit interest rate (nominal)	3.8	3.5	3.4	3.3	3.2	3.3	3.4	3.7	3.9	4.1	4.2	4.4	4.5
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.8	3.5	3.6	3.5	3.6	3.7	3.8	3.9	4.1	4.3	4.5	4.8	4.9
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.8	3.5	3.2	3.0	2.9	2.8	2.7	2.8	2.8	2.9	3.0	3.2	3.3
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.8	3.5	3.7	3.8	4.0	4.0	4.0	4.1	4.3	4.5	4.7	4.9	5.0
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	2.3	2.2	3.1	2.7	1.6	1.9	2.0	2.5	2.6	2.6	2.6	2.6	2.3
Potential GDP growth	0.8	0.9	1.8	2.0	2.2	2.4	2.5	2.5	2.6	2.6	2.6	2.6	2.3
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	2.3	2.2	2.1	1.7	0.6	0.9	1.0	1.5	1.6	1.6	1.6	1.6	1.3
Potential GDP growth	0.8	0.9	0.8	1.0	1.2	1.4	1.5	1.5	1.6	1.6	1.6	1.6	1.3
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	2.3	2.2	3.1	2.7	1.6	1.9	2.0	2.5	2.6	2.6	2.6	2.6	2.3
Potential GDP growth	0.8	0.9	1.8	2.0	2.2	2.4	2.5	2.5	2.6	2.6	2.6	2.6	2.3
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	2.3	2.2	2.1	1.7	0.6	0.9	1.0	1.5	1.6	1.6	1.6	1.6	1.3
Potential GDP growth	0.8	0.9	0.9	1.1	1.2	1.4	1.5	1.5	1.6	1.6	1.6	1.6	1.3
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	1.0	1.5	1.8	2.1	2.2	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	1.0	1.5	0.8	1.1	1.2	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.3	0.4	0.6	0.7	0.4	0.1	-0.1	-0.1	-0.3	-0.6	-0.8	-1.0	-1.3
Structural primary balance (before CoA)	1.1	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Real GDP growth	2.3	2.2	2.6	2.4	1.1	1.4	1.5	2.0	2.1	2.1	2.1	2.1	1.8
Potential GDP growth	0.8	0.9	1.4	1.7	1.7	1.9	2.0	2.0	2.1	2.1	2.1	2.1	1.8
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	3.8	3.5	3.4	3.3	3.2	3.2	3.3	3.3	3.4	3.6	3.8	4.0	4.1

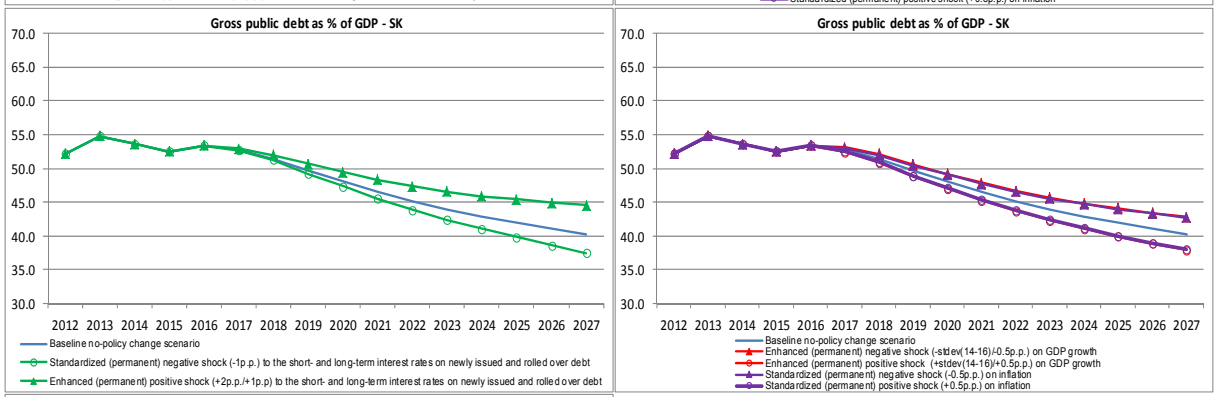
24. Slovakia

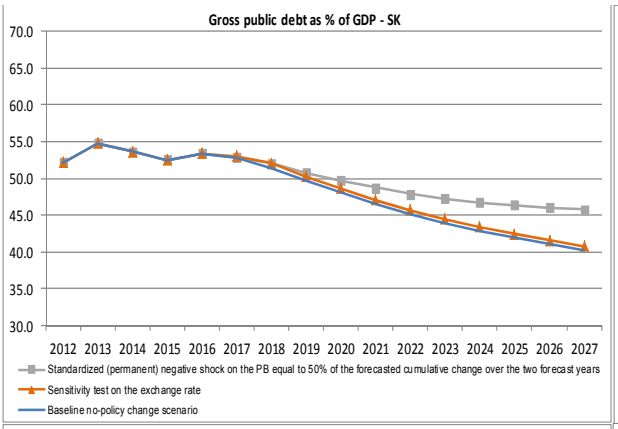
Public debt projections under baseline and alternative scenarios and sensitivity tests

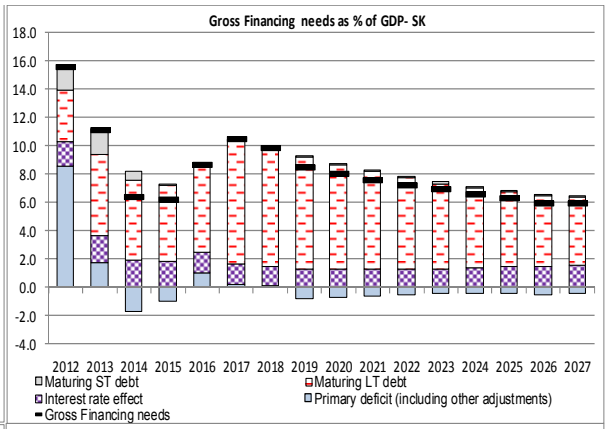
SK - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**53.6**	**52.5**	**53.3**	**52.7**	**51.5**	**49.7**	**48.1**	**46.5**	**45.1**	**43.9**	**42.9**	**42.0**	**41.1**	**40.3**
Changes in the ratio (-1+2+3)	*-1.1*	*-1.1*	*0.9*	*-0.6*	*-1.3*	*-1.8*	*-1.6*	*-1.5*	*-1.4*	*-1.2*	*-1.1*	*-0.9*	*-0.9*	*-0.8*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-0.8**	**-1.0**	**-0.7**	**-0.1**	**0.8**	**0.8**	**0.7**	**0.6**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***-0.3***	***-0.5***	***-0.5***	***0.0***	***0.7***	***0.7***	***0.7***	***0.6***	***0.5***	***0.5***	***0.5***	***0.5***	***0.5***	***0.5***
(1.1.1) Structural Primary Balance (before CoA)	*-0.3*	*-0.5*	*-0.5*	*0.0*	*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*	*0.0*	*0.0*	*0.1*	*0.2*	*0.2*	*0.2*	*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	***-0.8***	***-0.4***	***-0.2***	***-0.1***	***0.1***	***0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.3***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**0.6**	**-0.1**	**-0.1**	**-0.8**	**-1.4**	**-1.0**	**-0.9**	**-0.9**	**-0.8**	**-0.7**	**-0.6**	**-0.5**	**-0.4**	**-0.3**
(2.1) Interest expenditure	*1.9*	*1.8*	*1.5*	*1.4*	*1.3*	*1.3*	*1.3*	*1.2*	*1.3*	*1.3*	*1.3*	*1.4*	*1.5*	*1.5*
(2.2) Growth effect	*-1.4*	*-2.0*	*-1.7*	*-1.6*	*-1.9*	*-1.4*	*-1.3*	*-1.2*	*-1.2*	*-1.1*	*-1.1*	*-1.0*	*-1.0*	*-1.0*
(2.3) Inflation effect	*0.1*	*0.1*	*0.1*	*-0.5*	*-0.8*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.9*	*-0.8*	*-0.8*	*-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	**-2.5**	**-2.0**	**0.3**	**0.1**	**0.9**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*-2.5*	*-2.3*	*0.3*	*0.1*	*0.9*	*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*	*0.3*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-2.2	-2.0	-2.0	-1.4	-0.7	-0.6	-0.6	-0.6	-0.7	-0.8	-0.9	-0.9	-0.9	-1.0

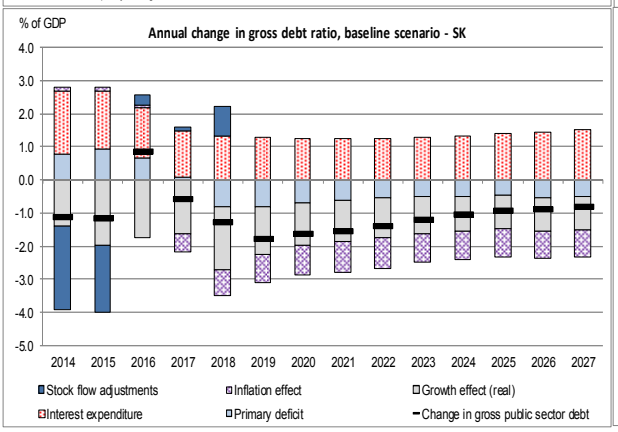


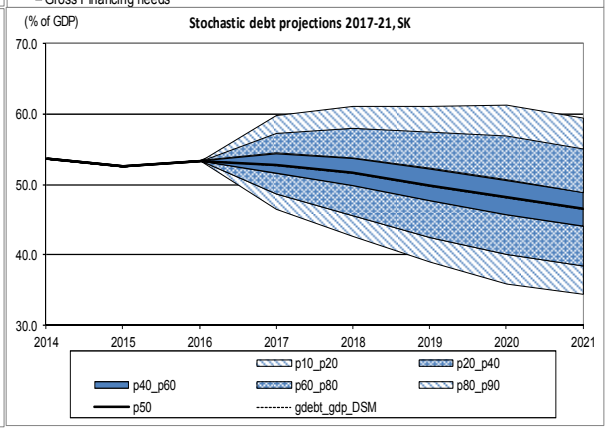












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	18.1	18.2	18.3	18.3	18.3	18.3	18.2	18.3	18.4	18.3
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8

Sustainability indicators

S0 indicator	**2009**	**2016**	**Critical threshold**
Overall index	**0.50**	**0.34**	**0.46**
Fiscal sub-index	0.47	0.09	0.36
Financial competitiveness sub-index	0.52	0.46	0.49

S1 indicator	**COM no-policy change scenario**	**Historical SPB scenario**	**AWG risk scenario**	**SCP scenario**	**2015 Sustainability Report**
Overall index	**-2.1**	**1.2**	**-1.5**	**-3.9**	**-0.7**
of which *Initial Budgetary position*	*-1.2*	*1.9*	*-1.2*	*-2.1*	*0.0*
*Cost of delaying adjustment***	*-0.3*	*0.3*	*-0.2*	*-0.6*	*-0.1*
*Debt requirement****	*-0.7*	*-1.0*	*-0.7*	*-1.3*	*-0.6*
Ageing costs	*0.1*	*0.1*	*0.6*	*0.2*	*0.0*
Required structural primary balance related to S1	**-1.4**	**-0.8**	**-0.8**	**-2.8**	**-1.1**

