

## Core Matters

# How threatening is Covid-19 for EA public finances?

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- After the Great Financial Crisis and the euro crisis, Covid-19 has been an additional blow to public finances. In the euro area the debt-to-GDP-ratio is set to rise from 84% in 2019 to 100% by the end of this year.
- Debt sustainability concerns are particularly relevant for the euro area economies given the lack of a unique fiscal entity. Our analysis suggests that leaving aside Greece, debt dynamics are more concerning in Southern Europe than the rest of the monetary union: low debt costs ensure sustainability in high-debt countries but is not a full replacement for fiscal discipline. The EU Recovery Fund is helpful but generally no game changer.
- Rating agencies need more clarity on the growth and fiscal outlook before reassessing sovereign risk. Our model to simulate agencies' decisions flags, for the time being, a limited risk of a downgrade to HY for any of the major EA countries.
- Debt sustainability concerns will not stop the fiscal stimulus needed to digest the Covid-19 shock. However, the deterioration of public finances makes the economies more fragile and will have to be tackled in the longer term.

### Introduction

The 2008 economic collapse and the ensuing euro fiscal crisis triggered a surge in public debt around the world. However, this is set to be dwarfed by the fallout of the current crisis, as governments have been forced to an unprecedented fiscal stimulus to cushion the economic impact of the Covid-19 pandemic. For the euro area, the expected rise in the public debt-to-GDP ratio by about 17pp is similar to the push induced by the GFC after 2008, thereby lifting the debt ratio towards 102% next year, a level never seen in peacetime before. A key issue for governments and investors is whether this debt pile will be sustainable and what policies are needed to ward off the risk of painful restructuring or even default further down the line. Already the risk of renewed sovereign rating downgrades has the potential to rattle bond markets. The question is particularly relevant for the euro area, (1) given the size of its sovereign bond market, (2) its nature of an incomplete monetary union with a very limited mutual fiscal capacity, as well as (3) the existential threat already raised in 2011-12.

In this report, we combine a recap of main issues related to debt sustainability and the behaviour of rating agencies with evidence from our recently built-in monitoring tools.

### Debt: How much is too much?

When discussing government debt, the key metric is the debt-to-GDP-ratio ('debt ratio' in the following) as it relates the debt level to economic strength. Using a minimalist definition, we can think of public debt being sustainable as long as the debt ratio is not systematically trending up. However, using a more sophisticated approach tailored at the specifics of the euro area, we consider three perspectives: legal

constraints or agreements, economic effects and the political ability to avoid a further rise of the debt ratio.

From a legal perspective, the Stability and Growth Pact (SGP) targets a debt ratio of 60%. It urges the EMU economies to either keep it below the threshold or to ensure a reduction towards the target in the future. When the Maastricht Treaty was negotiated in the early 1990s the debt ratio of the then 12 EU countries averaged about 60%. An agreement on this threshold was largely a political decision. It is sometimes argued that the assumption of a 3% budget deficit amid 5% nominal growth would be consistent with a stable debt ratio at around 60%. In the current macro situation, this nominal growth rate appears highly unrealistic. Looking ahead, generally lower potential growth rates amid a high or even increasing heterogeneity among EMU economies make it unrealistic to generally achieve a debt ratio stable at the Maastricht level, even if inflation were to return towards 2%, as we assume. **Moreover, as long as the long-term nominal growth rate, which we expect to fall towards 3%, is above the average interest rate on government debt (2019 average was at 2.0%) the debt ratio is not only sustainable but will actually fall.** Moreover, due to the Covid-19 shock, the SGP has been suspended for 2020 and 2021 and the discussion about its reform has just started. However, unless a new benchmark is adopted the current SGP is still of political and economic importance.

From an economic perspective, the key question is whether there is a debt ratio beyond which economic activity will be affected negatively. Reinhart and Rogoff (2010) analysed the implications of government debt on growth in the aftermath of the Great Financial Crisis (GFC). They found that

countries with a debt ratio above 90% experience significantly lower growth rates. However, the study has been criticised for methodological shortcomings and computational errors. In subsequent papers, the [authors](#) as well as the [IMF](#) took this criticism into account. The authors still find that on average across individual countries, debt ratios above 90% are associated with an average annual growth rate 1.2% points lower than in countries with debt ratios below 90%. Still, economists do not generally agree on this statement, for instance questioning causality.

In a more recent paper, former IMF Chief Economist Olivier [Blanchard](#) reckons that the current US situation, in which the risk-free interest rates is expected to remain below nominal growth rates, was more likely the historical norm than the exception. Still, he shows that public debt tends to reduce capital accumulation. Moreover, he argues that when investors, believing debt to be risky, require a risk premium, the fiscal burden increases via higher interest rates and makes debt effectively riskier. Other [authors](#) emphasise the composition of public debt, pointing out that a high share of debt denominated in foreign currency can easily cause the interest rate on government debt to increase and debt sustainability to be derailed, especially in response to global shocks. A recent [ECB study](#) reviews the risks associated with high debt employing a model simulation, finding that in a crisis high-debt economies can lose more output, are more heavily affected by spillovers, have less scope for counter-cyclical fiscal policy and experience a larger deterioration of growth potential.

All in all, we find it useful to see the passing of the 90% threshold as a kind of warning signal for the debt ratio. It is moreover not far away from 100%, a threshold in the past carefully watched by financial markets as government debt exceeds the value of a country's annual output. Thereby this level likely has at least indirectly also some significance for rating agencies in the assessment of debt sustainability.

		Critical debt ratios					
		debt-to-GDP ratios, %					
interest - growth - differential*		primary balance, % of GDP					
		0.5	1.0	1.5	2.0	2.5	3.0
50	103	206	309	412	515	618	
100	52	103	155	206	258	309	
150	34	69	103	137	172	206	
200	26	52	77	103	129	155	
250	21	41	62	82	103	124	
300	17	34	52	69	86	103	
350	15	29	44	59	74	88	
400	13	26	39	52	64	77	

calculations under the assumption of a nominal growth rate of 3%  
\* difference between nominal interest rate on government debt and nominal GDP growth in basis points

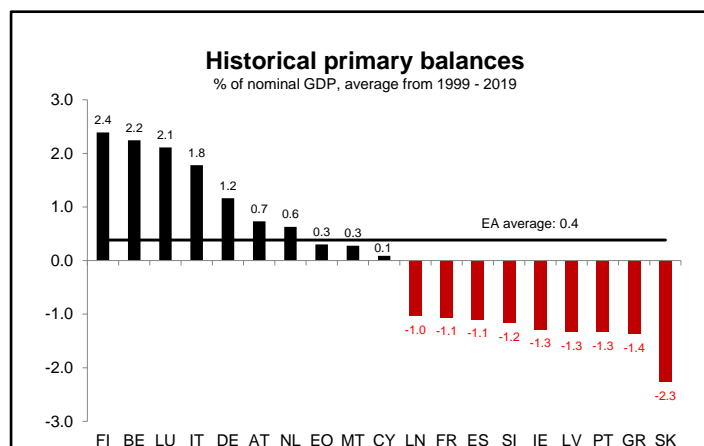
The primary balance, the fiscal balance before interest payments, is another key pillar for the assessment of debt sustainability. Governments may be forced to run a primary surplus to sustainably finance the interest burden on a high debt level – an effort that may exceed what a government is willing or able to implement. As we will discuss in greater detail later, a sustained 3% primary surplus appears a maximum in the medium-term. As a general rule, we get uncomfortable if a permanent primary surplus of at least 2% is needed to ensure debt sustainability.

As the table above shows, an average interest-growth differential of 70 bps (GDP weighted average of the euro area economies from 1999 to 2019) amid a primary balance of 0.4% (euro area average) would require a debt ratio of no higher than 60% to keep it stable. But even with an interest-rate-growth-differential of only 50 bps and a primary balance of 0.5% debt must not exceed 100% to ensure stability. In contrast, a persistent primary surplus of about 1% would allow a debt ratio of about 200%.

### Debt sustainability: fiscal stance is key

A debt sustainability analysis (DSA) assesses how a country's current level of debt and future borrowing affect its present and future ability to meet debt service obligations. Thus, it is an important ingredient for rating agencies' assessment of a certain sovereign.

