



The COM fiscal (debt) sustainability analysis framework

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European Commission

ECFIN.C2 - Sustainability of Public Finances

ESM workshop on Debt sustainability: current practice and future perspectives

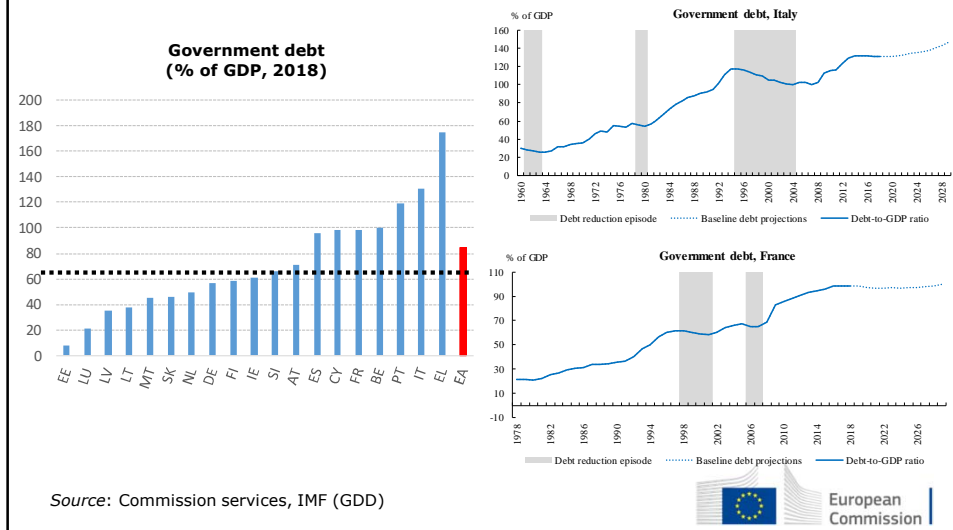
Luxembourg, 11-12 December 2018

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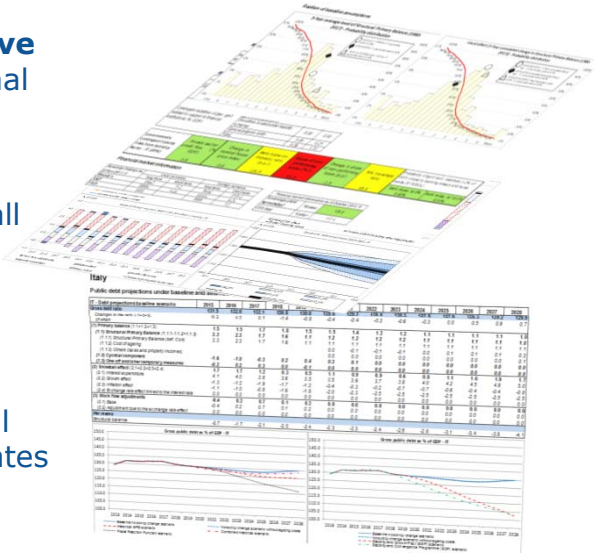
Fiscal risks are still present in some – often large - EU countries



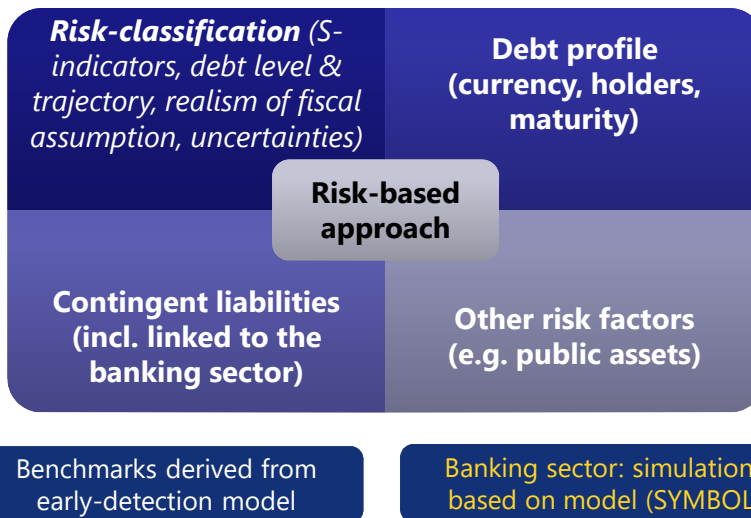
Main features of the Commission fiscal (debt) sustainability analysis framework

What are the key features of the COM fiscal sustainability framework?