S2 indicator	**COM no-policy change scenario**	**Historical SPB scenario**	**AWG risk scenario**	**SCP scenario**	**2015 Sustainability Report**
Overall index	**2.4**	**5.4**	**5.5**	**2.0**	**3.5**
of which Initial Budgetary position	0.1	3.0	0.2	-0.4	1.4
Long term component	2.2	2.4	5.3	2.4	2.1
of which Pensions	*1.0*	*1.1*	*1.0*	*1.2*	*0.9*
Health care	*1.3*	*1.4*	*2.1*	*1.3*	*1.3*
Long-term care	*0.2*	*0.2*	*2.5*	*0.2*	*0.2*
Others	*-0.3*	*-0.4*	*-0.3*	*-0.4*	*-0.3*
Required structural primary balance related to S2	**3.0**	**3.3**	**6.1**	**3.1**	**3.0**

Risks related to the structure of public debt financing

Public debt structure - SK (2015):	Share of short-term public debt (p.p.) out of total debt	Share of public debt by non-residents (%):	Share of public debt in foreign currency (%):
	1.5	53.2	6.6

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		SK	EU
State guarantees (% GDP) (2014)		0.0	9.2
of which One-off guarantees		*0.0*	*8.8*
Standardised guarantees		*0.0*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** [k]	:	2.74
	Securities issued under liquidity schemes	:	0.07
	Special purpose entity	:	0.48
	Total	0.00	3.29

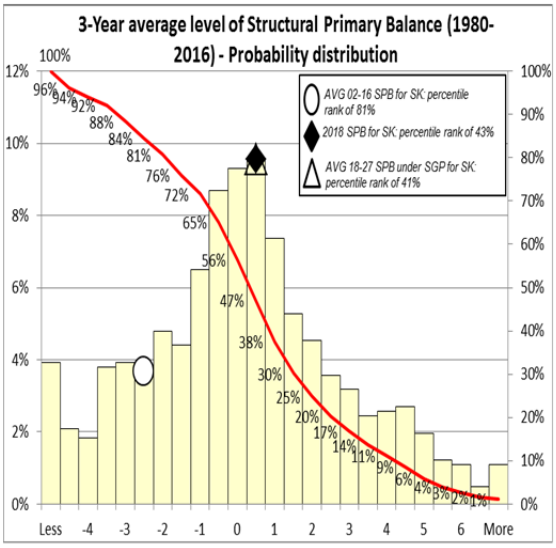
Government's contingent liability risks from banking sector - SK (2015):	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	Change in nominal house price index:	NPL coverage ratio	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8%	bank recap. at 10.5%
	3.9 (2014)	99.1	5.2	-0.2	5.4	58.2	0.00%	0.00%

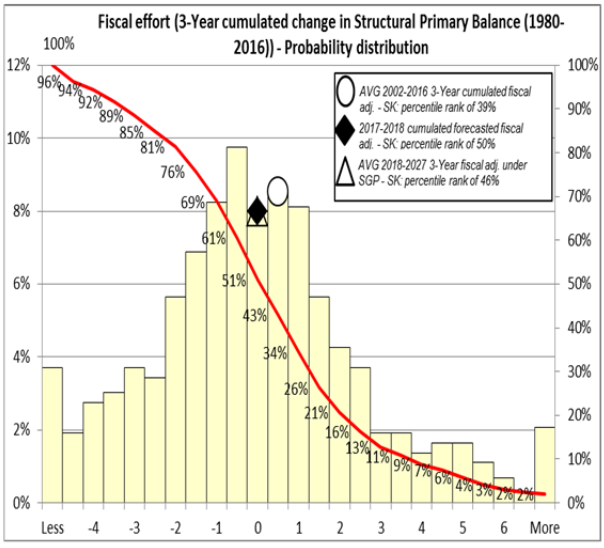
Financial market information

Sovereign Ratings as of Nov 15 2016, SK	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	A2		A2	
S&P	A+	A-1	A+	A-1
Fitch	A+		A+	

Financial market information as of November 2016, SK		
Sovereign yield spreads(bp)*	10-year	51
CDS (bp)	5-year	44.2

Realism of baseline assumptions





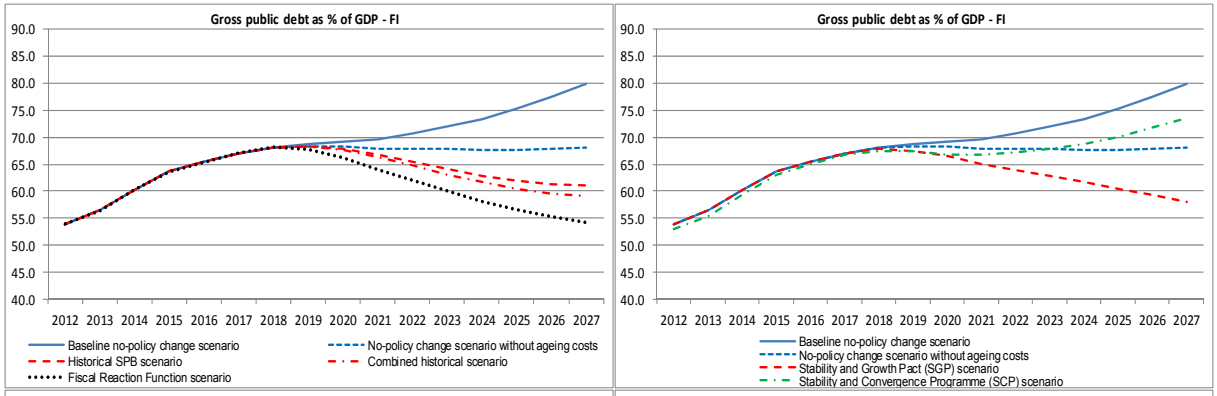
Underlying macro-fiscal assumptions

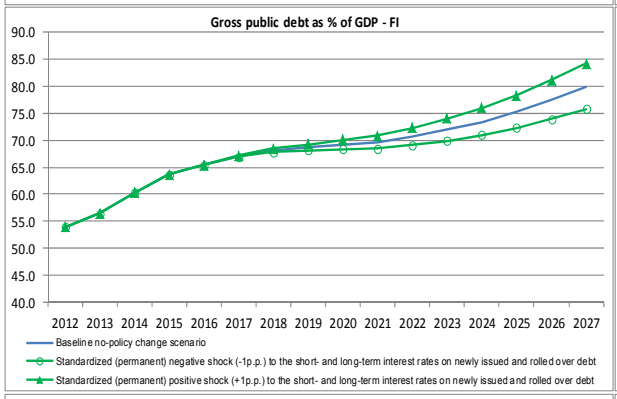
Macro-fiscal assumptions, Slovakia													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.0	-0.7	-0.1	0.8	0.8	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.5
Structural primary balance (before CoA)	-0.5	-0.5	0.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Real GDP growth	3.8	3.4	3.2	3.8	2.9	2.7	2.7	2.7	2.6	2.6	2.5	2.5	2.6
Potential GDP growth	2.7	2.7	3.0	3.2	3.0	2.8	2.8	2.7	2.6	2.6	2.5	2.5	2.6
Inflation rate	-0.2	-0.2	1.0	1.5	1.7	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.4	3.0	2.7	2.7	2.6	2.6	2.7	2.8	3.0	3.2	3.4	3.7	3.9
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.0	-0.7	-0.1	0.8	-0.3	-0.7	-0.8	-0.8	-0.9	-0.9	-0.8	-0.8	-0.8
Structural primary balance (before CoA)	-0.5	-0.5	0.0	0.7	-0.4	-0.7	-0.7	-0.7	-0.7	-0.7	-0.6	-0.7	-0.6
Real GDP growth	3.8	3.4	3.2	3.8	3.7	2.9	2.7	2.7	2.6	2.5	2.5	2.5	2.5
Potential GDP growth	2.7	2.7	3.0	3.2	3.8	3.0	2.8	2.7	2.6	2.5	2.5	2.5	2.5
Inflation rate	-0.2	-0.2	1.0	1.5	1.7	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.4	3.0	2.7	2.7	2.6	2.6	2.7	2.9	3.1	3.3	3.5	3.8	4.0
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.0	-0.7	-0.1	0.5	0.9	0.8	0.7	0.8	0.8	0.8	0.9	0.9	0.9
Structural primary balance (before CoA)	-0.5	-0.5	0.0	0.4	0.8	0.8	0.7	0.8	0.8	0.8	0.9	0.9	0.9
Real GDP growth	3.8	3.4	3.2	4.0	2.6	2.7	2.7	2.7	2.6	2.5	2.5	2.5	2.5
Potential GDP growth	2.7	2.7	3.0	3.4	2.7	2.8	2.8	2.7	2.6	2.5	2.5	2.5	2.5
Inflation rate	-0.2	-0.2	1.0	1.5	1.7	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.4	3.0	2.7	2.7	2.6	2.6	2.7	2.8	3.0	3.2	3.4	3.6	3.8
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.2	-0.7	0.1	0.9	1.5	1.0	1.0	0.9	0.9	0.8	0.8	0.9	0.9
Structural primary balance (before CoA)	-0.5	-0.1	0.5	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Real GDP growth	3.6	3.2	3.6	4.1	4.6	2.7	2.6	2.5	2.5	2.4	2.5	2.6	2.7
Potential GDP growth	2.8	3.0	3.2	3.2	3.1	2.6	2.6	2.5	2.5	2.4	2.5	2.6	2.7
Inflation rate	-0.3	0.1	1.6	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.1	3.0	2.9	2.9	2.8	2.8	2.7	2.3	1.8	1.9	2.0	2.1	2.1
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.0	-0.7	-0.1	0.8	0.1	-0.7	-1.4	-2.2	-2.3	-2.3	-2.3	-2.2	-2.3
Structural primary balance (before CoA)	-0.5	-0.5	0.0	0.7	0.0	-0.7	-1.4	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1
Real GDP growth	3.8	3.4	3.2	3.8	3.4	3.2	3.2	3.2	2.6	2.6	2.5	2.5	2.6
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.0	-0.7	-0.1	0.8	0.1	-0.7	-1.4	-2.2	-2.3	-2.3	-2.3	-2.2	-2.3
Structural primary balance (before CoA)	-0.5	-0.5	0.0	0.7	0.0	-0.7	-1.4	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1
Real GDP growth	3.8	3.4	3.2	3.8	4.3	4.3	4.4	4.4	3.9	3.9	3.9	3.9	3.9
Implicit interest rate (nominal)	3.4	3.0	2.7	2.7	2.6	2.7	3.0	3.3	3.7	3.9	4.1	4.2	4.3
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.4	3.0	2.9	3.0	3.1	3.2	3.3	3.5	3.8	4.0	4.3	4.5	4.8
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.4	3.0	2.6	2.3	2.2	2.1	2.1	2.2	2.3	2.4	2.6	2.8	3.0
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	3.4	3.0	3.1	3.3	3.5	3.6	3.7	3.8	4.0	4.2	4.4	4.7	4.9
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.8	3.4	3.7	4.3	3.4	3.2	3.2	3.2	3.1	3.1	3.0	3.0	3.1
Potential GDP growth	2.7	2.7	3.5	3.7	3.5	3.3	3.3	3.2	3.1	3.1	3.0	3.0	3.1
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.8	3.4	2.7	3.3	2.4	2.2	2.2	2.2	2.1	2.1	2.0	2.0	2.1
Potential GDP growth	2.7	2.7	2.5	2.7	2.5	2.3	2.3	2.2	2.1	2.1	2.0	2.0	2.1
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.8	3.4	3.8	4.4	3.4	3.2	3.2	3.2	3.1	3.1	3.0	3.0	3.1
Potential GDP growth	2.7	2.7	3.6	3.9	3.5	3.3	3.3	3.2	3.1	3.1	3.0	3.0	3.1
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	3.8	3.4	2.5	3.1	2.4	2.2	2.2	2.2	2.1	2.1	2.0	2.0	2.1
Potential GDP growth	2.7	2.7	2.4	2.6	2.5	2.3	2.3	2.2	2.1	2.1	2.0	2.0	2.1
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	-0.2	-0.2	1.5	2.0	2.2	2.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	-0.2	-0.2	0.5	1.0	1.2	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.0	-0.7	-0.3	0.2	0.2	0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1
Structural primary balance (before CoA)	-0.5	-0.5	-0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Real GDP growth	3.8	3.4	3.3	4.1	2.9	2.7	2.7	2.7	2.6	2.6	2.5	2.5	2.6
Potential GDP growth	2.7	2.7	3.1	3.5	3.0	2.8	2.8	2.7	2.6	2.6	2.5	2.5	2.6
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	3.4	3.0	2.7	2.7	2.6	2.6	2.7	2.8	3.0	3.2	3.4	3.7	3.9