The mechanics of the debt evolution are straightforward: a high primary surplus and strong nominal growth ease the debt ratio whereas high interest rates on government debt and the level of the accumulated debt pile work in the opposite direction. While expectations on future growth, inflation and even interest rates can be derived economically this is not the case for the primary balance: while also affected by the economic cycle, it is the result of a political decision by national governments and parliaments. A very high primary surplus for a prolonged period is unrealistic as it would imply prohibitively high tax rates and/or deep cuts in government expenditure that would harm domestic demand and short-term growth.



But how high can the primary surplus realistically go? The euro area surplus of 0.4% masks that within time there were strong fluctuations with Finland posting a record surplus of 9.6% in 2000 and Ireland a record deficit of -29.2% in 2010. Looking at the individual economies, the average primary balance over the first 20 years of EMU ranges from +2.4% (Finland) to -2.3% (Slovakia). This suggests that primary surpluses permanently above 2½ % are challenging. A notable exception, of course, is Greece's 4.0% average surplus between 2016 and 2019 that even surpassed the 3.5% target set by its creditors. However, this number was only agreed when the country was on the verge of defaulting and its achievement was facilitated by favourable loans amid very strong political pressure by its EMU creditors.

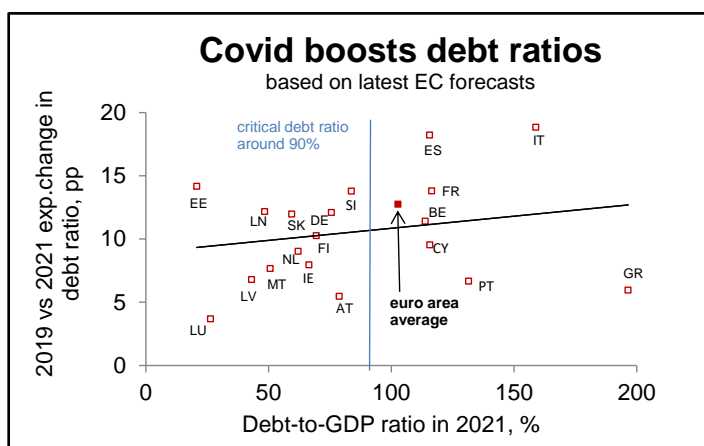
### Assessing EA post-Covid-19 debt sustainability

The pandemic is turning debt sustainability into an even greater challenge. High fiscal deficits (-8.8% in 2020 for the euro area) and a deep recession (-7.3% in 2020) will drive the euro area debt ratio from 85.9 to 101.7% over 2020.

For future debt sustainability, accumulated debt, future primary balances as well as interest rates and activity are key determinants.<sup>1</sup> Against this backdrop we conduct a DSA for euro area countries, i.e. computing the debt ratio dynamics implied by specific assumptions on growth, interest rates and fiscal stance. To model the crucial evolution of the primary balance (for details see Appendix A) for the euro area economies, we draw on standard specifications in the literature. Accordingly, surpluses tend to increase with the growth rate, primarily as a result of higher tax revenues. Also, a higher debt level is generally associated with a higher primary balance. Besides, we take into account (via dummies) the upward shift in debt ratios due to the GFC and the fact that in recession times the fiscal balance deteriorates, mainly as a result of lower taxes and higher expenditures.

Apart from that, governments are more willing to spend in election years to increase the chances of being re-elected (political business cycle). We find indeed some empirical support, but the election year becomes insignificant once it is controlled for the stringency of fiscal rules. This index – developed by the European Commission – measures to what degree fiscal rules are effective. In all EMU countries, this index has increased relative to the pre-EMU time (1995: unweighted average of -0.53; 2018: 1.73).

Another factor that is and will become even more decisive for public finances is ageing. A higher share of elderly people (65+ years) in the population is associated with higher pension and health care expenditures. Over the past two decades – notwithstanding various reforms – we also find empirical support for this effect.



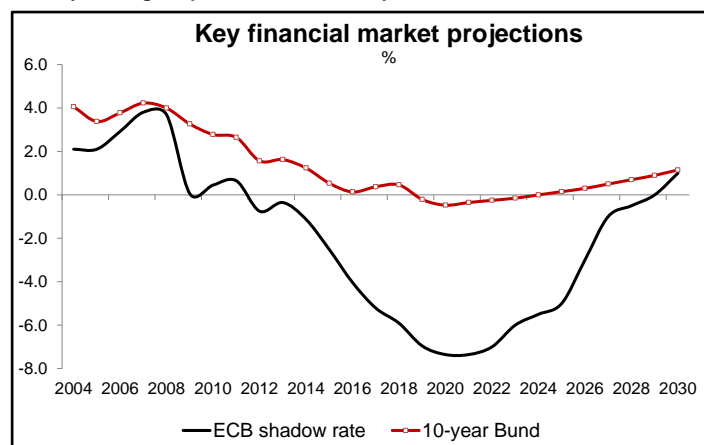
But **even in 2021 – when we expect the euro area economies to rebound strongly – debt ratios will stay well above the pre-pandemic level.** This is despite output likely returning to pre-pandemic level by end 2021 and reflects the rise in the public debt pile due to pandemic costs.<sup>2</sup> In 2021 the European Commission (EC) projects the average debt ratio to still be about 13 pp above the pre-pandemic level. Spain and Italy are expected to be hit especially hard.

**Base case assumptions.** We assess the evolution of the debt ratio over the 2020-2030 period. The coming decade will be challenging not least due to two factors: the need to digest the Covid-19 shock and to cope with ageing.

<sup>1</sup> See for instance [this paper](#) with respect to EU countries and the literature cited therein.

Regarding Covid-19, the surge in state and corporate debt, the zombification of the economy and the ageing-related fall in productivity will all dampen potential growth (see also [here](#) for a deeper discussion). Before the pandemic international organizations like the EC, the OECD and the IMF assessed euro area potential growth on average at 1.3%. Due to Covid-19 it will be depressed in 2020 but rebound afterwards. However, once the pandemic will have been digested, the structural downtrend will again gain the upper hand. We expect euro area potential growth to recede to 0.7% by 2030.

The near-term impact of the pandemic is also disinflationary. A huge output gap has opened. Inflation has proven stubbornly low over the past decade and we expect the underlying forces to remain in place. As we discussed [elsewhere](#), a marked acceleration of consumer price inflation thus remains a rather remote threat in our view. As a result, also the GDP deflator, which matters for the evolution of the debt ratio, will remain at subdued levels near-term. On the euro area level, the EC expects it to come down from 2.0% in 2020 to just 1.1% in 2021 and 1.3% in 2022. However, **the ECB** recently made clear that it wants to push the euro area back on the pre-pandemic inflation path. **We expect it to maintain an extremely accommodative policy stance and to only carefully normalise in the second half of the decade.** While we assume that (GDP deflator) inflation will eventually go back towards 2%, government bond yields will increase only moderately and slowly in the next 10 years, thereby supporting debt sustainability. We expect 10-year Bund yields to remain negative until 2023 before growing slowly rising to just above 1% by 2030.



**Alternative scenarios.** Apart from this base case we also consider an upside and adverse scenario. In the latter, the Covid-19 crisis dampens growth more than foreseen. Over the current decade, real growth is 30 bps below base case and the prevailing disinflationary effects push inflation 40 bps below base. Moreover, the ECB makes a policy mistake causing 10-year yield levels to increase by 50 bps against base case. On top, there is a structural break in fiscal policy. In all economies the primary balance relative to GDP is reduced by 60 bps compared to the past. One can think of the unwillingness to tackle for instance age-related expenditures or persistent stimulus measures to cushion low growth. As a result, the primary balance turns negative in case of countries considered as fiscally sound, like

<sup>2</sup> In the ECB's latest [financial stability report](#) (graph 1.4) a differentiation between the debt and the GDP effect on the debt ratio for the single EMU economies is displayed.

Germany, Austria and the Netherlands while it is substantially reduced for countries like Italy which in the past shouldered high public debt by means of a high primary surplus.

In the upside case, the ECB successfully contributes to reflation (inflation +30 bps vs base). Governments support growth (+30 bps vs base) via structural reforms while sticking to their past fiscal policy pattern. The ECB maintains ample policy support thereby bringing 10-year yields down by 30 bps compared to the base case.