- ✓ A **comprehensive** and multidimensional approach
- ✓ A **consistent** framework across all countries (common assumptions and methodologies)
- ✓ A **timely** assessment of fiscal sustainability (updates twice a year)



COM regular DSA components – overview



COM framework - core tools used for fiscal sustainability risk classification

- **Short-term – liquidity risks:** early-detection indicator (***S0 indicator***) => captures risks from fiscal and macro-financial sides
- **Medium-term – solvency risks:** ***DSA*** and medium-term fiscal gap indicator (***S1 indicator***)
- **Long-term – solvency risks:** long-term fiscal gap indicator (***S2 indicator***)



Overall risk classification by time dimension



COM **DSA** framework includes

- Traditional (deterministic) 10-year public debt projections
- Sensitivity analysis around baseline projections and alternative policy scenarios (around 20 'standard' and 'enhanced' scenarios + *additional customised sensitivity tests*)
- Stochastic public debt projections (2000 shocks)
- Degree of realism of fiscal assumptions
- Gross financing needs projections
- Forecast accuracy analysis
- Public debt profile
- Contingent liabilities
- Financial markets' information



Overall DSA risk classification:
low/medium/high



Assessment criteria used for DSA overall assessment

Graph A.6.4: Assessment criteria used for debt projections, sensitivity tests and stochastic debt projections

DSA scenarios (Baseline, HSPB)			Deterministic sensitivity tests			Stochastic debt projections		
Debt ratio at end of projections (t+1)	Debt peak year and structural primary balance percentile rank	RISK CATEGORY	Debt ratio at end of projections (t+1)	Debt peak year	RISK CATEGORY	Prob. of debt ratio at T-5 greater than at T	Debt distribution: Diff. b/w 10th and 90th percentiles	RISK CATEGORY
HIGH RISK	ANY	HIGH RISK	HIGH RISK	ANY	HIGH RISK	HIGH RISK	ANY	HIGH RISK
ANY	BOTH HIGH RISK	HIGH RISK	MEDIUM RISK <math>S < 75\%</math>	HIGH RISK	HIGH RISK	HIGH RISK	ANY	HIGH RISK
MEDIUM RISK	ANY BUT BOTH HIGH RISK	MEDIUM RISK	MEDIUM RISK <math>S < 75\%</math>	HIGH RISK	MEDIUM RISK	MEDIUM RISK	HIGH RISK	MEDIUM RISK
LOW RISK (1) MEDIUM RISK	ONE HIGH RISK, ONE MEDIUM RISK	MEDIUM RISK	MEDIUM RISK	MEDIUM RISK	MEDIUM RISK	MEDIUM RISK	MEDIUM RISK	MEDIUM RISK
	BOTH MEDIUM RISK	MEDIUM RISK	MEDIUM RISK	LOW RISK	MEDIUM RISK	LOW RISK	HIGH RISK	MEDIUM RISK
LOW RISK	ONE HIGH RISK, ONE LOW RISK	LOW RISK	LOW RISK	ANY	LOW RISK	MEDIUM RISK	LOW RISK	LOW RISK
	ONE MEDIUM RISK, ONE LOW RISK	LOW RISK				LOW RISK	MEDIUM RISK	LOW RISK
	BOTH LOW RISK	LOW RISK				LOW RISK	LOW RISK	LOW RISK

Source: Commission services



Focus on special tools and scenarios



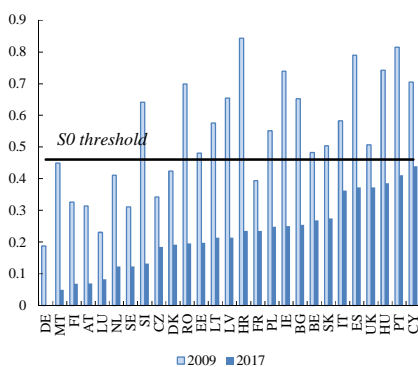
Short-term (liquidity) risks: the S0 indicator

