

STUDY

Requested by the ECON committee



# The role of fiscal rules in relation with the green economy

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A new start after the outbreak



External author:  
Paul van den Noord





# The role of fiscal rules in relation with the green economy

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## A new start after the outbreak

### **Abstract**

According to this study the fiscal framework in principle provides sufficient flexibility to accommodate the call on government budgets from the European Green Deal – even in the very challenging fiscal landscape that is currently unfolding. However, it also observes that for this to hold in practice a number of conditions must be met, including a strong design of policies, a careful assessment of their budgetary impact and the integration of the relevant governance processes.

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## LIST OF ABBREVIATIONS

<b>DSA</b>	Debt Sustainability Analysis
<b>ECB</b>	European Central Bank
<b>EDP</b>	Excessive Deficit Procedure
<b>EFC</b>	Economic and Financial Committee
<b>EIB</b>	European Investment Bank
<b>EMU</b>	Economic and Monetary Union
<b>ESA</b>	European System of Accounts
<b>ESM</b>	European Stability Mechanism
<b>EU</b>	European Union
<b>GDP</b>	Gross Domestic Product
<b>IMF</b>	International Monetary Fund
<b>InvestEU</b>	Follow-up of the Juncker Plan's European Fund for Strategic Investments
<b>MTO</b>	Medium Term Budgetary Objective
<b>NECP</b>	National Energy and Climate Plan
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>SEIP</b>	Sustainable Europe Investment Plan
<b>SGP</b>	Stability and Growth Pact

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## EXECUTIVE SUMMARY

### KEY RECOMMENDATIONS

1. To avoid conflict with public finance constraints and to ease the trade-off with other legitimate policy goals, governments should aim for a high “growth dividend” and a strong “leverage” onto economy-wide climate action stemming from their green public investment efforts in the context of the European Green Deal.
2. For the proper assessment of the repercussions of green public investment for public finances, it is essential that the national plans developed under the European Green Deal indicate what part is vetted for EU co-funding – as this is a qualifying condition for the flexibility clauses in the fiscal framework – and what part would be funded by government budgets, and how.
3. To create the necessary fiscal space for a sustained increase in green public investment subject to a proper assessment of the debt-sustainability implications, the budgetary impact of these plans – and in particular the growth dividend they entail – should feed into future resets of the country-specific Medium-Term Budgetary Objectives (MTOs).
4. To support the economic recovery and lock in climate gains, the flexibility clauses for temporary deviations from (the adjustment path towards) the MTO or the escape from the Excessive Deficit Procedure, if deemed consistent with EU climate goals, should be invoked to frontload green public investment plans once the General Escape Clause – in place since March this year – has been lifted.
5. To allow the Commission and the Council to accurately assess the consistency of the plans against both the climate goals and the fiscal rules, and take action when deemed necessary, it is vital that the governance processes for climate policy and fiscal coordination, including their timetables and formats, be properly integrated.

### Background

The “European Green Deal” released late 2019 calls for a review of the EU’s fiscal governance, with possible steps to create room for green public investment in the fiscal rules, while preserving safeguards against risks to debt sustainability. In the months immediately following the release of the Green Deal, the macroeconomic and fiscal policy backdrop dramatically changed for the worse. The COVID-19 outbreak and the ensuing lockdowns are set to produce the deepest and most disruptive recession experienced by the European economy since World War II. As a result, budget deficits and debt are expected to soar, leaving a much more challenging backdrop for achieving the objectives for green investment set by the European Green Deal. Yet the Green Deal may prove to be a welcome opportunity to spur the recovery of the European economy after the outbreak.

### Aim

Against this backdrop, this study examines how the fiscal framework could facilitate the ambitious plans for green investment stemming from the European Green Deal while securing sustainable public finances. Specifically, the study looks into three strands of practical issues:

- The repercussions of green investment for government budgets, deficits and debt;
- The flexibility in the fiscal rules available to accommodate these repercussions; and
- The implications for fiscal governance – including coordination, surveillance and enforcement.

The aim of this study is not to provide definite answers on these issues, but rather to offer a framework for debate and reflection. A key concern that has guided this study is the limited political appetite for far-reaching reform of the fiscal framework.