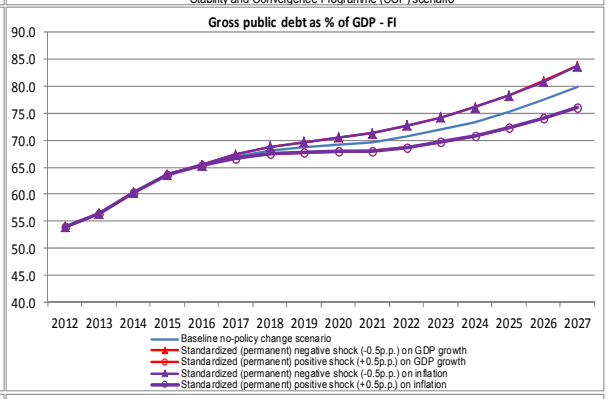
25. Finland

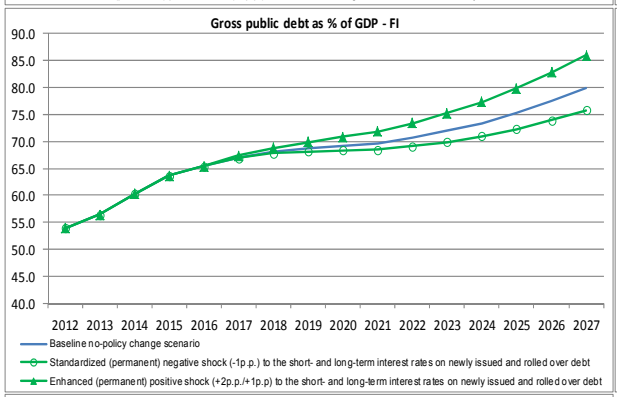
Public debt projections under baseline and alternative scenarios and sensitivity tests

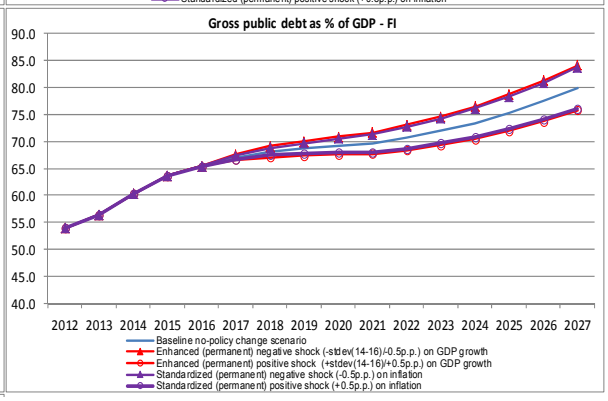
FI - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**60.2**	**63.6**	**65.4**	**67.1**	**68.1**	**68.6**	**69.2**	**69.6**	**70.7**	**71.9**	**73.4**	**75.2**	**77.4**	**79.8**
Changes in the ratio (-1+2+3)	*3.8*	*3.4*	*1.7*	*1.7*	*1.0*	*0.6*	*0.5*	*0.5*	*1.0*	*1.2*	*1.5*	*1.8*	*2.2*	*2.4*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-1.9**	**-1.6**	**-1.2**	**-1.4**	**-1.0**	**-1.0**	**-1.1**	**-1.1**	**-1.3**	**-1.5**	**-1.7**	**-1.8**	**-2.0**	**-2.2**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***-0.5***	***-0.2***	***-0.2***	***-0.5***	***-0.4***	***-0.6***	***-0.9***	***-1.1***	***-1.3***	***-1.5***	***-1.7***	***-1.8***	***-2.0***	***-2.2***
(1.1.1) Structural Primary Balance (before CoA)	*-0.5*	*-0.2*	*-0.2*	*-0.5*	*-0.4*	*-0.4*	*-0.4*	*-0.4*	*-0.4*	*-0.4*	*-0.4*	*-0.4*	*-0.4*	*-0.4*
(1.1.2) Cost of ageing						*0.3*	*0.6*	*0.9*	*1.1*	*1.3*	*1.5*	*1.7*	*1.9*	*2.1*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.1*	*0.1*	*0.2*	*0.2*	*0.2*	*0.3*	*0.3*	*0.3*
(1.2) Cyclical component	***-1.5***	***-1.4***	***-1.0***	***-0.9***	***-0.6***	***-0.4***	***-0.2***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.1***	***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)	**0.7**	**0.1**	**-0.1**	**0.1**	**-0.3**	**-0.5**	**-0.6**	**-0.6**	**-0.3**	**-0.3**	**-0.2**	**0.0**	**0.2**	**0.2**
(2.1) Interest expenditure	*1.2*	*1.2*	*1.1*	*1.1*	*1.0*	*1.1*	*1.2*	*1.3*	*1.5*	*1.6*	*1.8*	*2.1*	*2.4*	*2.6*
(2.2) Growth effect	*0.4*	*-0.1*	*-0.5*	*-0.5*	*-0.7*	*-0.7*	*-0.7*	*-0.6*	*-0.4*	*-0.5*	*-0.6*	*-0.7*	*-0.7*	*-0.9*
(2.3) Inflation effect	*-1.0*	*-1.0*	*-0.7*	*-0.5*	*-0.7*	*-0.9*	*-1.1*	*-1.4*	*-1.4*	*-1.4*	*-1.4*	*-1.4*	*-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	**1.2**	**1.7**	**0.6**	**0.2**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*1.2*	*0.2*	*0.6*	*0.1*	*0.4*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.0*	*1.5*	*0.0*	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-1.8	0.1	-1.3	-1.6	-1.4	-1.8	-2.1	-2.4	-2.8	-3.1	-3.5	-3.9	-4.3	-4.8

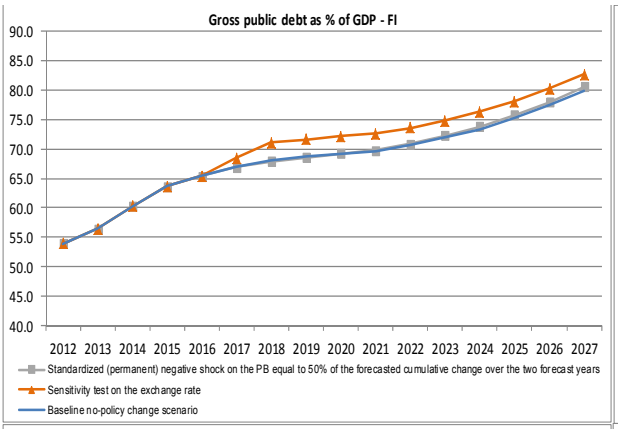


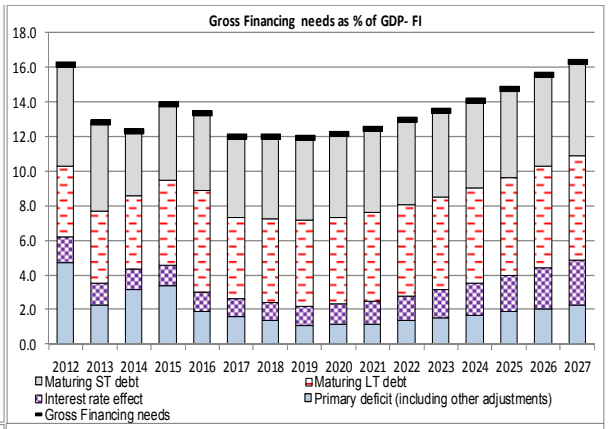


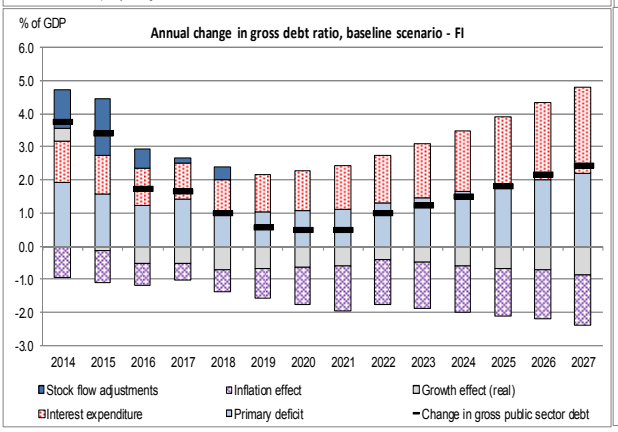


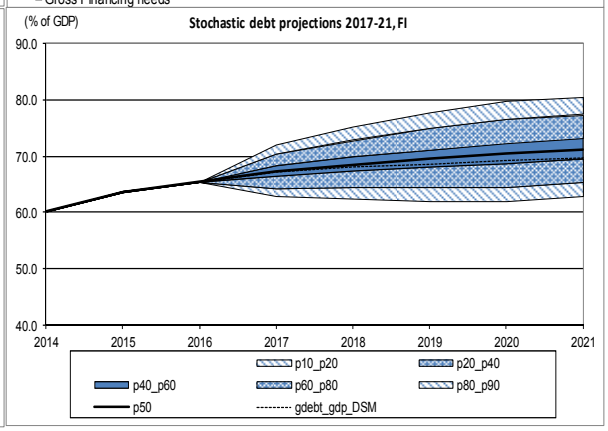












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	31.2	31.6	31.8	32.0	32.2	32.3	32.6	32.9	34.0	34.7
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.9	3.1	2.9