**Results.** Due to expected ongoing very accommodative monetary policy stance the rate on government debt is forecast to be below the nominal GDP growth rates in the base scenario for all economies except Italy. This alone implies that except for Italy debt is projected to fall leaving aside (or assuming a zero) primary balance. The historically high primary surpluses of Italy are potentially offsetting this effect. Even taking these favourable conditions into account the long-term simulations through 2030 do not point to an unwinding of the debt pile in Spain, Portugal, Ireland, Slovenia, Slovakia, Malta and the Baltics. Only in eight economies does the debt return to the 60% threshold (vs. ten in 2019). But more importantly, the pre-crisis debt level is expected not to be reached within the next ten years in Spain, Portugal, Ireland, Slovakia, Lithuania and Latvia and it will stay above 100% in Italy, Portugal and Greece and still close to 100% in Spain. Even in our upside case, the debt ratio will stay around 116% (Italy, Portugal) or well above (Greece). We attach a higher probability to the adverse than to the upside scenario. In this scenario, the debt ratio will – except for Finland, Luxemburg and Cyprus<sup>3</sup> - rise for all economies. Greece is a special case. It remains immunised as its creditors granted the country very low interest payments until 2030.

The sustainability risks increase in the adverse scenario. Here, the projected fiscal slippage compared to the base case, amid low growth, put debt sustainability under pressure, not only for Italy but also for Spain, Ireland, the Baltics, Malta, Slovenia and Slovakia as the table below shows. Moreover, not only in Italy but also in Spain, Portugal and Greece the projected rate on government debt is above the expected nominal growth rate. With ECB policy normalization assumed to take place in the second half of the decade, the rate on government debt increase above the level consistent with a stable debt ratio, especially for the Southern European countries. This gap would put the already elevated debt ratios of Italy (3.2% vs. 2.4%), Spain (2.4% vs. 0.5%), Portugal (2.2% vs. 0.8%) and Greece (2.3% vs. 1.8%) on an upward trajectory beyond 2030.

<sup>3</sup> This counter-intuitive finding is due to country-specific factors. Over the past twenty years Finland had an average primary surplus of 2.4% so that even with less eager consolidation the debt ratio will decline in a low rate environment. A similar reasoning applies to Luxemburg where additionally the pre-pandemic debt ratio

## DSA for EA economies

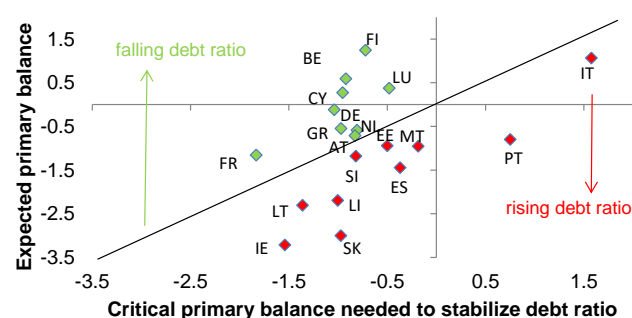
expected debt-to-GDP ratio by 2030, % of nominal GDP, according to scenarios; green: < 60, red > 90, yellow in between

	2019	2030		
		base	upside	adverse
Germany	59.9	46.1	42.6	56.3
France	97.1	88.0	83.3	102.7
Italy	136.9	124.3	116.4	148.6
Spain	92.1	98.8	92.9	114.6
Netherlands	49.1	42.8	38.3	50.9
Belgium	97.3	77.0	70.9	89.8
Portugal	116.8	122.4	115.9	141.0
Austria	70.0	63.4	60.3	76.4
Finland	53.7	27.9	24.8	37.3
Greece	167.7	163.3	154.6	184.7
Ireland	58.7	74.8	71.8	87.4
Slovenia	63.9	61.3	58.5	73.6
Slovakia	58.5	73.7	70.7	86.2
Luxemburg	23.5	6.8	6.2	14.6
Cyprus	92.8	76.1	71.9	90.4
Malta	43.3	43.1	41.3	54.4
Estonia	8.3	10.2	7.8	15.8
Lithuania	38.4	43.2	41.4	53.2
Latvia	39.1	43.4	41.3	53.1
<b>Euro area avg.</b>	<b>85.9</b>	<b>77.1</b>	<b>72.2</b>	<b>91.4</b>

All in all, **our analysis suggests that Italy and Portugal are the top candidates for debt sustainability stress, followed by Spain**, leaving aside the special situation of Greece. Moreover, France, Belgium and Cyprus also require some monitoring because of the risks associated with their projected debt ratios while the Baltics, Malta, Slovenia, Slovakia and Ireland face the risk of an insufficient primary surplus.

### Is fiscal policy able to stabilize debt?

2030 worst case projections, % of GDP



### A closer look at Italy's debt dynamics

Considering the weight Italian sovereign debt has in European investors' portfolios and the risk potentially stemming from its high level, we complement the euro area-wide approach with a more detailed one for Italy.

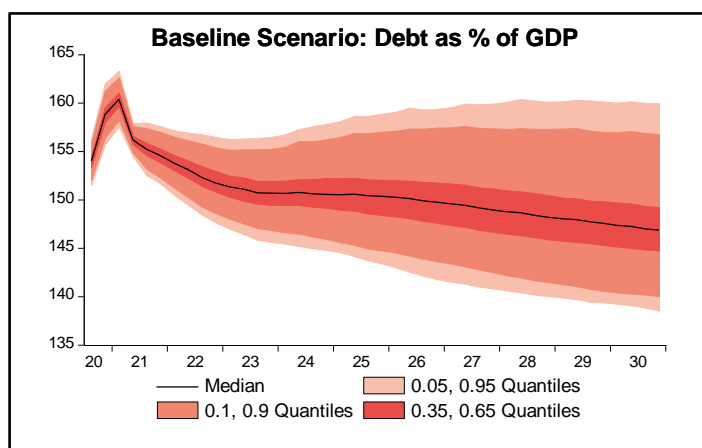
was only at 23.1%. In Cyprus the debt ratio will come down by only 2.4 ppt to 90% reflecting the expectation of a still positive primary balance amid low yields.

We developed a quarterly macroeconomic model with two blocs: the first one describes the economy with a small set of estimated equations for the evolution of output and prices, for the 10Y-BTP yield, and the average cost of the debt. The second bloc includes accounting identities for the primary surplus, interest payments and debt. The two parts are linked, so that macro conditions impact debt dynamics, which in turn, via interest rates and the primary balance are again feeding back to economic fundamentals. In this way, we can analyse, for example, the long-term beneficial effects on growth from the reduction in interest rates following fiscal consolidation but also the trade-off policymakers face between reducing aggressively the deficit and the short-term drag on growth that this may cause. The model can be used to project the debt to GDP ratio and, by means of stochastic simulations, compute the distribution of risks around the baseline. The model is described in Appendix B.

We use the model to highlight the role of fiscal consolidation for debt sustainability, in line with the exercise for all euro area countries, carried out in the previous paragraph. We take as a starting point the 2020 debt projections the European Commission published in July. For the projection period, we use the same long-run assumption on the 10-year Bund yield as for the model discussed before.

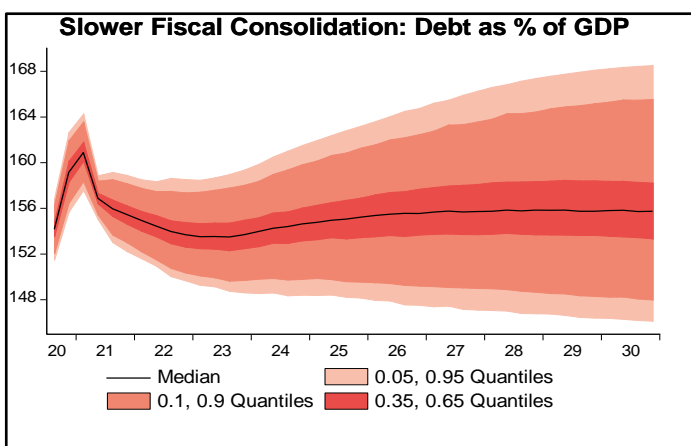
In order to concentrate on the downside risk to debt we develop a new set of projections, starting from a base similar to the downside scenario developed in the previous part: in our new baseline, then we assume a slow (by historical standards) path of fiscal consolidation. The government is mindful of the slow potential growth rate of the economy and the fragility of the post-Covid-19 recovery. The temporary suspension of the SGP and its likely reform will allow this without creating frictions with the other euro area countries. Second, fiscal consolidation will likely have to start under the current heterogeneous coalition government in which the populist Five Star Movement is the senior partner. New elections are scheduled for 2023 and polls are giving a substantial lead to the centre-right coalition. The two main parties of the bloc (Lega and Fratelli d'Italia) openly oppose tight fiscal discipline. Finally, due to ageing, an increasingly large share of public expenditure is getting hard to trim. Therefore, in a sharp departure from the behaviour of the last 20 years, the primary balance goes back into surplus only in mid-2024 and reaches just 1.4% of GDP by 2030. With an expected mean of 1.1%, the primary balance is substantially lower than the past two decades' average of 1.8% amid a considerably higher debt ratio than in the past.