### Results

The overarching conclusion that emerges from this study is that, in principle, sufficient flexibility is available in the fiscal framework to accommodate the call on government budgets from the European Green Deal – even in the very challenging fiscal landscape that is currently unfolding. However, the analysis in this study suggests that for this to be the case in practice as well, the following conditions must be met:

- The centrepiece of this study is a call on governments to ensure that fiscal action in the pursuit of their climate goals be geared towards a high “growth dividend”, by mitigating the adverse climate effects of economic activity. As well, the emphasis of fiscal action should be as much as possible on loans, equity injections and guarantees, as opposed to grants and subsidies, for instance. This would add room for manoeuvre to fund part of the green investment bill through debt issuance within the fiscal rules.
- Even so, there are limits as to how much of the government support for green investment can be financed by debt within the thrust of the fiscal rules. It is unavoidable that part of this support will need to be financed by squeezing other public spending priorities or tax increases. Therefore, it is important that the “leverage” of this government support – i.e. its effectiveness in terms of triggering the necessary amount and quality of green investment to achieve the climate goals – be maximised to keep the need for socially costly spending cuts or tax increases as small as possible and more generally safeguard the overall “quality” of public finances;
- The plans developed under the European Green Deal as laid down in governments’ National Energy and Climate Plans (NECPs) should specify to what extent programmes are vetted for EU co-funding, given that this is a qualifying condition for the flexibility clauses in the fiscal framework. They should also indicate what part of the Plans would be funded by the national governments and where these would appear in the general government account, as this is crucial for the proper assessment of the repercussions of green investment for public finances within the fiscal framework;
- These repercussions ultimately should feed into the country-specific Medium-Term Budgetary Objectives (MTOs), consistent with the requirement of sustainable debt. Aside from this permanent room for manoeuvre, the clauses allowing temporary deviations from (the adjustment path towards) the MTO to finance investment should be invoked to frontload green public investment. This would support the economic recovery while locking in positive climate effects once the General Escape Clause – in force since March 2020 – is lifted. Likewise, once the General Escape Clause is revoked, a reorientation of budgets towards green investment goals should help governments to qualify for escape clauses with regard to government investment, the pursuit of Union policy goals and the quality of public finances embedded in the Excessive Deficit Procedure;
- The NECPs mentioned above, as currently set up, are hard to reconcile with the Stability and Convergence Programmes produced by governments for the purpose for EU fiscal governance. This coordination gap needs to be tackled with urgency, lest it will never be possible to integrate the climate and the fiscal governance process properly. It would be recommendable to adapt the NECP timetable to include an annual frequency of updates of the Plans in a standardised format consistent with the input needed for the Stability and Convergence

Programmes. The latter, in turn, need to be explicit on the fiscal and economic impact of the European Green Deal. This should allow the Commission, and ultimately the Council, to assess the consistency of the NECPs and the Stability and Convergence Programmes and take action if deemed necessary.

Since sustainable public finances can never be achieved when climate risks undermine economic activity in the long run, these need not be conflicting objectives. However, fiscal resources to green the economy unavoidably compete for scarce resources with other legitimate policy goals, now and in the future, and therefore should be employed cautiously. Insofar as the planned green investment effort pursuant to the European Green Deal involves government budgets, the EU fiscal framework is more relevant than ever.

## 1. INTRODUCTION

The “European Green Deal” (European Commission 2019a) launched late 2019 calls for a “(...) review of the European economic governance framework [that] will include a reference to green public investment in the context of the quality of public finance. This will inform a debate on how to improve EU fiscal governance. The outcome of the debate will form the basis for any possible future steps including how to treat green investments within EU fiscal rules, while preserving safeguards against risks to debt sustainability.” This intention was reiterated in the Commission Communication on Economic Governance Review (European Commission 2020).

While the wording (“inform a debate”) leaves many options open, the intention is clearly to create room for green public investment within the EU fiscal framework. Part of this room would stem from improving “the quality of public finances”, which revolves around the composition of public expenditure and taxation in the pursuit of enhanced economic performance. In addition, the need for “safeguards against the risks to debt sustainability” is mentioned, suggesting that debt-financing parts of the European Green Deal is deemed legitimate given the long-term nature of green investments and their payoffs as they accrue to future generations. Debt-financing of green public investment would be reflected in the allowable structural or actual fiscal (deficit) positions of governments, or temporary deviations thereof.

In the months immediately following the release of the European Green Deal, the macroeconomic and fiscal policy backdrop has dramatically changed for the worse. The COVID-19 outbreak and the ensuing lockdowns are set to produce the deepest and most disruptive recession experienced by the European economy since World War II. How long these disruptions will last, and what scars they will leave, is as yet unknown. The consensus view is that the economy will rebound in 2021 after the lockdowns unwind, assuming their duration remains limited in time and large-scale policy intervention will prevent the pandemic from morphing into an even more profound economic and financial crisis. However, uncertainties abound, and worst-case scenarios cannot be ruled out.