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.33**	**0.22**	**0.46**
Fiscal sub-index	0.35	0.08	0.36
Financial competitiveness sub-index	0.31	0.29	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**2.8**	**0.2**	**3.1**	**2.4**	**2.6**
of which *Initial Budgetary position*	*0.2*	*-2.5*	*0.2*	*-0.1*	*0.2*
*Cost of delaying adjustment***	*0.4*	*0.0*	*0.5*	*0.4*	*0.4*
*Debt requirement****	*0.6*	*0.6*	*0.6*	*0.7*	*0.4*
Ageing costs	*1.6*	*2.0*	*1.8*	*1.4*	*1.6*
Required structural primary balance related to S1	**2.5**	**2.4**	**2.7**	**2.4**	**2.2**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**3.2**	**0.7**	**4.5**	**2.6**	**3.9**
of which Initial Budgetary position	1.6	-1.0	1.5	1.3	2.1
Long term component	1.6	1.7	3.0	1.3	1.7
of which Pensions	*-0.5*	*-0.6*	*-0.6*	*-0.7*	*-0.4*
Health care	*0.5*	*0.5*	*0.9*	*0.5*	*0.5*
Long-term care	*1.6*	*1.6*	*2.5*	*1.5*	*1.6*
Others	*0.1*	*0.1*	*0.1*	*0.1*	*0.0*
Required structural primary balance related to S2	**2.8**	**3.3**	**4.1**	**2.6**	**3.5**

Risks related to the structure of public debt financing

Public debt structure - FI (2015):	Share of short-term public debt (p.p.) out of total debt: 9.5	Share of public debt by non-residents (%): 76.1	Share of public debt in foreign currency (%): 1.6

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		FI	EU
State guarantees (% GDP) (2014)		25.9	9.2
of which One-off guarantees		*25.0*	*8.8*
Standardised guarantees		*0.9*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** [k]	**0.00**	**2.74**
	Securities issued under liquidity schemes	**0.00**	**0.07**
	Special purpose entity	**0.00**	**0.48**
	Total	**0.00**	**3.29**

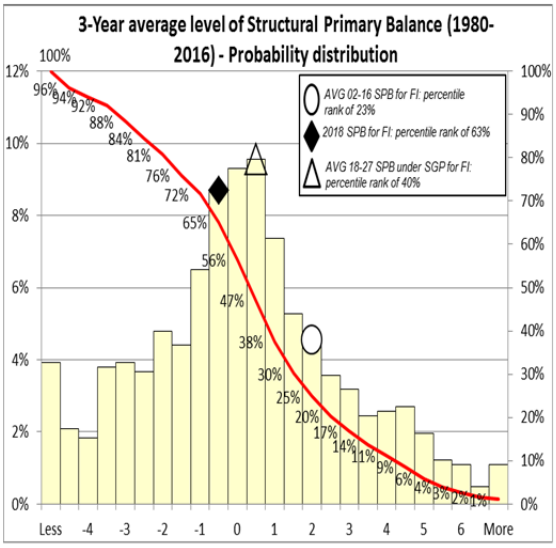
Government's contingent liability risks from banking sector - FI (2015):	Private sector credit flow (% GDP): 9.5	Bank loans-to-deposits ratio (%): 157.7	Share of non-performing loans (%): 1.6	Change in share of non-performing loans (p.p): 0	Change in nominal house price index: 0	NPL coverage ratio: 30.9	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8%: 0.00%	bank recap. at 10.5%: 0.00%

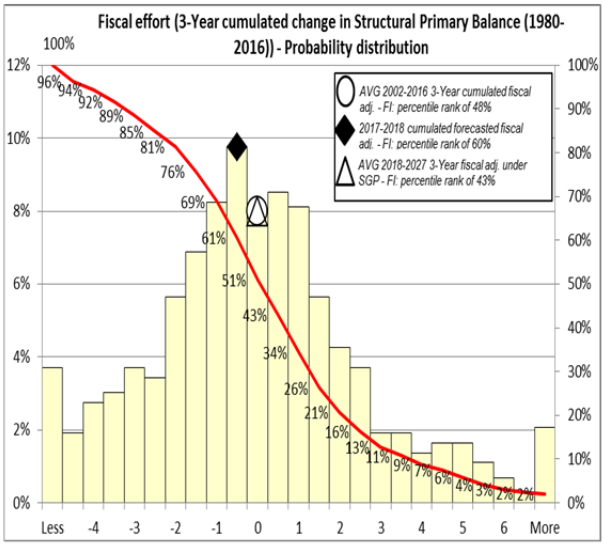
Financial market information

Sovereign Ratings as of Nov 15 2016, FI	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aa1		Aa1	
S&P	AA+	A-1+	AA+	A-1+
Fitch	AA+		AA+	F1+

Financial market information as of November 2016, FI		
Sovereign yield spreads(bp)*	**10-year**	21
CDS (bp)	**5-year**	30.7