- An **early-detection indicator of fiscal distress** based on realized data
- Building on **past episodes of fiscal distress** in advanced economies, and on the **behaviour** of a large set of variables *ahead* of these events
- **S0 indicator**: composite indicator based on 25 fiscal and macro-financial variables – *including from the EU Macroeconomic Imbalance Procedure*
- **Signal detection approach** => critical thresholds derived by minimising the share of missed crises & false alarms



S0 indicator: a clear and comprehensive mapping of short-term vulnerabilities

S0 indicator (Spring forecast 2018)



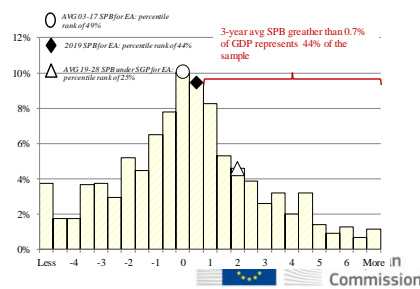
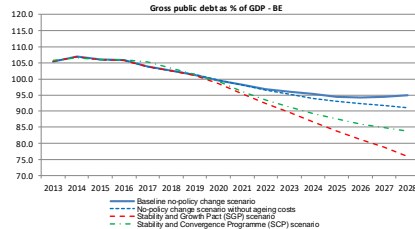
Variables considered, thresholds and signalling power

Variables	safety	threshold	signaling power
Balance, % GDP	>	-9.81	0.07
Primary balance, % GDP	>	0.23	0.13
Cyclically adjusted balance, % GDP	>	-2.50	0.23
Stabilizing primary balance, % GDP	<	2.34	0.08
Gross debt, % GDP	<	68.44	0.12
Change in gross debt, % GDP	<	8.06	0.12
Short-term debt, gen. gov., % GDP	<	13.20	0.20
Net debt, % GDP	<	59.51	0.20
Gross financing need, % GDP	<	15.95	0.26
Interest rate-growth rate differential	<	4.80	0.08
Change in expenditure of gen. government, % GDP	<	1.90	0.11
Change in final consumption expend. of gen. government, % GDP	<	0.61	0.07
Fiscal rules			
L1.net international investment position, % GDP	>	-19.80	0.29
L1.net savings of households, % GDP	>	2.81	0.33
L1.private sector debt, % GDP	<	164.70	0.18
L1.private sector credit flow, % GDP	<	11.70	0.37
L1.short-term debt, non-financial corporations, % GDP	<	15.40	0.20
L1.short-term debt, households, % GDP	<	2.90	0.21
L1.construction, % value added	<	7.46	0.22
L1.current account, 3-year backward MA, % GDP	>	-2.50	0.34
L1.change (3 years) of real eff. exchange rate, based on exports deflator, ref 37 countries	<	9.67	0.11
L1.change (3 years) in nominal unit labour costs	<	7.00	0.18
Yield curve	>	0.59	0.37
Real GDP growth	>	-0.67	0.10
GDP per capita in PPP, % of US level	>	72.70	0.22
Financial competitiveness index			
Overall index	<	0.48	0.56
	<	0.46	0.55

- ✓ *In-sample, close to 80% of fiscal distress events correctly predicted – performing well (see IMF - Cerovic et al., 2018)*
- ✓ *Variables with highest signalling power include (macro-financial) private credit flows, current account, (fiscal) GFN, cycl. adjusted balance*

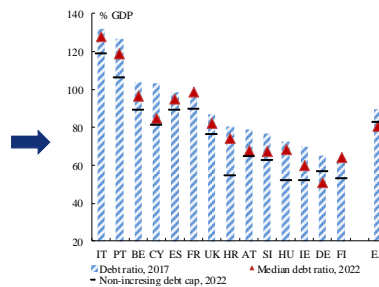
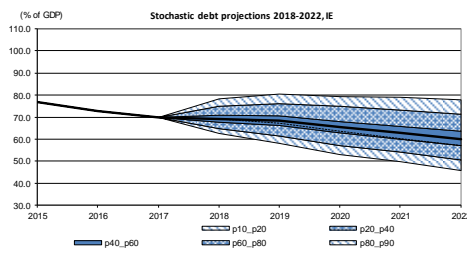
Alternative fiscal policy scenarios: importance for fiscal surveillance

- SGP scenario
- SCP / DBP scenario
- Others (historical SPB scenario, fiscal reaction function scenario)
- DSA: assessed around usual set of criteria: projected debt level / path, and plausibility of the underlying fiscal effort
- **Results used for Member States (EA) SCP (DBP) assessment**