The outbreak has led to fiscal policy action at an unprecedented scale and could lead to massive budgetary shortfalls induced by plummeting economic activity. Accordingly, budget deficits are expected to rise well beyond the 3% of GDP limit stipulated in the fiscal rules this year in all EU Member States with public debt soaring as well. The impact of the outbreak has prompted the Commission to invoke the “General Escape Clause” last March – endorsed by the Council on the 23<sup>rd</sup> that month – to temporarily lift all constraints on debt and deficits embedded in the fiscal rules. In the case of an “unusual event outside the control of one or more Member States”, as stipulated in the Stability and Growth Pact (SGP), such a move is warranted.<sup>1</sup>

This action will undoubtedly help contain hardship and economic damage inflicted by the outbreak in the short run. However, it will also leave a legacy of increased levels of public debt that in many cases were already exceeding the 60% reference value stipulated in the rules. On top of this, there are the fiscal risks associated with the “contingent liabilities” that accumulate as governments have announced guarantees on bank credit to private firms, households and the semi-public sector. This produces a much more challenging backdrop for achieving the objectives for green investment set by

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<sup>1</sup> The General Escape Clause in the Stability and Growth Pact allows Member States to undertake appropriate budgetary measures in the face of exceptional circumstances. With the Council having endorsed the Commission communication, a deviation from the medium-term budgetary objective or from the appropriate adjustment path towards it may be allowed for Member States, during both the assessment and the implementation of Stability or Convergence Programmes (see sections 3.1 and 3.2 of this Study). In the corrective arm of the Pact (see section 3.3), the clause will allow an extension of the deadline for the Member States to correct their excessive deficits under the excessive deficit procedure, provided those Member States take effective action as recommended by the Council.

the European Green Deal. However, it may also prove to be a welcome opportunity to relaunch the European economy after the outbreak.

Specifically, triggering large-scale “green public investment” projects in the pursuit of more ambitious climate goals may provide timely demand impetus to economic recovery. In the longer run, greening the economy will make growth more sustainable, by creating a better and more secure environment for businesses to thrive as the economy is transformed in a more climate-friendly direction. However, fiscal resources to green the economy unavoidably compete for scarce resources with other legitimate policy goals, now and in the future, and therefore should be employed cautiously. Insofar as the planned green investment effort involves government budgets, the EU fiscal framework is more relevant than ever.

Against this backdrop, this study examines how the fiscal framework could facilitate a reorientation of policies towards achieving sustainable “green” economic growth while securing sustainable public finances. Specifically, the study identifies three strands of practical issues that need to be tackled:

- How should the targets for green investment arising from the European Green Deal be linked to government budgets, deficits and debt (section 2)?
- How should the available flexibility in the EU fiscal framework be exploited in the pursuit of these targets while safeguarding debt sustainability (section 3)?
- How should the process of coordination, surveillance and enforcement of the European Green Deal be connected to that of the EU fiscal rules to ensure mutual consistency (section 4)?

As some of the analytical issues are quite complex, the formal aspects of the analysis are presented in a separate Annex. However, the main text is self-contained and should be understandable without consulting the Annex.

Finally, the aim of this study is not to provide definite answers to these questions, but rather to help frame the debate and provide input to further reflection. A key assumption that has guided this study is that the political appetite for far-reaching change of the fiscal framework is limited, if not exhausted, after major reforms in the wake of the sovereign debt crisis reshaped it.

## 2. THE NEXUS BETWEEN GREEN INVESTMENT AND PUBLIC FINANCE

The European Green Deal has identified significant investment needs, amounting to €260 billion per annum or about 1.5% of EU GDP, if the EU's ambitious targets for the emission of greenhouse gases are to be achieved (European Commission 2019a).<sup>2</sup> On current policies the emissions of greenhouse gases will fall by 60% by 2050 from its 1990 level. However, the ambition of the Green Deal is to accelerate progress, by cutting emissions by 50-55% already by 2030 (as compared to 40% according to the Paris Agreement), and to achieve strict climate neutrality (no net emissions of greenhouse gases) by 2050.

In the "Sustainable Europe Investment Plan" (SEIP) launched in early 2020, the Commission has earmarked 25% of the EU budget for climate policies across all programmes, and also decided a reorientation of at least 30% of loan guarantees provided by InvestEU (also known as the "Juncker Plan").<sup>3</sup> The Member States will be invited to step up their climate policies accordingly, and to reflect this in future updates of their National Energy and Climate Plans (NECPs, see European Commission 2019b). The NECPs are the prime vehicle for Member States to provide detailed plans with regard to climate policies, and – in varying degrees of detail depending on the Member State (see subsection 4.1) – report their impact on government budgets and the economy at large.

While a substantial component of the investment needs stemming from the European Green Deal will be covered by the EU Budget, and a contribution from the private sector is expected as well, there are repercussions for national government budgets. The question addressed in this section is to what extent the green public investment needs to be identified by the European Green Deal – as a matter of principle – would count against the EU fiscal rules and their flexibility clauses. This raises three sub-questions: (i) what projects would legitimately qualify as "green investment" under the European Green Deal; (ii) what part of it weighs on government budgets and therefore need to be addressed by the EU fiscal framework, and (iii) what part of the budgetary effect could be debt-financed while preserving the sustainability of public finances? The following subsections address each of these three questions.