Despite the sub-standard fiscal consolidation, **the model predicts a slow but steady reduction in the debt ratio, from a peak of just below 160 in 2020 to 145% by 2030.** This keeps the BTP-Bund spread in check, allowing the implicit cost of debt to decrease slightly until 2026 and to recover marginally afterwards. The chart shows also the distribution of risks around the baseline, derived through stochastic simulations of the model. Because of the high initial level of debt, the risk distribution is asymmetric and gives a higher probability to a more dangerous debt dynamic.



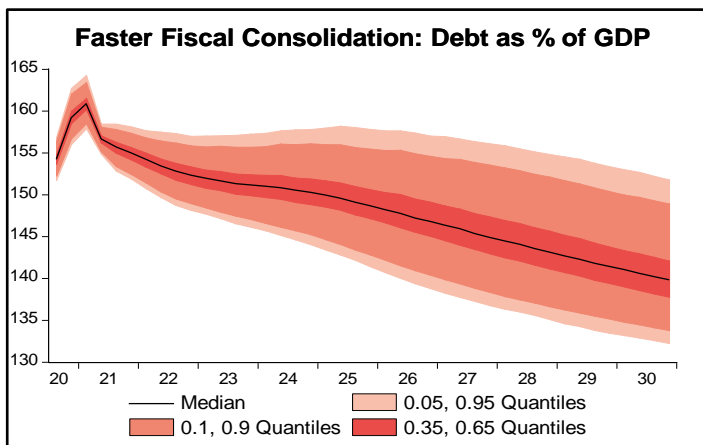
We then design two alternative scenarios based on different evolutions of fiscal policy. In the first one, we assume that the primary balance goes back to surplus one year and a half later than in the scenario just considered.

Under these conditions, after a reduction due to the GDP rebound, the debt ratio would be back on a rising path, with a much higher risk of explosive dynamics.

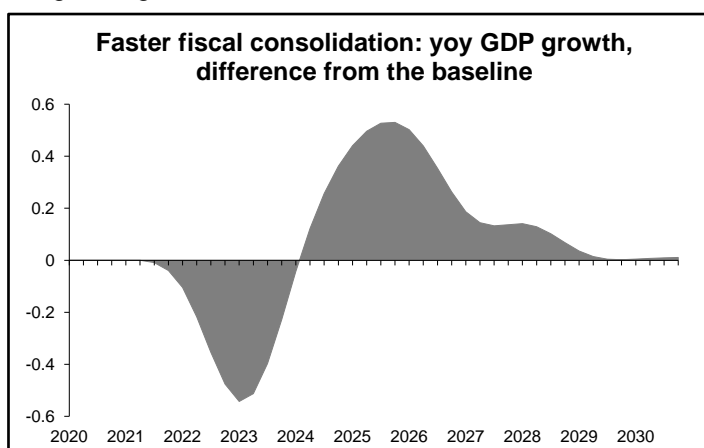


The effect of a low (negative, in the first years) primary balance would be compounded by higher interest expenditures, as higher deficit and debt numbers would gradually push the BTP-Bund spread towards 200 bps. The estimated equation assumes a linear relationship between macro and fiscal fundamentals and the spread. This may underestimate the interest rate reaction to higher debt and therefore we can think of these results as a lower bound for risk.

Finally, in the second alternative scenario we simulate the impact of faster fiscal consolidation, with a primary surplus achieved already in 2022. In this case, the debt ratio would be on a clear downward path, decreasing to around 138% by 2030.



However, the resulting fiscal squeeze would compress growth in the initial part of the horizon, leading to a slow debt reduction until 2024. The government would have then to face a trade-off between a short-term growth shortfall and a long-term gain.



Summing up, while our pan-euro area screening tool signalled some alertness, the drill down of more adverse scenarios for Italy delivers a fairly optimistic outcome. Looking at the simulations carried out with both the multi-country model and the one specific for Italy, even a rather slow pace of fiscal consolidation could keep debt sustainable **in a narrow sense as debt-to-GDP will not be on an upward path even assuming slow fiscal consolidation**. However, this result critically hinges on a low cost of debt. Financial repression by means of artificially low bond yields will have to remain in place for a prolonged period to ensure sustainability: a much faster fiscal consolidation, while beneficial in the long run, would be probably too costly in terms of short-term growth and political acceptability. This raises the risks related to a quicker withdrawal of monetary policy support. This could originate from a stronger than expected recovery in inflation or by some large counties recovering faster and taking out the political support to ECB action. On top of that, contained BTP yields also require political stability and a perceived strong willingness by the government to keep public finances in check.

Indeed, our simulations show that **financial repression is not a substitute for fiscal discipline**; delaying by too long the healing of public finances would put debt quickly on a risky upward trajectory.

### ECB and Recovery Fund: a game-changer?

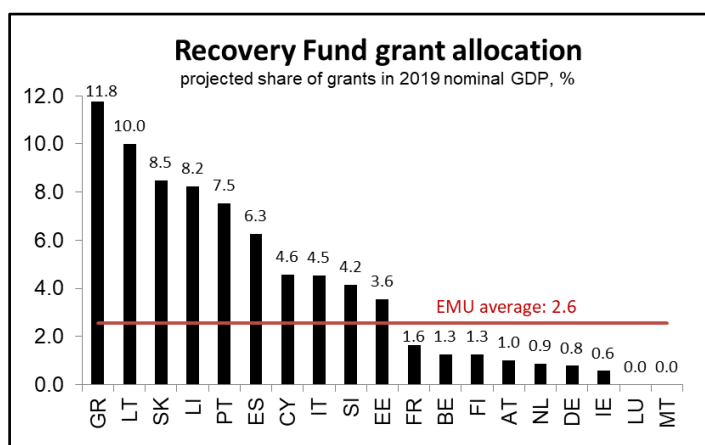
Admittedly, the analysis so far treats the EMU economies as independent single entities thereby largely ignoring interdependencies with pan-EU institutions like the ECB and the

recently created European Recovery Fund (RF). Formally, the ECB's target is to achieve price stability. That said, Art. 127 of the Treaty also states that "Without prejudice to the objective of price stability", the central bank shall also "support the general economic policies in the Union with a view to contributing to the achievement of the objectives of the Union". As stated in Art. 3 these include inter alia "full employment" and "balanced economic growth" but also objectives like "social and territorial cohesion, and solidarity among Member States". The point is that with the low inflation environment likely to persist over the coming decade, the ECB will continue to have plenty of leeway to support not only activity but also to keep measures in place that directly or indirectly support debt sustainability. Apart from low policy rates, the purchases of government bonds via the Public Sector Purchase Program (PSPP) and the Pandemic Emergency Purchase Program (PEPP) are to be mentioned in the first place. In case the situation would worsen for some countries the ECB could not only offer help through its Outright Monetary Transactions Program (OMT) but also think about scrapping capital-key-driven QE. In the past, it had frequently made clear that it views capital key buying as a self-imposed restriction. Taking Draghi's 2012 "Whatever-it-takes" speech as the most outstanding event, the ECB has also in the past proven that it will not hesitate to contribute to EMU stability as an actor of last resort. We think that it would also act in this spirit again, especially in case solvency problems were to jeopardize the stability of EMU as a whole. However, it also supported a debt restructuring in the case of Greece which makes clear that the ECB will not bail out single economies and their bondholders and not serve as a substitute for fiscal responsibility.