Realism of baseline assumptions





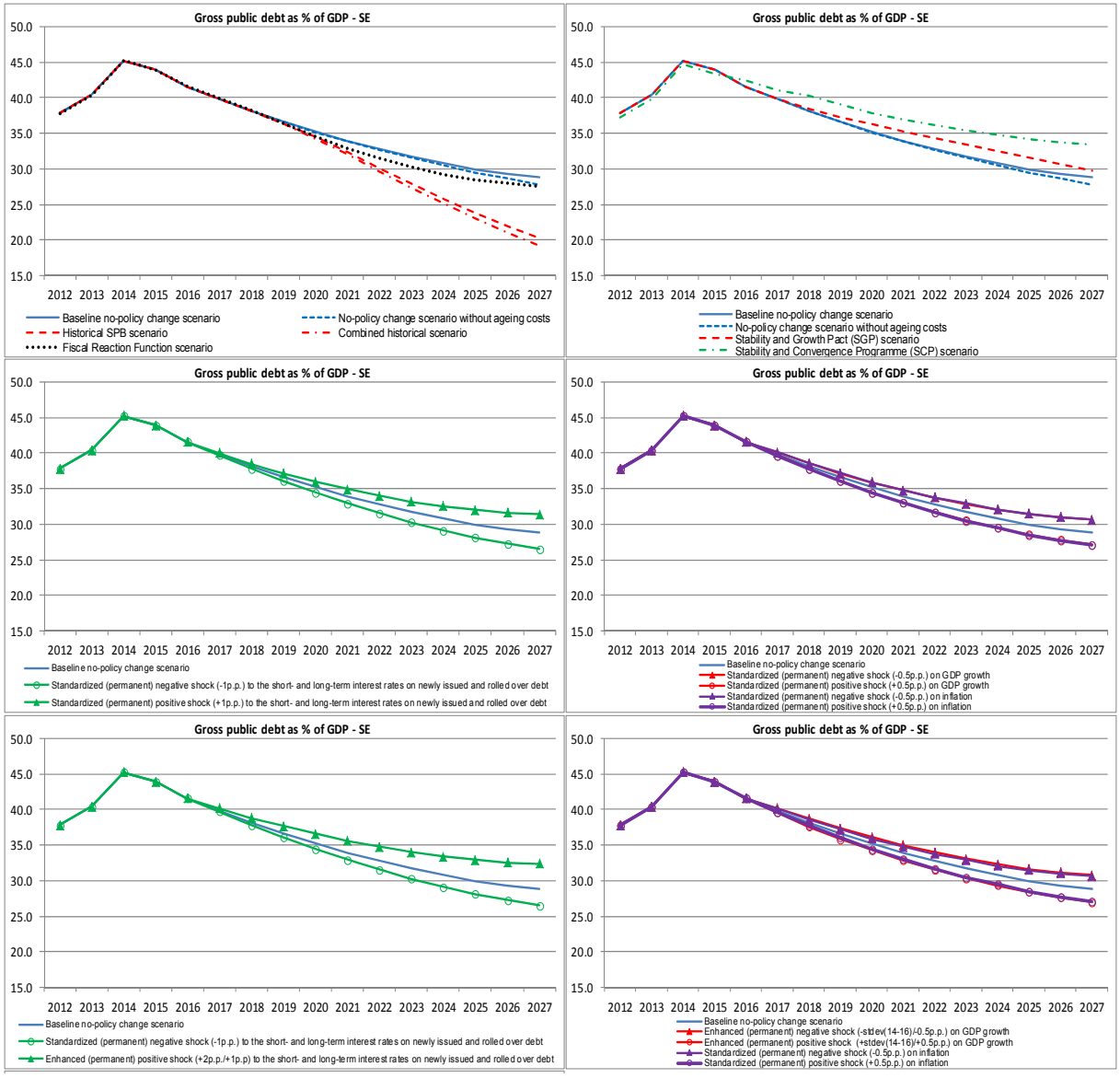
Underlying macro-fiscal assumptions

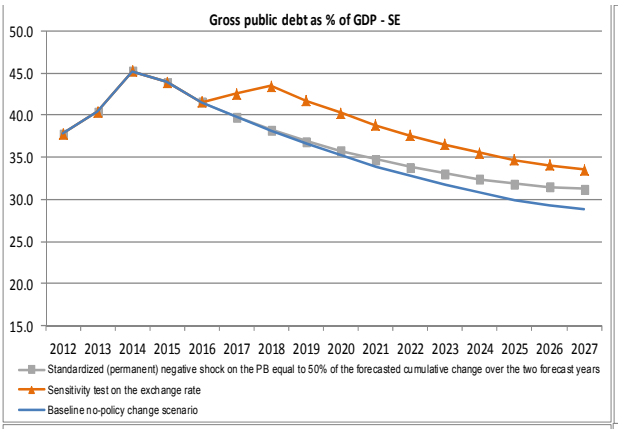
Macro-fiscal assumptions, Finland													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.6	-1.2	-1.4	-1.0	-1.0	-1.1	-1.1	-1.3	-1.5	-1.7	-1.8	-2.0	-2.2
Structural primary balance (before CoA)	-0.2	-0.2	-0.5	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Real GDP growth	0.2	0.8	0.8	1.1	1.0	1.0	0.9	0.6	0.7	0.8	0.9	1.0	1.1
Potential GDP growth	0.0	0.2	0.6	0.6	0.7	0.6	0.5	0.6	0.7	0.8	0.9	1.0	1.1
Inflation rate	1.6	1.1	0.8	1.0	1.3	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.0	1.8	1.7	1.6	1.7	1.8	2.0	2.1	2.4	2.6	2.9	3.2	3.5
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.6	-1.2	-1.4	-1.0	0.6	1.4	1.8	1.8	1.7	1.5	1.4	1.3	1.2
Structural primary balance (before CoA)	-0.2	-0.2	-0.5	-0.4	1.3	2.1	2.5	2.7	2.8	2.8	2.9	2.9	3.1
Real GDP growth	0.2	0.8	0.8	1.1	-0.2	0.4	0.6	0.4	0.7	0.8	0.9	0.9	1.0
Potential GDP growth	0.0	0.2	0.6	0.6	-0.6	0.0	0.2	0.4	0.7	0.8	0.9	0.9	1.0
Inflation rate	1.6	1.1	0.8	1.0	1.3	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.0	1.8	1.7	1.6	1.7	1.8	1.9	2.0	2.2	2.4	2.6	2.9	3.1
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.6	-1.2	-1.4	-0.6	0.2	0.5	0.7	0.8	0.9	1.0	1.1	1.2	1.3
Structural primary balance (before CoA)	-0.2	-0.2	-0.5	0.0	0.6	0.7	0.7	0.8	0.9	1.0	1.1	1.2	1.3
Real GDP growth	0.2	0.8	0.8	0.8	0.6	0.9	0.8	0.5	0.6	0.8	0.8	0.9	1.1
Potential GDP growth	0.0	0.2	0.6	0.3	0.2	0.6	0.5	0.5	0.6	0.8	0.8	0.9	1.1
Inflation rate	1.6	1.1	0.8	1.0	1.3	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.0	1.8	1.7	1.6	1.7	1.8	1.9	2.1	2.3	2.5	2.7	3.0	3.1
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.6	-1.3	-1.0	-0.7	-0.2	-0.2	-0.5	-0.7	-0.8	-1.0	-1.2	-1.4	-1.6
Structural primary balance (before CoA)	-0.2	-0.3	-0.4	-0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Real GDP growth	0.5	0.9	1.2	1.2	1.1	1.1	0.8	0.9	1.1	1.2	1.3	1.3	1.4
Potential GDP growth	0.0	0.3	0.5	0.7	0.8	0.7	0.8	0.9	1.1	1.2	1.3	1.3	1.4
Inflation rate	0.4	0.7	1.1	1.4	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.1	1.9	1.8	1.7	1.8	1.9	2.0	2.4	2.8	3.1	3.5	3.6	3.8
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.6	-1.2	-1.4	-1.0	-0.4	0.2	0.8	1.3	1.1	0.9	0.8	0.6	0.4
Structural primary balance (before CoA)	-0.2	-0.2	-0.5	-0.4	0.3	0.9	1.6	2.2	2.2	2.2	2.2	2.2	2.2
Real GDP growth	0.2	0.8	0.8	1.1	0.5	0.5	0.4	0.1	0.7	0.8	0.9	1.0	1.1
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.6	-1.2	-1.4	-1.0	-0.4	0.2	0.8	1.3	1.1	0.9	0.8	0.6	0.4
Structural primary balance (before CoA)	-0.2	-0.2	-0.5	-0.4	0.3	0.9	1.6	2.2	2.2	2.2	2.2	2.2	2.2
Real GDP growth	0.2	0.8	0.8	1.1	0.6	0.7	0.7	0.7	1.2	1.2	1.2	1.2	1.2
Implicit interest rate (nominal)	2.0	1.8	1.7	1.6	1.7	1.8	2.0	2.2	2.3	2.5	2.6	2.8	2.9
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.0	1.8	1.9	1.9	2.1	2.3	2.5	2.7	3.0	3.3	3.6	4.0	4.3
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.0	1.8	1.5	1.3	1.3	1.4	1.4	1.6	1.7	1.9	2.2	2.4	2.6
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.0	1.8	2.1	2.2	2.5	2.5	2.7	2.9	3.2	3.5	3.8	4.1	4.4
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	0.2	0.8	1.3	1.6	1.5	1.5	1.4	1.1	1.2	1.3	1.4	1.5	1.6
Potential GDP growth	0.0	0.2	1.1	1.1	1.2	1.1	1.0	1.1	1.2	1.3	1.4	1.5	1.6
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	0.2	0.8	0.3	0.6	0.5	0.5	0.4	0.1	0.2	0.3	0.4	0.5	0.6
Potential GDP growth	0.0	0.2	0.1	0.1	0.2	0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	0.2	0.8	1.5	1.9	1.5	1.5	1.4	1.1	1.2	1.3	1.4	1.5	1.6
Potential GDP growth	0.0	0.2	1.4	1.3	1.2	1.1	1.0	1.1	1.2	1.3	1.4	1.5	1.6
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	0.2	0.8	0.0	0.3	0.5	0.5	0.4	0.1	0.2	0.3	0.4	0.5	0.6
Potential GDP growth	0.0	0.2	-0.2	-0.2	0.2	0.1	0.0	0.1	0.2	0.3	0.4	0.5	0.6
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	1.6	1.1	1.3	1.5	1.8	2.2	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	1.6	1.1	0.3	0.5	0.8	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.6	-1.2	-1.2	-1.1	-1.1	-1.2	-1.2	-1.4	-1.6	-1.8	-1.9	-2.1	-2.3
Structural primary balance (before CoA)	-0.2	-0.2	-0.3	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Real GDP growth	0.2	0.8	0.6	1.3	1.0	1.0	0.9	0.6	0.7	0.8	0.9	1.0	1.1
Potential GDP growth	0.0	0.2	0.4	0.8	0.7	0.6	0.5	0.6	0.7	0.8	0.9	1.0	1.1
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	2.0	1.8	1.7	1.6	1.7	1.8	2.0	2.1	2.4	2.6	2.9	3.2	3.5

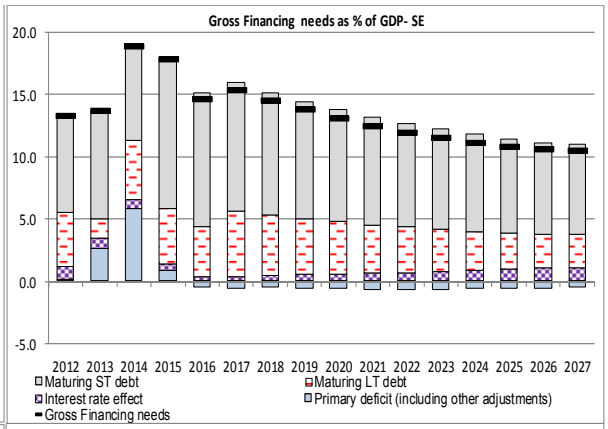
26. Sweden

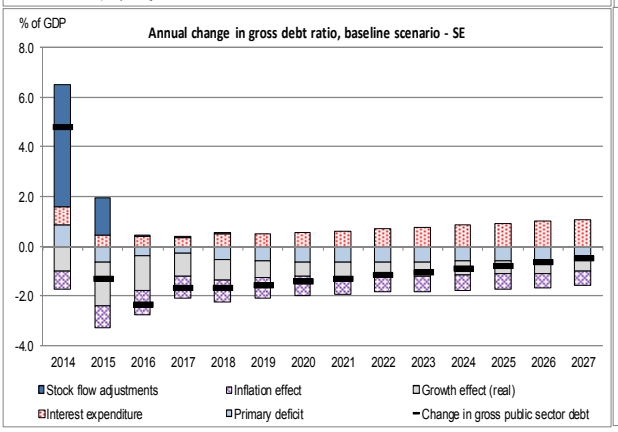
Public debt projections under baseline and alternative scenarios and sensitivity tests

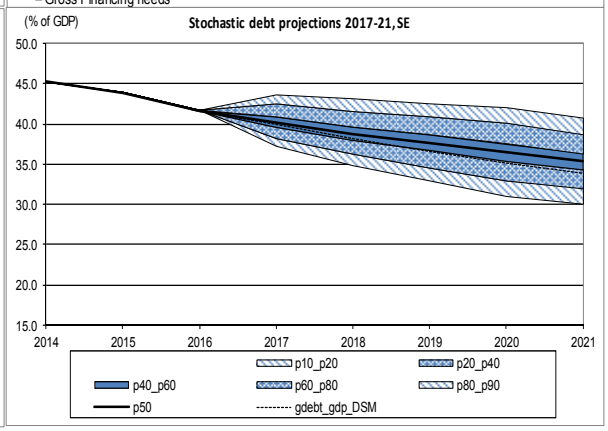
SE - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**45.2**	**43.9**	**41.6**	**39.9**	**38.2**	**36.6**	**35.2**	**33.9**	**32.7**	**31.7**	**30.8**	**30.0**	**29.3**	**28.8**
Changes in the ratio (-1+2+3)	*4.8*	*-1.3*	*-2.4*	*-1.7*	*-1.7*	*-1.6*	*-1.4*	*-1.3*	*-1.1*	*-1.1*	*-0.9*	*-0.8*	*-0.6*	*-0.5*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-0.9**	**0.7**	**0.4**	**0.3**	**0.5**	**0.6**	**0.6**	**0.7**	**0.7**	**0.7**	**0.6**	**0.6**	**0.5**	**0.4**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***0.3***	***0.8***	***0.1***	***0.1***	***0.6***	***0.6***	***0.6***	***0.7***	***0.7***	***0.7***	***0.6***	***0.6***	***0.5***	***0.4***
(1.1.1) Structural Primary Balance (before CoA)	*0.3*	*0.8*	*0.1*	*0.1*	*0.6*	*0.6*	*0.6*	*0.6*	*0.6*	*0.6*	*0.6*	*0.6*	*0.6*	*0.6*
(1.1.2) Cost of ageing						*0.0*	*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.2*	*0.3*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.1*
(1.2) Cyclical component	***-1.1***	***-0.1***	***0.3***	***0.2***	***-0.1***	***-0.1***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(1.3) One-off and other temporary measures	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***
(2) Snowball effect (2.1+2.2+2.3+2.4)	**-1.0**	**-2.1**	**-2.0**	**-1.5**	**-1.2**	**-1.0**	**-0.8**	**-0.7**	**-0.5**	**-0.4**	**-0.3**	**-0.2**	**-0.1**	**-0.1**
(2.1) Interest expenditure	*0.7*	*0.5*	*0.4*	*0.4*	*0.5*	*0.5*	*0.6*	*0.6*	*0.7*	*0.8*	*0.8*	*0.9*	*1.0*	*1.1*
(2.2) Growth effect	*-1.0*	*-1.8*	*-1.4*	*-0.9*	*-0.8*	*-0.7*	*-0.6*	*-0.6*	*-0.5*	*-0.5*	*-0.5*	*-0.6*	*-0.5*	*-0.6*
(2.3) Inflation effect	*-0.7*	*-0.9*	*-1.0*	*-0.9*	*-0.9*	*-0.8*	*-0.7*	*-0.7*	*-0.7*	*-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	**4.9**	**1.5**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*4.4*	*-0.7*	*-0.1*	*-0.3*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3.2) Adjustment due to the exchange rate effect	*0.5*	*2.2*	*0.1*	*0.3*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	0.1	2.6	-0.3	-0.3	0.1	0.1	0.1	0.0	0.0	-0.1	-0.2	-0.4	-0.5	-0.6











Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	25.5	25.1	24.8	24.9	25.0	25.1	25.1	25.1	25.3	25.6
Revenues from pensions taxation	2.8	2.6	2.6	2.7	2.7	2.7	2.8	2.8	2.7	2.8
Property incomes	2.0	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.7

Sustainability indicators

S0 indicator	2009	2016	Critical threshold
Overall index	**0.31**	**0.12**	**0.46**
Fiscal sub-index	0.15	0.00	0.36
Financial competitiveness sub-index	0.40	0.19	0.49

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**-2.9**	**-6.6**	**-2.5**	**-3.0**	**-1.3**
of which *Initial Budgetary position*	*-1.0*	*-2.1*	*-1.0*	*-0.8*	*-0.1*
*Cost of delaying adjustment***	*-0.4*	*-1.4*	*-0.4*	*-0.5*	*-0.2*
*Debt requirement****	*-1.7*	*-3.3*	*-1.7*	*-1.9*	*-1.3*
Ageing costs	*0.2*	*0.3*	*0.6*	*0.2*	*0.3*
Required structural primary balance related to S1	**-2.3**	**-4.8**	**-1.8**	**-2.4**	**-1.6**

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2015 Sustainability Report
Overall index	**1.0**	**-0.2**	**3.3**	**1.1**	**2.3**
of which Initial Budgetary position	0.1	-1.1	0.1	0.1	1.2
Long term component	0.9	0.9	3.2	0.9	1.1
of which Pensions	*-0.7*	*-0.7*	*-0.7*	*-0.6*	*-0.8*
Health care	*0.3*	*0.3*	*0.8*	*0.3*	*0.3*
Long-term care	*1.1*	*1.1*	*2.8*	*1.1*	*1.3*
Others	*0.2*	*0.2*	*0.2*	*0.2*	*0.2*
Required structural primary balance related to S2	**1.6**	**1.9**	**3.9**	**1.7**	**2.0**