### 2.1. When is investment "green"?

The European Green Deal identifies a range of areas where "green investment" should be stepped up in the pursuit of climate neutrality. This includes the creation of "smart infrastructure" for energy storage and distribution, the renovation of public and private buildings – notably social housing, schools and hospitals – and the investment in road, rail, aviation, and waterborne transport. The Commission has invited the Member States to incorporate these aims in their NECPs, on which more later in this study. In parallel, the Commission is developing a classification system – or taxonomy (see Box 1) – of what programmes qualify as "green investment" to be funded by green bonds.<sup>4</sup>

The Commission has launched in early 2020 a public consultation to collect suggestions from interested parties in the pursuit of the taxonomy for green investment on a dedicated website.<sup>5</sup> The Commission motivates this as follows: "The lack of a clear definition of what is "environmentally

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<sup>2</sup> This estimate is still somewhat in flux as, according to recent press coverage, higher numbers are under discussion as well.

<sup>3</sup> See [https://ec.europa.eu/commission/presscorner/detail/en/qanda\\_20\\_24](https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_24).

<sup>4</sup> The global market for green bonds is still small but growing fast, reaching \$205 bn of 2.85% of total issuance by 2019. EU residents are the largest issuers of green bonds and the euro the largest currency in which they are issued (ECB, 2020).

<sup>5</sup> See <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12302-Climate-change-mitigation-and-adaptation-taxonomy>.

sustainable” currently presents one of the biggest obstacles to scale up green investment, as outlined in the Action Plan on Sustainable Finance<sup>6</sup>. For this purpose, the Regulation on the establishment of a framework to facilitate sustainable investment (“Taxonomy Regulation”)<sup>7</sup> has set out a framework to define environmentally sustainable economic activities for investment purposes. This will ultimately facilitate to mobilise green investments, supporting the objectives of the European Green Deal.”

While at this stage the Taxonomy is still under development, it looks certain that a relatively broad definition of “green investment” – akin to that suggested by the World Bank (see Box 1) – will be employed. Specifically, the Taxonomy would be based on six EU environmental objectives: (i) climate change mitigation, (ii) climate change adaptation, (iii) sustainable use and protection of water and marine resources, (iv) transition to a circular economy, (v) pollution prevention and control, and (vi) protection and restoration of biodiversity and ecosystems.

What is less clear at this stage is how the Taxonomy would tie in with the classification that is already in use for the NECPs submitted by the Member States and currently under scrutiny by the Commission (see subsection 4.1), and which distinguishes five “dimensions”: (i) energy efficiency, (ii) renewables, (iii) greenhouse gas emissions reductions, (iv) interconnections, and (v) research and innovations. For the sake of clarity, it would be advisable if these two sets of classifications (the Taxonomy and the “dimensions”) were to be harmonised or reconciled. More broadly, the availability of an agreed framework for identifying eligible green investment, used consistently across the various stages of policy coordination, including both climate and fiscal policy, would seem essential.

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<sup>6</sup> See [https://ec.europa.eu/info/publications/180308-action-plan-sustainable-growth\\_en](https://ec.europa.eu/info/publications/180308-action-plan-sustainable-growth_en).

<sup>7</sup> See <https://data.consilium.europa.eu/doc/document/ST-14970-2019-ADD-1/en/pdf>

### Box 1: Rationales for a green investment taxonomy

A taxonomy of green investment projects under the European Green Deal is essential in at least three respects:

- Investors who want to engage in the funding of such projects (e.g. via the issuance of “green bonds”) need to know to what extent these are eligible for co-funding, guarantees or other forms of support by the public authorities – national or at the EU level – as this is a prime determinant of their return and risk profile;
- National governments need to know whether or not projects are eligible to exemptions (in some shape or form) under the EU fiscal framework, for which passing the test of eligibility to EU co-funding appears to serve as a (useful) precondition; and
- The eligibility to EU co-funding, depends on whether or not projects qualify as “green investment” under the European Green Deal. Hence a precise definition, or taxonomy, of projects that qualify as “green investment” under the European Green Deal is again essential.