The second potential major contribution to debt sustainability of a single country comes from the creation of the Recovery and Resilience Facility (RRF or Recovery Fund). The agreement of the EC on July 17-21, 2020 was a breakthrough as its volume of € 750 bn is including grants for the first time. The EC's budget proposal for 2021-27 allows the EU to borrow a substantial part of € 750 bn on the financial markets. It will be repaid over future EU budgets – not before 2028 and not after 2058. That said, in exchange of grants reforms are required: "Member States should submit their draft recovery and resilience plans outlining national investment and reform agendas in line with the EU policy criteria." Here the country-specific recommendations (esp. 2019 and 2020) and the green and digital transition goals are key. Hence, the RRF contributes to debt sustainability not only through grants but also by fostering reforms. Moreover, the expected allocation of grants (see next graph) favours the highly indebted economies. It thereby helps them to sustain growth while embarking on some inevitable measured consolidation. According to [simulations](#), by 2023 the Italian and Spanish public debt ratios could be around 2.5 pp points below their baseline numbers and the Portuguese debt ratio will be around 2.0 pp points lower thanks to the RRF. This is not yet captured in our analysis. That said, it is important to keep in mind that the RRF is meant as an extraordinary tool to fight the Covid-19 outfall and not something established permanently. But looking ahead, we may see further steps towards fiscal integration, though it will require a demanding give-and-take process. The political discussion about making the Recovery Fund a permanent tool has just started. This idea is strongly supported by

the **ECB**, emphasizing that EMU “lacks a permanent fiscal capacity at supranational level for macroeconomic stabilisation in deep crises”. This would ease the more and more difficult task of the ECB to stimulate activity solely through monetary policy. The idea of a permanent Recovery Fund will also be discussed in the context of an overhaul of the economic governance framework that the EC launched at the outset of 2020. While strong support from European institutions and the benefitting economies is to be expected, it is unlikely that the main opponents against steps towards debt mutualisation, like the ‘frugal four’, agree to such a pivotal step near term.

All in all, ECB monetary policy action has and according to our projections will in the future support debt sustainability by keeping sovereign bond yields low. The PEPP and the PSPP are major tools. On top, the mere possibility of further or extended ECB action will also dampen government bond yields and improve debt sustainability especially for the Southern European economies. For the latter an outright game changer would be creation of a permanent Recovery Fund, a discussion that has just started.



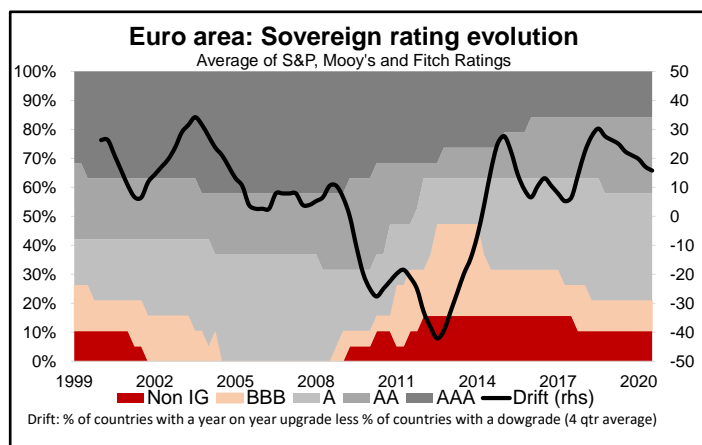
### Projecting agencies' post Covid-19 shock rating

Rating agencies play an indirect role in debt sustainability, as downgrades (e.g. to High Yield) may trigger investment flows likely to impair market funding and push yields higher.

Rating actions on European sovereigns in response to the Covid-related deterioration of the fiscal outlook have been so far limited, as agencies need more clarity on the evolution of government debt and, more broadly, the performance of the economy in the post-Covid-19 world. Fitch has embraced the most hawkish approach in 2020. In contrast, by raising its outlook on Italy from negative to stable in October, S&P stressed the temporary nature of the shock and the strong support to creditworthiness emanating from the EU and euro area membership. If the crisis leaves deep scars on the economy and the fiscal response proves ineffective, however, the next months could see the beginning of a downgrade cycle. A repeat of the deep 2011 downgrades is not on the cards, in our view, as overall the fundamentals of the economies, especially in the euro area, and the protection net set up by governments and central banks are stronger today.

However, a non-negligible number of EMU members including Italy have their rating already in the lower range of the Investment Grade (IG) space. **Any downgrade below that**

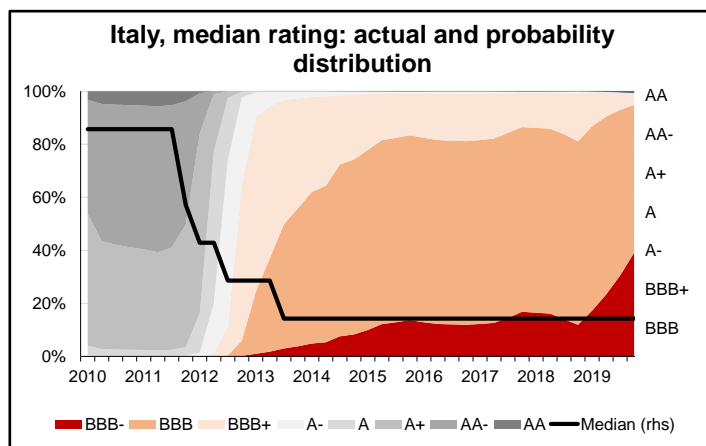
**threshold would have a big financial impact** as it would trigger a wave of forced selling by rating-constrained intermediaries (e.g. mutual funds and life insurers). Moreover, in principle, non-IG bonds would no longer be eligible for ECB purchases. The central bank exceptionally made Greek bonds (average rating BB-) eligible to its PEPP. But once the pandemic is over and PEPP purchases terminated, there will very likely no longer be support for non-IG sovereign bonds from ECB QE. Deriving a sound estimate of the risk of a cut to High Yield (HY) then matters for portfolio decisions.



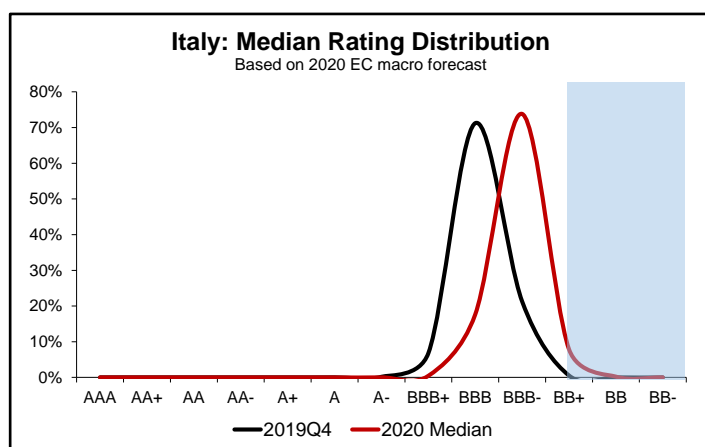
To this end, we tried to “reverse engineer” the rating decisions of the three major agencies (S&P, Moody's and Fitch), by explaining them through a limited number of macroeconomic and public finance variables. We built an econometric model that maps these variables into a distribution of possible rating notches. We seek to provide a gauge of the risks, e.g. by computing the probability of a country's transition to HY.

We considered more than 60 emerging and developed economies using quarterly data from 2011 to 2019, as we integrate the change in agencies behaviour after the GFC, excluding the partial response to the Covid-19 crisis. We split the sample into emerging and developed economies and for each group we estimated a model for each rating agency as well as one for the median and lowest rating. The technical details and results are shown in Appendix C. On top of fiscal metrics like government balance and debt (and for emerging markets, foreign debt) ratings depend on a relatively small set of variables, such as governance indicator, size (confirming the “too big to fail” hypothesis), stage of economic development (measured as per capita GDP) and expected growth; commodity prices are only relevant for emerging economies' rating. Moreover, **we find strong evidence of “herding”**: rating changes are synchronized across agencies. It is important to recall that agencies' ratings have a strong subjective component that our model cannot capture.