Risks related to the structure of public debt financing

Public debt structure - SE (2015):	Share of short-term public debt (p.p.) out of total debt 27.2	Share of public debt by non-residents (%): 36.8	Share of public debt in foreign currency (%): 25.8

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015			
		SE	EU
State guarantees (% GDP) (2014)		10.2	9.2
of which One-off guarantees		*10.2*	*8.8*
Standardised guarantees		*0.0*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	**Liabilities and assets outside gen. gov't under guarantee** [k]	:	2.74
	Securities issued under liquidity schemes	:	0.07
	Special purpose entity	:	0.48
	Total	0.00	3.29

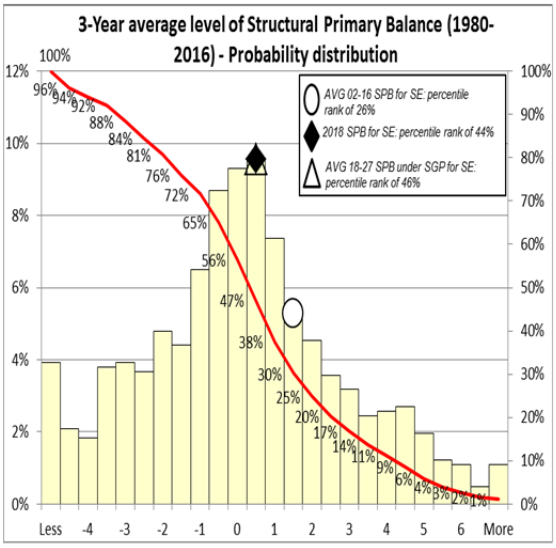
Government's contingent liability risks from banking sector - SE (2015):	Private sector credit flow (% GDP): 6.5	Bank loans-to-deposits ratio (%): 219.5	Share of non-performing loans (%): 1.2	Change in share of non-performing loans (p.p): -0.1	Change in nominal house price index: 13.1	NPL coverage ratio 29.5	**Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):**	
							bank recap. at 8% 0.00%	bank recap. at 10.5% 0.00%

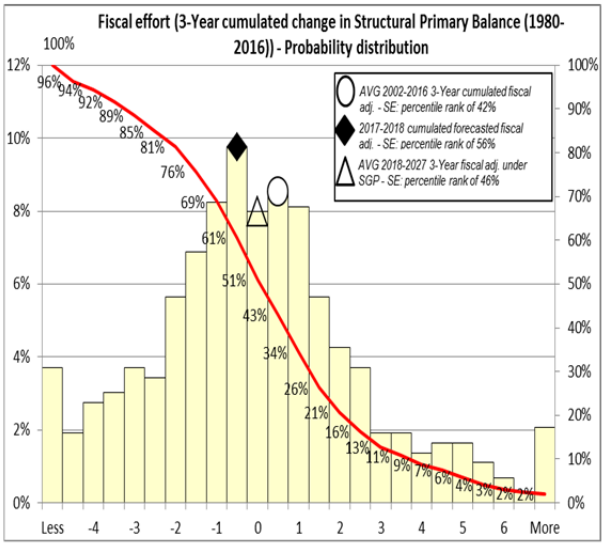
Financial market information

Sovereign Ratings as of Nov 15 2016, SE	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aaa		Aaa	P-1
S&P	AAA[u]	A-1+[u]	AAA[u]	A-1+[u]
Fitch	AAA		AAA	F1+

Financial market information as of November 2016, SE		
Sovereign yield spreads(bp)*	10-year	17
CDS (bp)	5-year	20.8

Realism of baseline assumptions





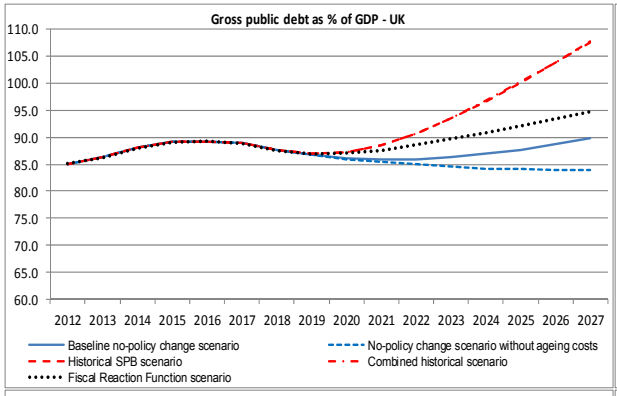
Underlying macro-fiscal assumptions

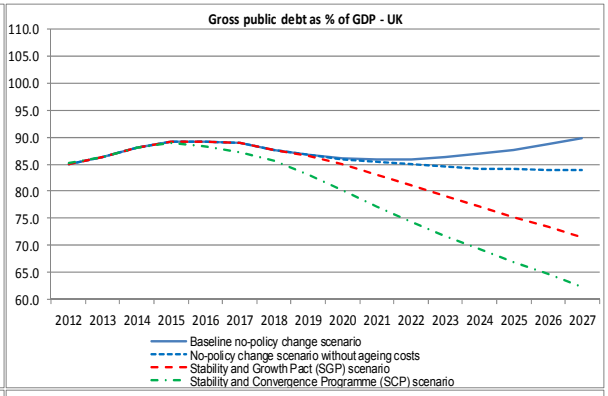
Macro-fiscal assumptions, Sweden													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.7	0.4	0.3	0.5	0.6	0.6	0.7	0.7	0.7	0.6	0.6	0.5	0.4
Structural primary balance (before CoA)	0.8	0.1	0.1	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Real GDP growth	4.1	3.4	2.4	2.1	1.9	1.7	1.7	1.6	1.7	1.8	1.9	1.9	2.0
Potential GDP growth	2.4	2.6	2.6	2.6	1.8	1.7	1.7	1.6	1.7	1.8	1.9	1.9	2.0
Inflation rate	2.0	2.3	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.1	0.9	0.9	1.3	1.4	1.6	1.8	2.1	2.4	2.8	3.2	3.6	3.8
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.7	0.4	0.3	0.5	1.0	1.0	1.0	0.9	0.8	0.7	0.5	0.5	0.4
Structural primary balance (before CoA)	0.8	0.1	0.1	0.6	1.0	1.1	1.0	0.9	0.7	0.7	0.6	0.5	0.6
Real GDP growth	4.1	3.4	2.4	2.1	1.6	1.7	1.8	1.7	1.8	1.8	1.9	1.9	2.0
Potential GDP growth	2.4	2.6	2.6	2.6	1.6	1.6	1.7	1.7	1.8	1.8	1.9	1.9	2.0
Inflation rate	2.0	2.3	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.1	0.9	0.9	1.3	1.4	1.6	1.8	2.1	2.4	2.8	3.2	3.6	3.7
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.7	0.4	0.3	0.1	0.2	0.3	0.4	0.4	0.5	0.6	0.7	0.8	0.8
Structural primary balance (before CoA)	0.8	0.1	0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.6	0.7	0.8	0.8
Real GDP growth	4.1	3.4	2.4	2.5	1.9	1.7	1.7	1.5	1.6	1.7	1.8	1.8	2.0
Potential GDP growth	2.4	2.6	2.6	2.9	1.8	1.6	1.6	1.5	1.6	1.7	1.8	1.8	2.0
Inflation rate	2.0	2.3	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.1	0.9	0.9	1.3	1.4	1.6	1.8	2.1	2.4	2.8	3.2	3.6	3.8
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.5	0.0	-0.2	0.2	0.8	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.4
Structural primary balance (before CoA)	0.8	-0.3	-0.3	0.2	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Real GDP growth	4.1	3.8	2.2	1.8	2.1	1.5	1.5	1.6	1.7	1.8	1.9	1.9	2.0
Potential GDP growth	2.7	2.4	2.2	2.2	2.4	1.7	1.5	1.6	1.7	1.8	1.9	1.9	2.0
Inflation rate	1.9	1.7	1.9	2.0	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.2	1.1	1.2	1.5	1.9	2.0	2.7	3.1	3.3	3.7	3.9	4.1	4.3
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.7	0.4	0.3	0.5	0.9	1.2	1.5	1.8	1.9	1.8	1.8	1.7	1.6
Structural primary balance (before CoA)	0.8	0.1	0.1	0.6	0.9	1.2	1.5	1.8	1.8	1.8	1.8	1.8	1.8
Real GDP growth	4.1	3.4	2.4	2.1	1.7	1.5	1.5	1.4	1.7	1.8	1.9	1.9	2.0
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.7	0.4	0.3	0.5	0.9	1.2	1.5	1.8	1.9	1.8	1.8	1.7	1.6
Structural primary balance (before CoA)	0.8	0.1	0.1	0.6	0.9	1.2	1.5	1.8	1.8	1.8	1.8	1.8	1.8
Real GDP growth	4.1	3.4	2.4	2.1	1.9	1.9	2.0	2.0	2.2	2.2	2.2	2.2	2.2
Implicit interest rate (nominal)	1.1	0.9	0.9	1.3	1.4	1.7	2.0	2.3	2.6	2.8	3.0	3.1	3.1
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	1.1	0.9	1.3	1.8	2.0	2.2	2.5	2.9	3.2	3.6	4.1	4.5	4.7
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	1.1	0.9	0.6	0.8	0.8	0.9	1.1	1.4	1.6	2.0	2.3	2.7	2.8
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	1.1	0.9	1.7	2.3	2.6	2.5	2.8	3.1	3.4	3.8	4.2	4.6	4.8
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	4.1	3.4	2.9	2.6	2.4	2.2	2.2	2.1	2.2	2.3	2.4	2.4	2.5
Potential GDP growth	2.4	2.6	3.1	3.1	2.3	2.2	2.2	2.1	2.2	2.3	2.4	2.4	2.5
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	4.1	3.4	1.9	1.6	1.4	1.2	1.2	1.1	1.2	1.3	1.4	1.4	1.5
Potential GDP growth	2.4	2.6	2.1	2.1	1.3	1.2	1.2	1.1	1.2	1.3	1.4	1.4	1.5
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	4.1	3.4	3.1	2.9	2.4	2.2	2.2	2.1	2.2	2.3	2.4	2.4	2.5
Potential GDP growth	2.4	2.6	3.3	3.4	2.3	2.2	2.2	2.1	2.2	2.3	2.4	2.4	2.5
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	4.1	3.4	1.6	1.4	1.4	1.2	1.2	1.1	1.2	1.3	1.4	1.4	1.5
Potential GDP growth	2.4	2.6	1.8	1.8	1.3	1.2	1.2	1.1	1.2	1.3	1.4	1.4	1.5
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	2.0	2.3	2.7	2.7	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	2.0	2.3	1.7	1.7	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	0.7	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.2
Structural primary balance (before CoA)	0.8	0.1	0.2	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Real GDP growth	4.1	3.4	2.3	2.4	1.9	1.7	1.7	1.6	1.7	1.8	1.9	1.9	2.0
Potential GDP growth	2.4	2.6	2.5	2.9	1.8	1.7	1.7	1.6	1.7	1.8	1.9	1.9	2.0
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	10.4%	10.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	1.1	0.9	0.9	1.3	1.4	1.6	1.8	2.1	2.4	2.8	3.2	3.6	3.8