Earlier examples of taxonomies exist. For instance, the World Bank (Daianova et al 2018) has proposed criteria for green investment and green projects in the framework of its Green Bonds programme. Similarly, the IMF (Eyraud et al 2011) has developed a taxonomy for green investment to analyse the development of green investment thus identified based on data collected by Bloomberg (BloombergNEF 2020). Specifically:

- The IMF classifies investment as “green” if it is necessary to reduce greenhouse gas and air pollutant emissions for a given level of production and consumption of non-energy goods, and falls under one of the following three categories: (i) shifting energy supply from fossil fuels to less polluting alternatives; (ii) technologies that reduce the amount of energy required to provide goods and services; and (iii) sequestering more carbon in soils and living organisms through new agricultural practices, halting deforestation, reforestation, etc.;
- According to the World Bank, green investment is classified as such not only if needed for climate change mitigation, but also in view of broader environmental objectives, such as (non-energy) resources conservation and recycling (of solid waste, exhaust gas and effluents and biomass resources), ecological protection (protective development of tourism, ecological agriculture and fishery), and climate change adaptation (emergency prevention and disaster control).

Source: author’s assessment.

## 2.2. When is green investment “public”?

According to the textbook definition, public goods are non-excludable – meaning that it is costly or impossible for one user to exclude others from using a good – and non-rivalrous – meaning that when one person uses a good, it does not prevent others from using it. Moreover, network and scale effects (increasing the number of users improve the value of the service and reduce its unit cost) add to the public nature of certain goods. In practice, many goods and services may be a mix of private and public uses. This clearly applies to green investment: even if the supply or use of green capital by its owners may be rivalrous and excludable, society as a whole does benefit from external, network and scale

effects of a cleaner environment or a lower climate risk resulting from it, at a lower cost. Hence, there is arguably a public component to all green investment projects, which is what motivates the involvement of economic policy, including fiscal policy, in the first place.

However, green investment projects that in a fundamental sense should be qualified as primarily public, owing to their external, network and scale effects, may be carried out by entities that in national accounting terms belong to the enterprise sector, not the general government sector. This would be the case if the utilisation of this capital takes place at prices that (broadly) cover costs, if the suppliers of green capital are characterised by autonomous decision-making in carrying out their principal functions and if they have a complete set of accounts (OECD 2014). For instance, a power provider that fits this definition, even if it is partly or wholly owned publicly, would be included in the enterprise sector, not in the general government.

Yet the reference values for deficit and debt stipulated in the SGP relate to the general government sector, as defined by the European System of Accounts ESA 2010 (Eurostat 2013, 2019). This is a narrower concept than the broader group of owners of green public infrastructure which the designers of the European Green Deal have in mind. Hence rather than attempting to disentangle the public and private components of green investment on the basis of ownership criteria, it is more useful to determine who funds this investment – from public or private sources. The access to EU funding of eligible projects is a qualifying condition for the relevant flexibility clauses in the fiscal framework (more on this in section 3). Therefore, at the minimum the NECPs should not only indicate what plans qualify for EU co-funding under the European Green Deal, but also how much remains to be funded by the general government sector as defined in ESA 2010.

This public funding component of green investment enters the general government account in several guises (see Table 1 for a few examples). For instance, a government grant allocated to housing corporations to fund the insulation of social dwellings would enter the budget as a capital transfer (ESA code D.9). In contrast, the construction of climate-neutral government office buildings would enter it as gross fixed capital formation (ESA code P.51). Moreover, from a national accounting perspective, a distinction between “above the line” and “below the line” transactions as well as the creation of “contingent liabilities” is in order (see again Table 1):

- Above the line transactions – such as *inter alia* fixed capital formation (P.51), investment grants (D.92p), subsidies (D.3), indirect tax breaks (D.2) or direct tax breaks (D.5) – are immediately reflected in the net lending/borrowing position of general government (ESA code S.13) as well as in government net and gross (consolidated) debt;
- Below the line transactions involve the creation of financial assets by the government, such as loans (AF.4) or equity injections (AF.5), which have no immediate impact on the net lending position and net debt. However, they can lead to higher gross debt if financed by new bond issuance by general government. To the extent the financial assets thus created yield a return for the government, these may be recorded as property income (D.4) which in turn does affect the headline balance;
- Government guarantees have no immediate impact on either the net lending position or gross debt, but they create contingent liabilities. Specifically, when guarantees materialise they add to government gross debt if the ensuing payments are funded by new bond issuance (as opposed to current revenues or the sale of assets). Conversely, when the recipients of government loans or equity injections default, gross debt remains unchanged, but net debt increases as the government’s financial asset portfolio shrinks.

There are other aspects relevant as well, such as the fact that ESA 2010 records transactions on an accrual basis, i.e. when payments have become receivable, not actually received. There are also issues related to the specifics of “Maastricht” debt accounting. As noted, in some cases gross public debt may be affected by transactions that do not show up in net lending/ borrowing. In addition, however, debt in the sense of Maastricht is evaluated at face value (value at maturity) instead of market value (such that market repricing of government-owned securities is not taken into account). Therefore, assets acquired via a capital injection to fund eligible green investment may not always be adequately reflected.