With this limitation in mind, we show two possible applications of this model, again focusing on the example of Italy. First, we track the evolution of the rating distribution over time. As the following chart shows, the risk of seeing the median rating drop to BBB- has increased markedly since the end of 2018, due to the growth slowdown and deterioration in the fiscal accounts.



A second useful application of the model is the projection of the rating level consistent with a specific macro and fiscal outlook. For the example of Italy, we get the following results. We apply the same macro assumptions already used for the country-specific debt sustainability analysis.



The chart above shows the two distributions after running the model for the median rating with respectively end-2019 data and the current macro forecasts. It signals **that the mode (the most likely outcome) of the distribution would move by one notch, to BBB-, with a probability of the median rating to drop to HY of just 8%**. BBB- is the current median rating for Italy, and this reinforces our view that there should not be further changes until the growth and fiscal outlook become clearer.

### Upshot: Stress from higher debt ahead

Following the GFC and the euro crisis, the emergence of Covid-19 will give a new push to sovereign debt levels. Within ten years **we see the euro-area-wide debt level at around 80%, in an adverse even at 91%**. This is considerably above what the EMU members agreed as target and it approaches a region where negative economic effects from debt on activity tend to kick in. Looking at the single economies the picture becomes very heterogeneous. Our analysis suggests that Italy and Portugal are the top candidates for debt sustainability stress, followed by Spain (leaving aside the special situation of Greece).

We consider our adverse scenario by no means as extreme as it is driven by an only stronger-than-expected negative effects from Covid-19 and adverse ECB action. Additional supply shocks for instance related to another pandemic or an escalation of global trade tensions leading to a disruptive de-globalization could amplify these effects. Likewise, the

inability to implement reforms and adjust expenses for health and pensions against strong resistance from ageing societies could turn the budget balances of almost all economies into clearly negative territory and push the debt pile further up. Over the past two decades shocks like the GFC and Covid-19 made clear that black swan-events can make the outlook dramatically worse.

Italy, as the 3<sup>rd</sup> largest EMU economy is of special interest given its chronically low growth, high debt and its rating (just one notch above Non-IG). **Our analysis shows that the Italian debt appears sustainable** in a narrow sense as the debt-to-GDP ratio will not embark on an upward path even assuming slow fiscal consolidation. But this **result hinges on a low cost of debt**. This will be in part be the result of structural forces like demographics and excess private savings keeping rates low, but country-specific fiscal policies will remain crucial to keep debt servicing costs under control. Luckily, we expect the ECB to seriously start unwinding its ultra-accommodative current policy stance only in the second half of the decade. While this will likely be warranted for the euro area as a whole, it could still be too early for some high-debt countries.

Looking ahead, the ECB cannot be a permanent substitute for measured consolidation and reforms. Currently, its negative rate policy and various QE programs keep a lid on yields and hence public financing conditions. But once the pandemic is over and a monetary policy normalization process starts (though likely only several years ahead) a high pile of debt increases the probability of debt sustainability stress. Rating agencies so far restrained from major changes but mostly adjusted the outlook down. Once the Covid-19 crisis is over, however, the ratings will much depend on the scars left on public finances and on consolidation plans.

In this environment **the re-emergence of EMU stability concerns could enter the stage again**. Would deeper fiscal integration beyond the baby step of creating the RF be a game-changer? For the highly indebted economies, yes, yet this will only buy time. This holds even more as also countries that are currently widely considered as fiscally sound – for instance, Germany – will face the double impact from an ageing population and a slowdown of potential growth. Hence, the stability of EMU in the longer term will depend on the ability – especially of the highly indebted economies – to walk a fine line between growth-enhancing reforms and measured consolidation.



## Appendix A: Assessment of debt sustainability in euro area economies

Debt sustainability analysis (DSA) usually refers to the ability of a sovereign to keep its debt-to-GDP ratio (DEBT) under control. Its evolution over time  $t$  is given by

$$(1) DEBT(t) = \frac{(1+r(t))}{(1+GDP(t))} * DEBT(t-1) - pb(t) + SFA(t),$$

where  $r$  denotes the nominal (implicit) rate on government debt,  $GDP$  the nominal GDP growth rate and  $pb$  the primary balance. In practice, not all changes in the debt stock are also reflected in the budget according to the EC accounting rules. For instance, privatization receipts lower debt but do not impact on the deficit. These effects are captured by means of the so-called stock-flow-adjustment ( $SFA$ ).

In order to assess medium-term DSA we focus on a 10-year horizon. We abstract from cyclical fluctuations and assume growth at potential beyond 2021. For the 2020/22 period we refer to the latest available EC forecast. Analogously we pencil in the medium-term expectations about inflation. For the 2022 to 2030 period we rely on estimates from Oxford Economics. The key variables  $r$  and  $pb$  are subject to our forecast. The latter refers to the EC definition. Key for the forecast of  $r$  is the ECB's monetary policy stance, the international yield environment but also the maturity of issued debt. As a matter of fact, the redemption pattern is unknown or difficult to get in case of many countries. In order to come up with a consistent approach for all EA economies we chose to proxy the evolution of  $r$  by

$$(2) r(t) = r(t-1) + red_{share} * (ST_{debt} * ECB_{rate} + LT_{debt} * 10Yield)$$

where  $red_{share}$  denotes the share of principal debt due between 3 to 12 months. Assuming that the average maturity of debt will not exceed 10-years, we proxy the share of long-term debt ( $LT_{debt}$ ) as actual average maturity divided by 10 and proxy the corresponding yield with our expectation for the 10-year yield level. The interest rate for shorter-term debt  $ST_{debt}$  is proxied by the ECB shadow rate ( $ECB_{rate}$ ).