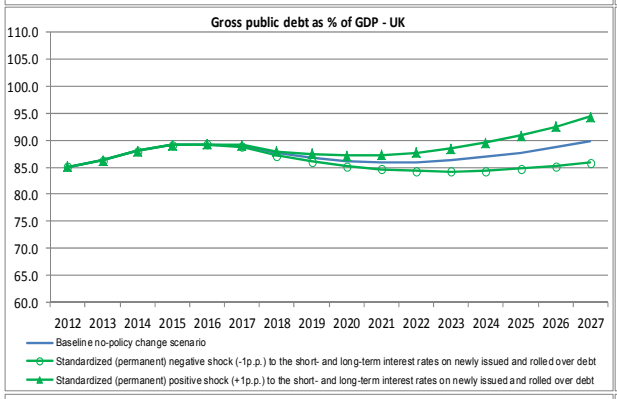
27. United Kingdom

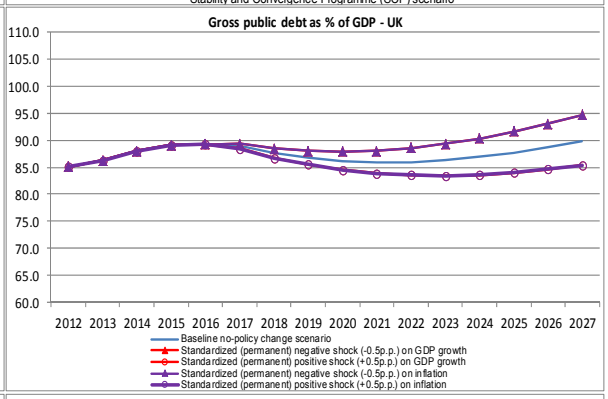
Public debt projections under baseline and alternative scenarios and sensitivity tests

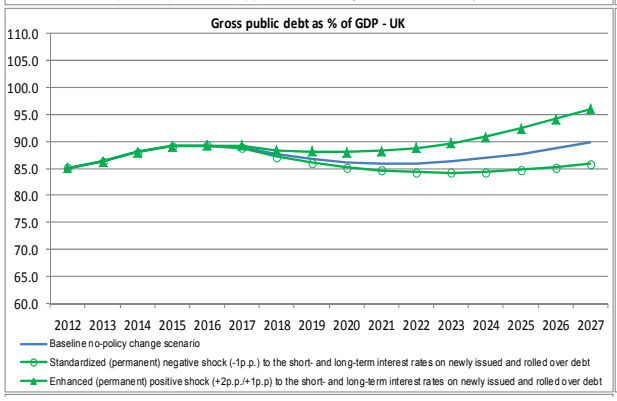
UK - Debt projections baseline scenario	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Gross debt ratio	**88.1**	**89.1**	**89.2**	**88.9**	**87.5**	**86.7**	**86.2**	**85.9**	**86.0**	**86.3**	**86.9**	**87.7**	**88.7**	**89.9**
Changes in the ratio (-1+2+3)	*1.8*	*1.0*	*0.2*	*-0.3*	*-1.4*	*-0.8*	*-0.6*	*-0.3*	*0.1*	*0.3*	*0.6*	*0.8*	*1.0*	*1.2*
of which														
(1) Primary balance (1.1+1.2+1.3)	**-3.0**	**-2.0**	**-1.0**	**-0.4**	**0.1**	**0.0**	**-0.1**	**-0.2**	**-0.4**	**-0.6**	**-0.8**	**-0.9**	**-1.0**	**-1.0**
(1.1) Structural Primary Balance *(1.1.1-1.1.2+1.1.3)*	***-2.7***	***-2.2***	***-1.4***	***-0.5***	***0.1***	***0.0***	***-0.1***	***-0.2***	***-0.4***	***-0.6***	***-0.8***	***-0.9***	***-1.0***	***-1.0***
(1.1.1) Structural Primary Balance (before CoA)	*-2.7*	*-2.2*	*-1.4*	*-0.5*	*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						*0.1*	*0.2*	*0.3*	*0.5*	*0.7*	*0.9*	*1.0*	*1.1*	*1.1*
(1.1.3) Others (taxes and property incomes)						*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.0*
(1.2) Cyclical component	***-0.3***	***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***
(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)	**-1.2**	**0.1**	**0.3**	**-0.3**	**-0.9**	**-0.8**	**-0.7**	**-0.5**	**-0.3**	**-0.3**	**-0.2**	**-0.1**	**0.1**	**0.1**
(2.1) Interest expenditure	*2.7*	*2.3*	*2.4*	*2.4*	*2.4*	*2.4*	*2.4*	*2.4*	*2.5*	*2.6*	*2.8*	*2.9*	*3.1*	*3.2*
(2.2) Growth effect	*-2.5*	*-1.9*	*-1.6*	*-0.9*	*-1.0*	*-1.1*	*-1.2*	*-1.2*	*-1.2*	*-1.2*	*-1.3*	*-1.3*	*-1.3*	*-1.3*
(2.3) Inflation effect	*-1.4*	*-0.4*	*-0.5*	*-1.8*	*-2.3*	*-2.1*	*-1.9*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*	*-1.7*
(2.4) Exchange rate effect linked to the interest rate	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
(3) Stock flow adjustments	**0.0**	**-1.1**	**-1.2**	**-0.4**	**-0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
(3.1) Base	*0.0*	*-1.1*	*-1.2*	*-0.4*	*-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*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Per memo														
Structural balance	-5.4	-4.5	-3.8	-2.9	-2.3	-2.4	-2.5	-2.7	-2.9	-3.2	-3.5	-3.8	-4.1	-4.2

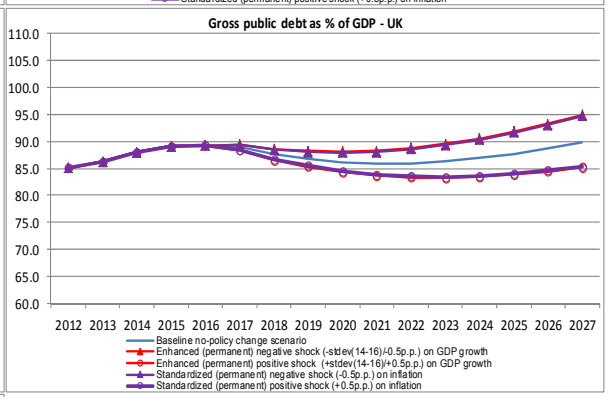


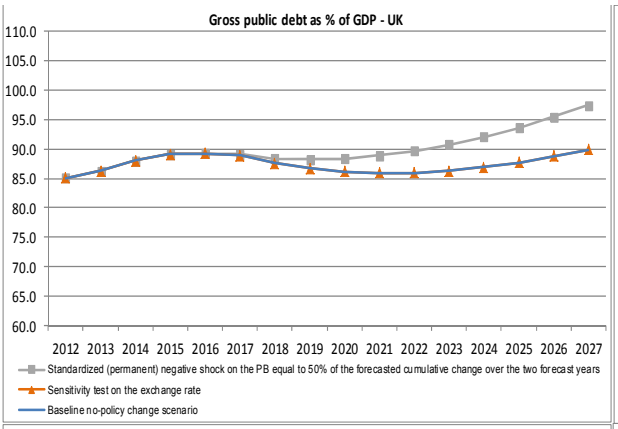


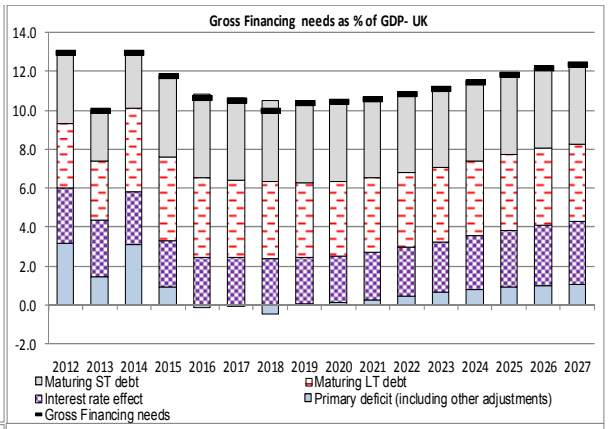


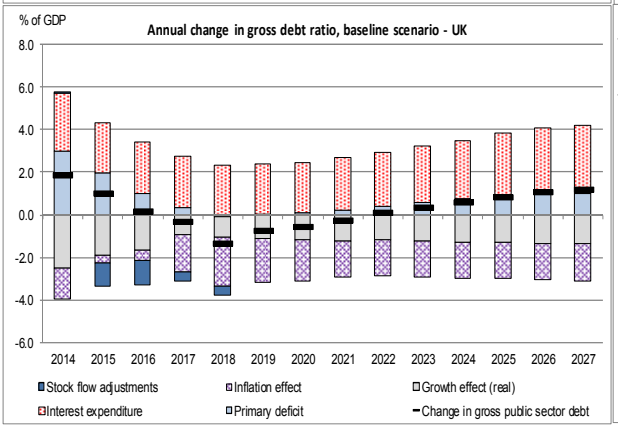


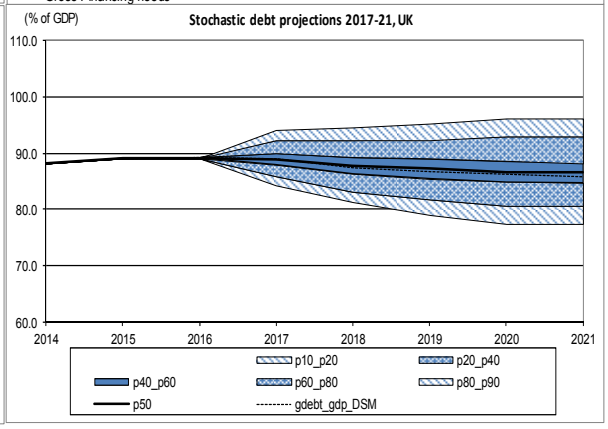












Sustainability indicators summary table

Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
Budgetary projections										
Total cost of ageing (gross)	22.1	21.7	21.6	21.7	21.8	21.8	21.9	22.0	22.9	23.3
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	1.5	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0

Sustainability indicators

S0 indicator	**2009**	**2016**	**Critical threshold**
Overall index	**0.51**	**0.41**	**0.46**
Fiscal sub-index	0.53	0.53	0.36
Financial competitiveness sub-index	0.49	0.35	0.49

S1 indicator	**COM no-policy change scenario**	**Historical SPB scenario**	**AWG risk scenario**	**SCP scenario**	**2015 Sustainability Report**
Overall index	**3.3**	**9.9**	**3.5**	**-0.5**	**3.3**
of which *Initial Budgetary position*	*-0.2*	*3.2*	*-0.1*	*-3.3*	*-0.2*
*Cost of delaying adjustment***	*0.5*	*2.3*	*0.5*	*-0.1*	*0.5*
*Debt requirement****	*2.1*	*3.3*	*2.1*	*2.1*	*2.1*
Ageing costs	*0.9*	*1.1*	*1.0*	*0.8*	*0.8*
Required structural primary balance related to S1	**3.4**	**7.5**	**3.6**	**2.5**	**3.2**