Stochastic projections: a probabilistic assessment

- Stochastic projections results are used to inform the overall DSA risk classification
- Also use to derive 'non-increasing debt caps'

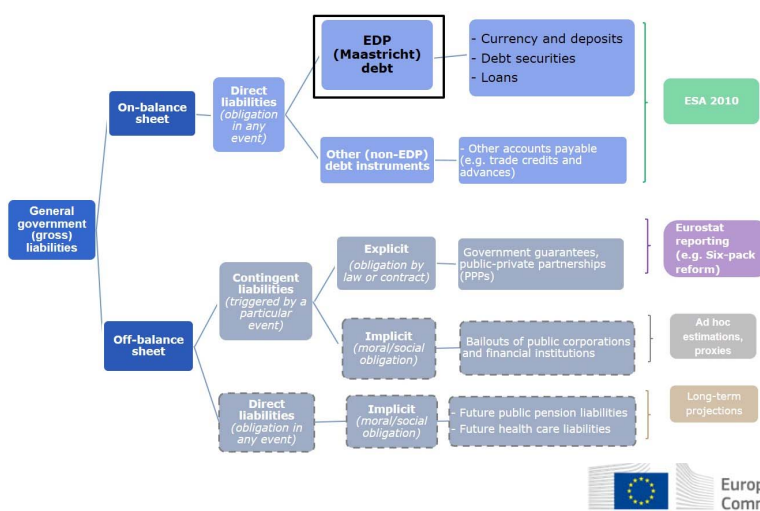


	Sovereign-debt sustainability risks in the EU countries																
	BE	DE	EE	ES	FR	IT	CY	LV	LT	LU	MT	NL	AT	PT	SI	BK	FI
Stochastic projections	HIGH	LOW	LOW	MED/LM	HIGH	HIGH	MED/LM	MED/LM	LOW	LOW	LOW	LOW	LOW	MED/LM	LOW	LOW	LOW
Probability of debt in 2022 greater than in 2017 (pt)	24%	9%	4%	182%	27%	26%	24%	23%	12%	14%	3%	10%	2%	12%	10%	10%	10%
Difference of the 10th and 90th percentiles in 2022 (p.p. of GDP)	23.9	15.7	5.2	10.6	18.2	13.6	25.201	44.8	38.6	32.8	22.9	20.0	13.9	27.3	38.3	25.9	16.8
Debt sustainability analysis - overall risk assessment	HIGH	LOW	LOW	LOW	HIGH	HIGH	HIGH	MED/LM	LOW	LOW	LOW	LOW	LOW	HIGH	MED/LM	LOW	MED/LM



Beyond (EDP) debt

Tentative categorization of gross financing liabilities of general government



Capturing risks associated to tail events: the Symbol model

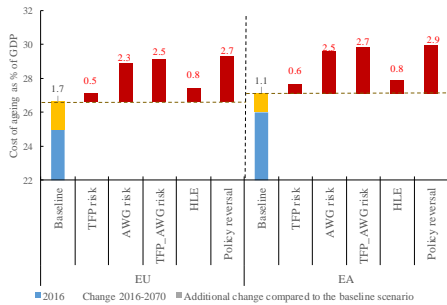
- Additional 'modules' to assess risks related to contingent liabilities
 - Based on Eurostat specific reporting ('Six-pack')
 - Heat map on potential triggers for contingent liabilities from banking sector
 - Micro-simulation model (Symbol – JRC-FISMA) providing estimates of the potential impact of banking losses on public finances (*implicit contingent liabilities*)

Government's contingent liability risks from banking sector - CY (2016)	Private sector credit flow (% GDP): 10.2	Change in nominal house price index: 0.3	Bank loans-to-deposits ratio (p.p.): 83.9	Share of non-performing loans (%): 44.8	Change in share of non-performing loans (p.p.): -4.2	NPL coverage ratio: 39.7	Probability of govt cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): bank recap. at 8%: 0.11% bank recap. at 10.5%: 0.57%
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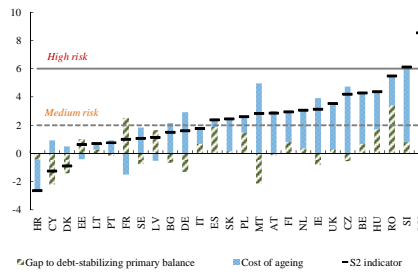
✓ Upper thresholds from signals' approach, lower thresholds at 80% of signals' approach thresholds; Symbol results: specific thresholds' calibration