Key metrics for the DSA																			
	DE	FR	IT	ES	NL	BE	PT	AT	FI	GR	IE	SI	SK	LU	CY	MT	EE	LI	LT
real GDP, % yoy																			
2020	-5.6	-9.4	-9.9	-12.4	-5.3	-8.4	-9.3	-7.1	-4.3	-9.0	-2.3	-7.1	-7.5	-4.5	-6.2	-7.3	-4.6	-2.2	-5.6
2021	3.5	5.8	4.1	5.4	2.2	4.1	5.4	4.1	2.9	5.0	2.9	5.1	4.7	3.9	3.7	3.0	3.4	3.0	4.9
2022	2.1	2.2	1.7	2.0	2.6	2.8	1.6	2.3	0.7	0.7	0.9	2.0	2.3	3.0	2.7	4.3	2.9	3.4	2.2
2023	1.2	1.5	0.7	2.0	1.3	1.4	1.1	1.6	0.9	0.9	0.9	2.8	2.1	2.9	2.5	1.7	3.2	2.4	2.1
2024	1.0	1.5	0.6	1.8	1.1	1.4	0.9	1.3	0.9	1.0	0.9	2.8	2.0	2.9	2.1	2.3	3.0	2.0	2.1
2025	0.9	1.5	0.5	1.6	1.0	1.5	0.6	1.2	0.7	0.9	1.5	2.6	1.9	2.8	1.9	2.2	2.8	1.4	2.5
2026	0.8	1.3	0.3	1.5	1.1	1.3	0.5	1.2	0.8	0.8	1.5	2.1	1.8	2.6	1.7	2.1	2.7	1.3	2.4
2027	0.8	1.3	0.1	1.1	1.1	1.2	0.4	1.2	0.7	0.7	1.8	1.9	1.8	2.6	1.5	2.0	2.6	1.2	2.8
2028	0.8	1.2	0.1	1.0	1.1	1.3	0.3	1.2	0.7	0.7	1.9	1.8	1.7	2.5	1.5	1.7	2.5	1.2	2.8
2029	0.6	1.1	0.1	0.8	1.0	1.2	0.3	1.2	0.8	0.8	1.9	1.6	1.8	2.4	1.4	1.7	2.5	1.1	2.8
2030	0.5	1.1	0.1	0.7	0.9	1.2	0.4	1.3	0.9	0.8	1.8	1.5	1.8	2.4	1.5	1.9	2.5	1.1	2.8
GDP deflator, % yoy																			
2020	2.1	1.3	0.9	0.2	1.1	1.4	1.2	1.2	1.8	-0.1	1.3	2.1	2.2	0.4	0.5	1.8	1.7	1.9	1.4
2021	1.6	0.9	0.9	1.0	1.5	1.6	1.4	1.1	1.8	0.6	1.2	0.9	1.3	2.8	0.9	1.3	2.0	2.7	2.3
2022	1.8	1.4	1.1	1.2	2.0	1.9	1.3	1.4	1.3	1.1	2.7	1.6	3.1	2.0	1.8	2.1	2.1	2.1	2.0
2023	1.9	1.6	1.4	1.6	2.0	2.0	1.4	1.6	1.6	1.3	2.1	1.8	2.5	2.0	2.0	2.2	2.1	2.1	2.0
2024	2.0	1.7	1.6	1.7	2.0	2.0	1.5	1.9	1.8	1.5	1.6	2.0	2.2	2.0	2.0	2.1	2.1	2.1	2.0
2025	2.0	1.8	1.7	1.7	2.0	2.0	1.7	2.0	1.8	1.7	1.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0
2026	2.0	1.8	1.8	1.8	2.0	2.0	1.8	1.9	1.9	1.8	1.8	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0
2027	2.0	1.9	1.8	1.8	2.0	2.0	1.8	2.0	1.8	1.9	2.0	2.0	1.8	2.0	2.0	2.1	2.1	2.1	2.0
2028	2.0	1.9	1.9	1.8	2.0	2.0	1.8	2.0	1.8	2.0	2.1	2.0	1.8	2.0	2.0	2.1	2.1	2.1	2.0
2029	2.0	1.9	1.9	1.8	2.0	2.0	1.7	1.9	1.8	2.0	2.3	2.0	1.8	2.0	2.0	2.1	2.1	2.1	2.0
2030	2.0	1.9	1.9	1.8	2.0	2.0	1.8	2.0	1.8	2.0	2.3	2.0	1.8	2.0	2.0	2.1	2.1	2.1	2.0
Implicit rate on debt, %																			
2020	1.1	1.3	2.4	2.2	1.2	2.0	2.3	1.9	1.2	1.5	1.9	2.5	2.5	1.4	2.4	2.3	0.4	1.6	1.8
2021	0.9	1.1	2.2	1.9	0.8	1.6	2.1	1.5	1.0	1.4	1.6	2.0	1.9	1.1	1.9	2.2	0.2	1.1	1.5
2022	0.8	0.9	2.0	1.7	0.7	1.4	2.0	1.5	0.8	1.4	1.6	2.0	1.8	1.1	1.9	2.4	0.2	0.7	1.6
2023	0.7	0.8	1.9	1.6	0.6	1.4	1.9	1.6	0.7	1.4	1.6	1.9	1.8	1.1	1.8	2.4	1.1	0.6	1.6
2024	0.6	0.7	1.8	1.6	0.6	1.4	1.8	1.6	0.6	1.5	1.6	1.9	1.8	1.0	1.8	2.4	1.1	0.6	1.6
2025	0.5	0.7	1.8	1.5	0.5	1.5	1.7	1.6	0.6	1.5	1.6	1.9	1.8	1.0	1.8	2.5	1.1	0.6	1.6
2026	0.4	0.6	1.8	1.5	0.5	1.5	1.7	1.6	0.5	1.6	1.6	1.9	1.8	0.9	1.9	2.5	1.1	0.6	1.6
2027	0.4	0.7	2.0	1.6	0.5	1.6	1.7	1.7	0.5	1.7	1.7	2.0	1.8	0.9	2.0	2.6	1.2	0.7	1.6
2028	0.5	0.7	2.2	1.7	0.5	1.6	1.8	1.7	0.5	1.8	1.7	2.0	1.8	0.9	2.0	2.7	1.2	0.7	1.7
2029	0.5	0.7	2.4	1.8	0.5	1.7	1.8	1.8	0.6	2.0	1.7	2.0	1.8	1.0	2.1	2.8	1.2	0.7	1.7
2030	0.5	0.8	2.7	2.0	0.6	1.8	1.9	1.8	0.6	2.1	1.8	2.1	1.9	1.0	2.2	2.9	1.3	0.8	1.7

We assess the evolution of  $pb$  by means of a panel data model covering the 19 EA economies ( $i$ ) from 1999 to 2019. When selecting the model, we tried various approaches but finally came up with the following specification

$$(3) pb(t, i) = -2.22 + 0.24 * Y(-1) + 0.17 * Y(-2) - 1.35 * EARecession + 0.04 * DEBT(-1) + 0.2 * FRI(-2) - 2.62 * GFC - 2.87 * D(OLDAGE) + C(i),$$

where  $Y$  is real GDP growth,  $EA$  Recession is a dummy for past recessions (number of quarters classified as recession by the CEPR divided by 4) and  $GFC$  one for the Great Financial Crisis of 2008/09. FRI is the fiscal rule indicator from the EC,  $D(OLDAGE)$  the change in the share of people aged 65+ in the population and  $C(i)$  the country-specific fixed effect.

By combination of the equations (3) and (1) we derive the evolution the debt ratio over the coming decade and hence a key ingredient for the DSA.

## Appendix B: A Complementary DSA model for Italy

The model has two blocs; one (macro bloc) describing the key variables needed to explain the debt ratio path and a second (fiscal bloc) with the accounting identities needed for a stylised government balance sheet. The two blocs are linked, allowing for the macro developments to impact the fiscal situation and vice versa. The picture at the bottom of the page illustrates the linkages among the variables.

**The macro bloc:** Five exogenous variables (Potential GDP, world trade, import prices and the yield on 10-year bunds) are included to drive the long-term trends of the models. The macro forecasts for the 2020-2030 period are taken from Oxford Economics, while the projection for the Bund yield is consistent with that behind out Strategic Asset Allocation (SAA).

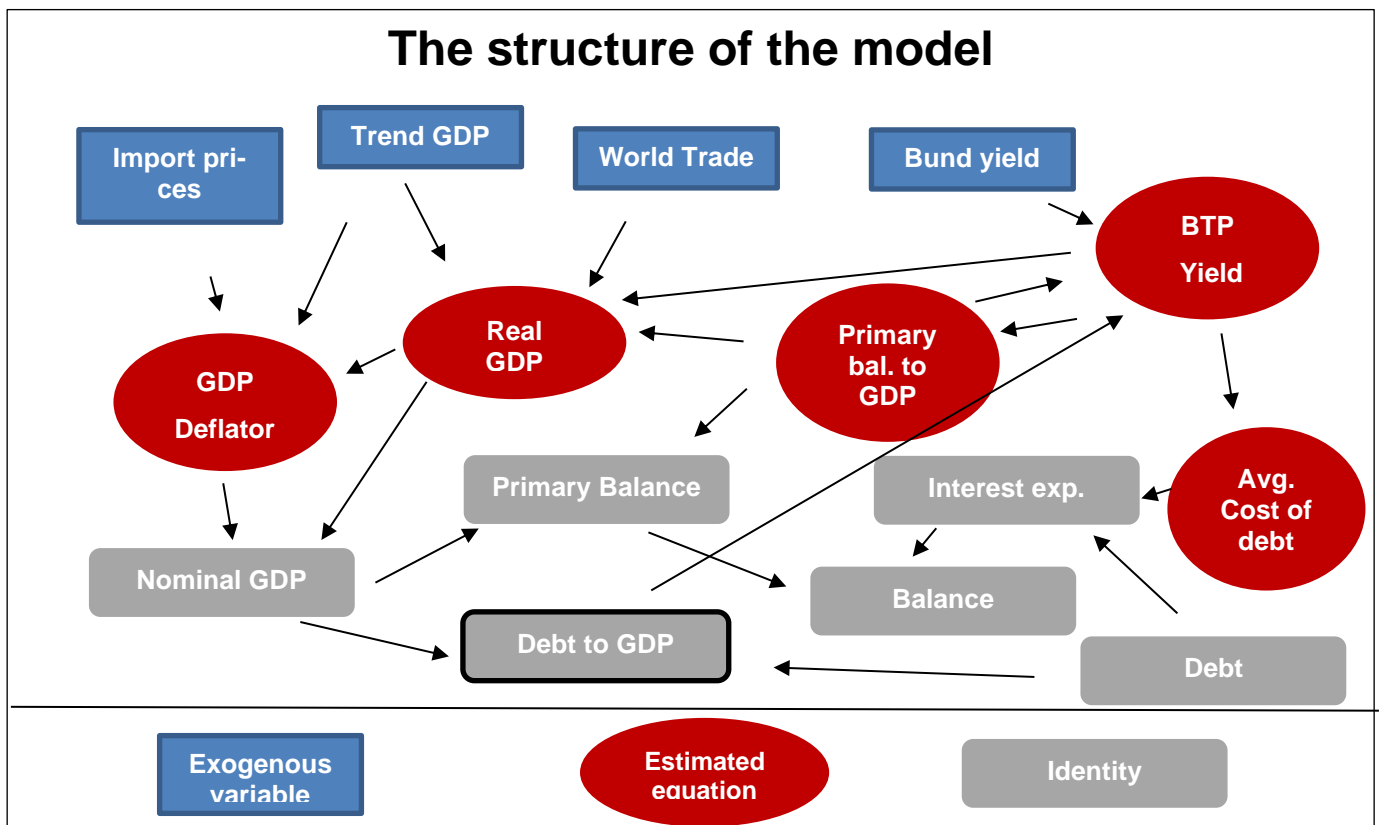
Five behavioural equations describe the macro variables.