S2 indicator	**COM no-policy change scenario**	**Historical SPB scenario**	**AWG risk scenario**	**SCP scenario**	**2015 Sustainability Report**
Overall index	**3.0**	**5.7**	**4.1**	**-0.1**	**3.2**
of which Initial Budgetary position	0.7	3.3	0.6	-2.2	0.9
Long term component	2.3	2.3	3.5	2.2	2.4
of which Pensions	*0.9*	*1.0*	*0.9*	*1.0*	*1.0*
Health care	*1.0*	*1.0*	*1.5*	*0.9*	*1.0*
Long-term care	*0.3*	*0.3*	*0.9*	*0.3*	*0.3*
Others	*0.1*	*0.1*	*0.1*	*0.0*	*0.1*
Required structural primary balance related to S2	**3.1**	**3.4**	**4.2**	**2.9**	**3.2**

Risks related to the structure of public debt financing

Public debt structure - UK (2015):	Share of short-term public debt (p.p.) out of total debt	Share of public debt by non-residents (%):	Share of public debt in foreign currency (%):
	14.8	n.a.	0

Risks related to government's contingent liabilities

Government's contingent liabilities - 2015		UK	EU
State guarantees (% GDP) (2014)		8.9	9.2
of which One-off guarantees		*8.8*	*8.8*
Standardised guarantees		*0.1*	*0.5*
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee [x]	0.00	2.74
	Securities issued under liquidity schemes	0.00	0.07
	Special purpose entity	0.00	0.48
	Total	0.00	3.29

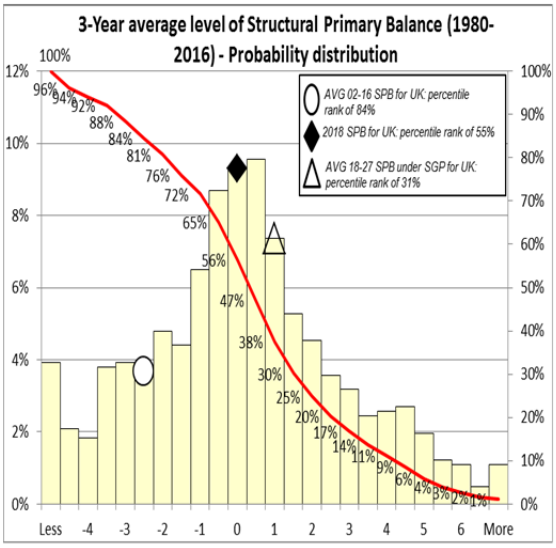
Government's contingent liability risks from banking sector - UK (2015):	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p):	Change in nominal house price index:	NPL coverage ratio	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):	
							bank recap. at 8%	bank recap. at 10.5%
	2.5	95.2	2.4	-0.9	5.7	30.4	0.00%	0.00%

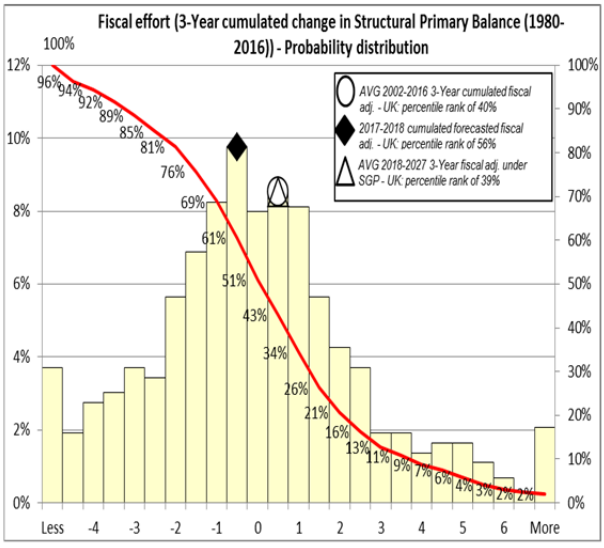
Financial market information

Sovereign Ratings as of Nov 15 2016, UK	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aa1		Aa1	
S&P	AA+u	A-1+u	AA+u	A-1+u
Fitch	AA		AA	F1+

Financial market information as of November 2016, UK		
Sovereign yield spreads(bp)*	10-year	105
CDS (bp)	5-year	35.8

Realism of baseline assumptions





Underlying macro-fiscal assumptions

Macro-fiscal assumptions, United-Kingdom													
1. Baseline no-policy change scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-2.0	-1.0	-0.4	0.1	0.0	-0.1	-0.2	-0.4	-0.6	-0.8	-0.9	-1.0	-1.0
Structural primary balance (before CoA)	-2.2	-1.4	-0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Real GDP growth	2.2	1.9	1.0	1.2	1.3	1.4	1.5	1.4	1.5	1.5	1.6	1.6	1.6
Potential GDP growth	1.4	1.5	1.4	1.4	1.3	1.4	1.5	1.4	1.5	1.5	1.6	1.6	1.6
Inflation rate	0.4	0.6	2.0	2.6	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.7	2.8	2.8	2.8	2.8	2.9	2.9	3.0	3.2	3.3	3.5	3.7	3.8
2. Fiscal reaction function institutional scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-2.0	-1.0	-0.4	0.1	-0.5	-0.9	-1.2	-1.3	-1.3	-1.3	-1.2	-1.1	-1.0
Structural primary balance (before CoA)	-2.2	-1.4	-0.5	0.1	-0.5	-0.8	-0.9	-0.8	-0.6	-0.4	-0.2	0.0	0.1
Real GDP growth	2.2	1.9	1.0	1.2	1.7	1.7	1.6	1.4	1.3	1.4	1.4	1.4	1.5
Potential GDP growth	1.4	1.5	1.4	1.4	1.7	1.7	1.6	1.4	1.3	1.4	1.4	1.4	1.5
Inflation rate	0.4	0.6	2.0	2.6	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.7	2.8	2.8	2.8	2.8	2.9	2.9	3.0	3.2	3.3	3.5	3.7	3.8
3. SGP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-2.0	-1.0	-0.4	0.1	0.7	1.3	1.7	1.7	1.7	1.7	1.8	1.8	1.8
Structural primary balance (before CoA)	-2.2	-1.4	-0.5	0.0	0.6	1.3	1.7	1.7	1.7	1.7	1.8	1.8	1.8
Real GDP growth	2.2	1.9	1.0	1.2	0.8	1.0	1.2	1.4	1.4	1.5	1.5	1.5	1.6
Potential GDP growth	1.4	1.5	1.4	1.4	0.8	1.0	1.2	1.4	1.4	1.5	1.5	1.5	1.6
Inflation rate	0.4	0.6	2.0	2.6	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.7	2.8	2.8	2.8	2.8	2.9	2.9	3.0	3.1	3.2	3.4	3.5	3.6
4. SCP scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-1.6	-0.4	0.6	1.5	2.8	2.8	2.9	2.7	2.5	2.3	2.2	2.1	2.1
Structural primary balance (before CoA)	-1.6	-0.5	0.5	1.3	2.7	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Real GDP growth	2.2	2.0	2.2	2.1	2.1	2.1	1.3	1.3	1.3	1.4	1.4	1.4	1.5
Potential GDP growth	1.5	2.0	2.1	2.2	2.2	2.2	1.3	1.3	1.3	1.4	1.4	1.4	1.5
Inflation rate	0.3	1.1	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.9	2.9	3.0	3.1	3.1	3.0	3.0	3.1	3.2	3.2	3.2	3.2	3.2
5. Historical SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-2.0	-1.0	-0.4	0.1	-0.7	-1.3	-2.1	-2.9	-3.1	-3.3	-3.4	-3.5	-3.5
Structural primary balance (before CoA)	-2.2	-1.4	-0.5	0.1	-0.6	-1.2	-1.8	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5
Real GDP growth	2.2	1.9	1.0	1.2	1.8	1.9	2.0	1.9	1.5	1.5	1.6	1.6	1.6
6. Combined historical scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-2.0	-1.0	-0.4	0.1	-0.7	-1.3	-2.1	-2.9	-3.1	-3.3	-3.4	-3.5	-3.5
Structural primary balance (before CoA)	-2.2	-1.4	-0.5	0.1	-0.6	-1.2	-1.8	-2.5	-2.5	-2.5	-2.5	-2.5	-2.5
Real GDP growth	2.2	1.9	1.0	1.2	1.8	1.9	2.0	2.1	1.7	1.7	1.7	1.7	1.7
Implicit interest rate (nominal)	2.7	2.8	2.8	2.8	2.8	2.9	3.1	3.3	3.4	3.6	3.7	3.8	3.9
7. Higher IR scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.7	2.8	3.0	3.0	3.1	3.2	3.4	3.5	3.7	3.9	4.1	4.3	4.5
8. Lower IR scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.7	2.8	2.6	2.5	2.5	2.5	2.5	2.6	2.7	2.8	2.9	3.0	3.1
9. Higher IR scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Implicit interest rate (nominal)	2.7	2.8	3.2	3.3	3.4	3.4	3.5	3.7	3.8	4.0	4.2	4.4	4.6
10. Higher growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	2.2	1.9	1.5	1.7	1.8	1.9	2.0	1.9	2.0	2.0	2.1	2.1	2.1
Potential GDP growth	1.4	1.5	1.9	1.9	1.8	1.9	2.0	1.9	2.0	2.0	2.1	2.1	2.1
11. Lower growth scenario (standard DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	2.2	1.9	0.5	0.7	0.8	0.9	1.0	0.9	1.0	1.0	1.1	1.1	1.1
Potential GDP growth	1.4	1.5	0.9	0.9	0.8	0.9	1.0	0.9	1.0	1.0	1.1	1.1	1.1
12. Higher growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	2.2	1.9	1.7	1.8	1.8	1.9	2.0	1.9	2.0	2.0	2.1	2.1	2.1
Potential GDP growth	1.4	1.5	2.0	2.0	1.8	1.9	2.0	1.9	2.0	2.0	2.1	2.1	2.1
13. Lower growth scenario (enhanced DSA)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Real GDP growth	2.2	1.9	0.4	0.5	0.8	0.9	1.0	0.9	1.0	1.0	1.1	1.1	1.1
Potential GDP growth	1.4	1.5	0.8	0.8	0.8	0.9	1.0	0.9	1.0	1.0	1.1	1.1	1.1
14. Higher inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.4	0.6	2.5	3.1	2.9	2.7	2.5	2.5	2.5	2.5	2.5	2.5	2.5
15. Lower inflation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Inflation rate	0.4	0.6	1.5	2.1	1.9	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5
16. Lower SPB scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Primary balance	-2.0	-1.0	-0.9	-0.7	-0.8	-0.8	-1.0	-1.1	-1.3	-1.5	-1.7	-1.7	-1.7
Structural primary balance (before CoA)	-2.2	-1.4	-1.0	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
Real GDP growth	2.2	1.9	1.4	1.3	1.3	1.4	1.5	1.4	1.5	1.5	1.6	1.6	1.6
Potential GDP growth	1.4	1.5	1.8	1.6	1.3	1.4	1.5	1.4	1.5	1.5	1.6	1.6	1.6
17. Exchange rate depreciation scenario	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Exchange rate depreciation	0.0%	0.0%	16.4%	16.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	2.7	2.8	2.8	2.8	2.8	2.9	2.9	3.0	3.2	3.3	3.5	3.7	3.8

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