Grasping the size of the long-term fiscal sustainability challenge: long-term projections and S2 indicator

Projected change in cost of ageing, baseline and risk scenarios, 2016-2070



Long-term fiscal gap indicator (S2 indicator) and sub-components, by country (Spring forecast 2018)



Source: Ageing Report 2018, forthcoming Commission FSR



On-going work (forthcoming Fiscal Sustainability Report)

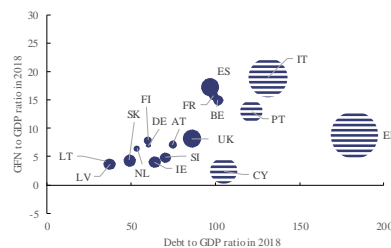
On-going work

- Enriching the **short-term analysis** (definition and measure of financing needs, markets' information)
- Complementing the set of **sensitivity tests** (e.g. financial assumptions, uncertainties over the long-term)
- **Long-term fiscal sustainability assessment:** better accounting for risks due to medium to high debt levels
- **Government assets** and net debt / net worth



Defining and measuring government financing needs

- GFN is an important, complementary, variable to assess fiscal risks
- Yet, lack of harmonisation of GFN definition and estimation



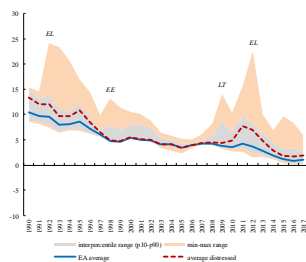
Note: 1) GFN = budgetary deficit + debt securities amortizations. 2) The size of the bubble reflects government interest rate yields.
Source: ECB, Commission services



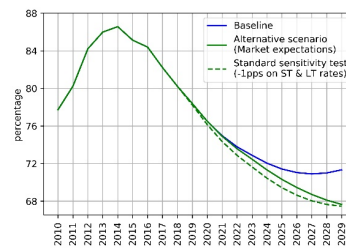
Taking into account markets' expectations to project interest rates?

- Uncertainties regarding future developments of interest rates
- **Different options:** conventional assumption based on historical patterns, using financial markets' expectations, assumption on $(i - g)$?

Evolution of long-term interest rates, across the euro area countries, %



EU government debt projection, under the baseline and alternative scenario and the standard sensitivity test, %

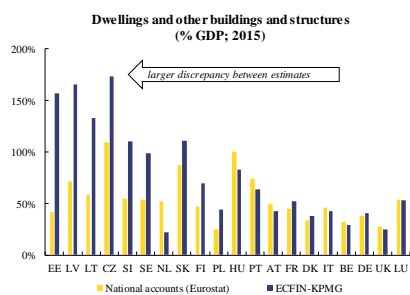


Long-term fiscal sustainability assessment: accounting for risks due to medium to high debt levels

- For countries where debt burdens are significant, meeting the intertemporal budget constraint may not be sufficient to secure fiscal sustainability
- Therefore, the long-term fiscal sustainability assessment, currently based on the S2 indicator, needs being complemented

Government assets, net debt and net worth

- Moving towards a balance sheet approach has gained popularity but...
- Many measurement and conceptual issues for fiscal sustainability



Data availability for non-financial assets in national accounts (general government; 2015, 2016 or 2017)

	produced			non-produced		
	fixed assets	inventories	valuables	natural resources	contracts, leases & licences	goodwill & marketing assets
BE	X	X				
BG						
CZ	X	X	X	X	X	X
DK	X					
DE	X					
EE	X	X				
IE						
EL	X	X				
ES						
FR	X	X	X	X	X	X
HR						
IT	X	X				
CY						
LV	X	X	X			
LT	X	X				
LU	X					
HU	X	X				
MT						
NL	X	X				
AT	X					
PL	X	X				
PT	X	X				
RO						
SI	X	X				
SK	X	X				
FI	X	X	X			
SE	X	X		X		
UK	X	X		X	X	

Source: Eurostat



Thank you for your attention

https://ec.europa.eu/info/publications/debt-sustainability-monitor-2017_en