- GDP: the qoq growth rate depends on trend growth, world trade and negatively on the lagged yield and the yoy change in the primary balance to GDP ratio.
- Inflation: qoq changes in the GDP deflator depend on the output gap and on import prices.
- Primary Balance to GDP is a function of past debt to GDP, the average cost of debt and changes to the BTP yields, and a constant.
- BTP yields are modelled as spread to the 10-year Bund. It depends positively on debt to GDP and negatively on the primary balance to GDP ratio.
- The average cost of debt is a weighted average between the lagged cost and the BTP yield; with a 0.92 weight on the former.

For the estimation, we use quarterly data for the 1998-2019 period. The equations are first estimated individually by OLS to identify the relevant variables and the lag structure. The results are available on request.

**The fiscal bloc:** A set of accounting identities allows to derive the debt to GDP ratio. We split the balance into primary and interest expenditure and employ the usual debt accumulation. In order to assess the risk around our projection we ran.

The model provides a deterministic simulation, i.e. the projected trajectory of debt to GDP given the assumptions on GDP, fiscal stance etc. and a stochastic one. This is created as follows. For any period, given a deterministic simulation the model is run 10,000 times by drawing each time a set of residuals of the estimated equation and plugging them to the corresponding equations in the simulation model. The charts in the main text play the evolution of the full distribution of the debt to GDP ratio.



## Appendix C: An ordered logit model for sovereign ratings distribution

The econometric model used assumes that each agency rating makes a continuous evaluation of a country's creditworthiness, expressed by an unobserved variable  $R^*$ . We further assume that this assessment depends linearly on a set of macro and institutional variables. Considering only explanatory variables for country  $i$  at time  $t$

$$R_{it}^* = \beta X_{it} + \varepsilon_{it}$$

However, agencies use a limited number of categories (14 in our case); they will have several cut-off points as boundaries for each category. The final rating will be

$$R_{it} = \begin{cases} \text{AAA} & \text{if } R_{it}^* > c_{14} \\ \text{AA+} & \text{if } c_{14} > R_{it}^* > c_{15} \\ \dots & \dots \\ < \text{BB-} & \text{if } c_1 > R_{it}^* \end{cases}$$

The model coefficients and the cut-off points are estimated by maximum likelihood. These, plus some assumptions on the shape of the rating distribution, give the probability of each rating conditional on the macro variables.

We estimate one model for each rating agency and one for the median and lowest rating. We opted to different specifications for advanced and emerging economies (see table below). Ratings are translated into a numerical variable, which takes 1 for AAA, 2 for AA+ and so on, thus a negative sign indicates a positive contribution to creditworthiness. Just a limited number of variables is needed to achieve a satisfactory fit: the mode of the estimated distribution coincides with the actual rating in more than 80% of the cases. The size of the coefficients does not have an immediate interpretation in this class of models, but there is some heterogeneity in the way rating agencies consider some variables (e.g. Euro area membership). For emerging economies, we found a richer and more heterogeneous specification. Expected inflation also matters and can be thought as a proxy for macroeconomic performance. Moreover, external imbalances are important. It is interesting to notice that for S&P (foreign and government) debt dynamics seem to matter more than the corresponding levels. Unsurprisingly, commodity exporters' ratings are also affected by commodity prices.

	Advanced Economies					Emerging Economies				
	S&P	Moody's	Fitch	Median	Lowest	S&P	Moody's	Fitch	Median	Lowest
Governance	-0.123 (0.022)**	-0.084 (0.020)**	-0.084 (0.021)**	-0.099 (0.020)**	-0.078 (0.021)**	-0.041 (0.008)**	-0.055 (0.01)**	-0.037 (0.006)**	-0.052 (0.009)**	-0.071 (0.010)**
Size	-0.478 (0.100)**	-0.354 (0.097)**	-0.372 (0.103)**	-0.466 (0.103)**	-0.334 (0.098)**					
P.c. Income	-0.788 (0.313)*	-1.051 (0.462)*	-0.792 (0.343)*	-0.907 (0.443)*	-0.984 (0.438)*					
Exp. Growth	-0.202 (0.057)**	-0.316 (0.059)**	-0.353 (0.058)**	-0.309 (0.058)**	-0.321 (0.058)**	-0.339 (0.039)**	-0.324 (0.041)**	-0.184 (0.022)**	-0.377 (0.043)**	-0.386 (0.042)**
Exp. Inflation						0.030 (0.014)*	0.071 (0.024)**	0.039 (0.012)**	0.052 (0.024)*	0.062 (0.024)**
Gov't Balance (% GDP)	-0.142 (0.029)**	-0.123 (0.032)**	-0.12 (0.028)**	-0.118 (0.029)**	-0.144 (0.030)**	-0.066 (0.018)**	-0.089 (0.024)**	-0.062 (0.014)**	-0.091 (0.025)**	-0.083 (0.019)**
Gov't Debt (% GDP)	0.007 (0.002)**	0.005 (0.002)*	0.004 (0.002)*	0.007 (0.003)**	0.005 (0.002)*		0.011 (0.004)*	0.026 (0.009)**		0.008 (0.004)*
Gov't Debt - yoy chg (% GDP)						0.049 (0.0230)*			0.068 (0.0224)**	
Current Account (% GDP)	-0.125 (0.026)**	-0.115 (0.028)**	-0.116 (0.027)**	-0.124 (0.028)**	-0.143 (0.026)**					
Foreign Debt (% GDP)							0.023 (0.004)**	0.011 (0.002)**	0.011 (0.004)**	0.019 (0.004)**
Foreign Debt -yoy chg (% GDP)						0.022 (0.0103)*				
Commodity prices (exporters only)						-0.157 (0.0377)**	-0.076 (0.0308)*	-0.077 (0.0226)**	-0.155 (0.0402)**	-0.167 (0.0422)**
Euro Area Member	-0.383 (0.196)*	-0.066 (0.032)*	-0.387 (0.192)	-0.344 (0.181)*	-0.197 (0.107)*					
EU Member						-0.563 (0.2270)*		-0.257 (0.1133)*	-0.555 (0.2556)*	-0.696 (0.2597)**
Laged rating	3.222 (0.132)**	2.737 (0.118)**	3.123 (0.130)**	3.101 (0.131)**	3.328 (0.134)**	4.618 (0.1443)**	5.245 (0.1680)**	2.702 (0.0744)**	5.035 (0.1660)**	5.084 (0.1623)**
Observations:	1061	1061	1061	1061	1061	1466	1466	1466	1466	1466
Pseudo R-squared:	0.715	0.696	0.712	0.716	0.724	0.777	0.820	0.805	0.803	0.807
% of correct	84.1	83.6	85.6	82.7	83.9	80.6	85.9	84.7	81.7	83.7

\* 5% significance, \*\* 1% significance

# Imprint

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**Sources for charts and tables:** Thomson Reuters Datastream, Bloomberg, own calculations  
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