Table 1: Impact of green investment programmes on general government: stylised examples

Programme \ ESA code and item	D.3 Subsidies	D.9 Capital transfers	P.51 Gross fixed capital formation	D.4 Property income	D.5 Current taxes on income, wealth, etc.	S.13 Net lending (+) or borrowing (-)	AF.5 Equity (“below the line”)
Subsidy on electrical vehicles	+					-	
Grant for insulation of social dwellings		+				-	
Investment in climate-neutral public buildings			+			-	
Corporate tax break for green R&D					-	-	
Equity injections in a power grid owner				+		+	+

Source: ESA 2010, author’s assessment.

Finally, it should be underscored that governments dispose of a large variety of alternative policy instruments in the pursuit of climate goals, such as tax incentives, cap and trade systems, regulation, moral suasion, information, etc.. These may have no or a more limited impact on budgets (such as the cost of enforcement and policing) or may even generate new government revenues (e.g. a carbon tax). These instruments sometimes compete with financial support schemes, but they may also be flanking and reinforcing them. Either way, the ultimate green investment effort to be achieved is likely to be a multiple of the initial budgetary contribution by the government. As will be discussed in detail below, the larger this multiple is, the better it is from a public finance point of view. This multiple, or the ratio between the overall green investment outcome and the government funding contribution to it will henceforth be called the “leverage ratio”, a concept that plays a key role in the methodology developed in this study.

In sum, green public investment as described by the European Green Deal, even if it passes the test of the Taxonomy, may not easily or automatically fit in the ESA 2010 classification, so this needs to be reconciled. Specifically, it looks inevitable that the call on public funds stemming from the European Green Deal – i.e. the “green public investment bill” – be transposed into numerical values for the relevant aggregates that appear in the accounts of the general government according to the ESA 2010 accounting practices. This would seem to require a major coordination effort on the part of the Member

States' statisticians and Eurostat, akin to work carried out by the Excessive Deficit Procedure Statistics Working Group, to discuss such methodological and practical issues.

### 2.3. Should green public investment be debt-financed?

The green public investment bill as defined above – i.e. public (co-) funding of green investment projects over the government budget (above or below the line) – has implications for the conduct of fiscal policies by the EU Member States. It may act as a new constraint, as prioritising green public investment may squeeze other public spending priorities. But it may also serve as an opportunity to ease public finance constraints to the extent that public funding geared towards climate goals would enhance the sustainability of economic growth and, by extension, that of public debt. Moreover, once the general exemption clause has been lifted, public funding of green investment may prove to be an opportunity to help combat the deep recession that is currently unfolding, in view of its potentially strong multiplier effects on economic activity (more on this in subsection 3.2).

At this stage it is not known exactly how, and by how much, the European Green Deal will weigh on government budgets, and producing this information looks urgent – as underscored in the previous subsection. Even so, a “quick and dirty” attempt can be made to identify the order of magnitude. Specifically, the green investment task identified by the European Green Deal amounts to roughly 1½ % of EU GDP per annum, with approximately one quarter of the EU budget and one-third of InvestEU intended to be earmarked for Green Deal funding. Therefore, an equivalent of slightly less than 1¼ % of EU GDP would be left to be financed by a combination of private funding and Member States' budgets. Hence, depending on the “leverage ratio”, the call on government budgets would be some fraction of 1¼ % of GDP. The actual number may vary across Member States and over time – depending on the climate challenges at hand, the levels of ambition, and the effectiveness of government involvement.

What share of the call on government budget should or could be debt-financed or replace existing spending programmes, is yet another issue that needs to be examined. One rationale for debt financing of the green public investment bill is that the pay-off would primarily accrue to younger or future generations. Therefore, the brunt of the burden should be borne by those generations as well. This would arguably call for a large share, or all, of the green public investment bill to be debt-financed, in line with the “golden rule of public finance” (which prescribes that the fiscal deficit shall not exceed public investment). However, applying this rule risks conflicting with the need for public finances to be sustainable in the longer run and fails to take account of the legacy of high debt future generations will have to service as well. The intention cannot be to saddle future generations with recurrent debt crises. So, what share of the bill should be debt-financed?

In the Annex a stylised framework is developed that may serve as a useful starting point. While some aspects of it are complex due to the dynamic nature of the government budget constraint, the thrust of the findings is rather straightforward. Specifically, from the analysis the following simple rule can be inferred:

$$\text{debt financed green public investment} = \text{potential growth multiplier} \times 1\frac{1}{2}\% \times 60\%$$

This formula indicates that to keep public debt sustainable at 60% of GDP, the fraction of green public investment to be debt-financed should be equal to the “potential growth multiplier” times the green investment objective (1½ % of GDP) times the debt reference value of 60% of GDP. The potential growth multiplier is defined as the increase in the potential growth rate (in per cent) for every percentage-point increase of the ratio of green investment to GDP.

The corollary of this formula is that, to limit the risk of unsustainable debt, governments should prioritise (within the constraint that climate targets must be achieved) green investment projects that are most able to ease the climate constraints on potential economic growth (a “growth dividend”) in the long run. For example, if the long-run multiplier is 0.15 (that is for every percentage point of green investment relative to GDP, sustained indefinitely, potential economic growth would increase by 0.15 % per annum), the debt financed component of the green public investment bill could be sustained at 0.14% of GDP. The assumption for the potential growth multiplier is loosely based on a recent assessment by the OECD (2017) for the Group of Twenty (G20), indicating that climate action in the pursuit of the Paris goals (which are less ambitious than the goals under the European Green Deal) would add around 4½ % to real GDP over a time span of thirty years.<sup>8</sup>

The part of the green public investment bill that cannot be debt-financed would need to be financed through (socially costly) tax increases or spending cuts. In order to keep this part of the bill as low as possible, the “leverage ratio” must be as high as possible. The leverage ratio, as noted above, is the total green investment that can be achieved per unit of the government contribution (the green public investment bill), i.e.:

$$\text{leverage ratio} = \frac{\text{total green investment objective } (= 1\frac{1}{2}\%)}{\text{green public investment bill (as \% of GDP)}}$$

As explained in the Annex, the part of the green public investment bill that cannot be debt financed on a sustainable basis – hence would make a call on tax increases or spending cuts – depends on the leverage ratio and the potential growth multiplier – the higher these are, the less will be the “damage” for the budget. The formula derived in the Annex reads (for a green investment objective of 1½ % of GDP and a sustainable debt reference of 60% of GDP):

$$\text{required tax increases or spending cuts} = \frac{(1 - \text{leverage ratio} \times \text{multiplier} \times 60\%) \times 1\frac{1}{2}\%}{\text{leverage ratio}}$$

The Annex reports numerical computations which indicate that for a leverageratio of 3 and a potential growth multiplier of 0.15 (as above), conventional spending would have to be cut or taxes to be raised by a sustained 0.37% of potential GDP. However, if the multiplier could somehow be doubled, and the leverage ratio raised to 5, the sustained budget squeeze would be only 0.08% of potential GDP.

The jury is out as to whether or not these numerical results are realistic. In any case, they are surrounded by wide margins of uncertainty and given the sensitivity of the results to the underlying assumptions they should be subject to careful study. Even so, a key finding that emerges from the above formula is of paramount importance. Providing that projects are well selected and designed to ease the climate constraints on (sustainable) potential economic growth, owing to this “growth dividend” some fraction of the green public investment bill could safely be debt-financed without undermining the sustainability of public finances. Moreover, if a high leverage ratio – a substantial impact of green public investment on total green investment – is achieved as well, this helps to avoid socially costly tax increases and spending cuts in other parts of the government budget. Obtaining these favourable results, however, makes a strong call on the Member States to achieve high leverage and a strong effectiveness of their plans in terms of mitigating the adverse climate effects on potential economic growth.

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<sup>8</sup> See OECD (2017). This is not to deny that climate policies may be costly and therefore erode potential output. However, these effects are generally small for less energy dependent industries (Garsous and Kozluk 2017). Moreover, losses typically accrue among firms that portray low productivity in the first place, giving rise to a “cleansing effect” via the reallocation of resources into fast growing firms (Albrizio et al 2014).



### 3. USING THE FLEXIBILITY EMBEDDED IN THE FISCAL RULES

The EU fiscal rules – along with the associated procedures for coordination and enforcement that together with the rules form the EU's fiscal framework (see section 4.2) – have evolved in steps since they were first established in the late-1990s. The original SGP revolved around the 60% debt and 3% deficit ceilings which governments were required to respect, with the latter subject to an Excessive Deficit Procedure (EDP) that could eventually culminate in sanctions. The rules also introduced a “minimum benchmark” for the structural fiscal position of close to balance or in surplus to create a safety margin against the 3% deficit mark. Compliance with the rules was unsatisfactory, however.

Therefore, what was seen as a lack of “ownership” of the rules in the early 2000s led to reforms in 2005. It provided, *inter alia*, more flexibility in the face of recessions and more leeway for public investment expenditure, but also a country-specific anchor for the structural fiscal deficit for the medium run and the adjustment path towards it. The large budgetary shortfalls in the wake of the Great Financial Crisis that eventually led to the European sovereign debt crisis in the early-2010s prompted further changes, including the possibility to open an “Excessive Deficit Procedure (EDP)” on the basis of the debt criterion (60% of GDP) and a procedure for stronger supervision and enforcement through the European Semester (see subsection 4.2).

In their current form the fiscal rules make a distinction between a “corrective arm” and a “preventive arm”. The corrective arm can be invoked when Member States' fiscal deficit exceeds the 3% mark, but also, as noted, if there is too little progress with the convergence of public debt towards the 60% of GDP criterion. The preventive arm sets targets for the structural fiscal balance (the Medium-Term Objective, MTO) with the twin objective of keeping public debt stable at the reference value of 60% of GDP and secure a safety margin against the 3% reference for the budget deficit. Both arms contain rules for the adjustment of fiscal policies in case these appear off track (the EDP and the “significant deviation” procedure, respectively).

While the fiscal rules remain subject to intense debate (see e.g. Claey's et al 2016), the political appetite for more change appears limited. Therefore, this section seeks to explore to what extent the existing flexibility contained in the preventive and corrective arms can be used to accommodate achieving the targets for green investment under the European Green Deal. The flexibility clauses are elaborated in detail in the Code of Conduct on the fiscal framework (Council of the European Union 2017).

Specifically, the flexibility embedded in the preventive arm refers to the provisions for “temporary deviations” from MTO, or from the adjustment path towards MTO for countries that have not achieved this. Such temporary deviations are based on a “public investment clause” that provides flexibility if structural reforms require upfront public investment subject to the condition that these are co-funded by the EU – which may be a hook for the European Green Deal. A similar clause exists in the corrective arm, potentially allowing Member States to escape an EDP if they can demonstrate that the deficit compares favourably to investment spending co-financed by the EU, the pursuit of EU policy goals and the quality of public finances. At present, the General Escape Clause supersedes all flexibility clauses, but once this is lifted, using the flexibility clauses to frontload green investment may provide welcome support to the economic recovery.

The flexibility clauses mentioned above provide only temporary relief – i.e. for one or two years – with a commitment to adopt offsetting measures thereafter so as to not jeopardise achieving or reverting to the MTO. However, there may be scope for more permanent room for manoeuvre for governments to debt-fund their green public investment bill as well. Notably, if Member States credibly demonstrate in their NECPs that potential economic growth is spurred by their green investment efforts – as argued in the preceding section – the MTO itself could be relaxed to some extent. This route is elaborated in

subsection 3.1, while subsections 3.2 and 3.3 examine the scope for temporary flexibility in (the adjustment path towards) the MTO and in the corrective arm, respectively.

### 3.1. The Medium-Term Objective (MTO)

The Code of Conduct contains an explicit formula for the Medium-Term Objective (MTO) for the “structural balance”, i.e. the cyclically adjusted fiscal position excluding “one-off items” and other temporary measures as a per cent of potential GDP, to be maintained or achieved in the medium run (see Box 2). It stipulates that the MTO must be at least -1% of GDP for countries whose debt ratio is below 60% of GDP and at least -0.5% of GDP if debt is higher than 60% of GDP. These “minimum benchmarks” are further refined for individual Member States depending on the cyclical volatility of their budget deficits and the inferred safety margin against the 3% deficit reference.

#### Box 2: The MTO formula

The aim of the MTO is to create a safety margin with respect to 3% limit and secure the convergence to and maintenance of a prudent level debt (fixed at 60% of GDP), and room for public investment subject to these constraints. Member States are expected to keep their structural balance (net lending of general government corrected for the business cycle and excluding one-off items and temporary measures) as a per cent of potential GDP at MTO or adopt an adjustment path towards MTO.

In fact, there are two MTOs governments need to reckon with, the “minimum benchmark” (labelled *MB*) and the “implicit-liability and debt” MTO (*ILD*), whereby the one that is the highest (or the least negative) is binding, hence:

$$MTO = \max(MTO^{MB}, MTO^{ILD})$$

The reference for the minimum benchmark  $MTO^{MB}$  is -1% (the structural deficit cannot be more negative than or should in the medium run tend towards -1% of potential GDP). However, for Member States whose debt ratio exceeds 60% of GDP the reference is -0.5%. These minimum benchmarks are converted into country-specific benchmarks which depend on the required safety margin against the -3% reference value for the headline deficit and hence the assessed cyclical volatility of the budget deficit.

The country specific  $MTO^{CS}$  equals the “debt-stabilising” structural balance position (the structural balance as a per cent of potential GDP that would stabilise the debt ratio at 60% of GDP for a given growth rate of potential GDP and a given real interest rate), plus a provision to ensure that debt converges to the 60% benchmark within a twenty years horizon, plus a provision to build up a buffer for the future budgetary cost of aging (health care, pensions):

$$MTO^{CS} = DSSB + f(\text{Debt Ratio} - 60\%) + \text{Aging Provision}$$

where *DSSB* denotes the debt-stabilising structural balance position.

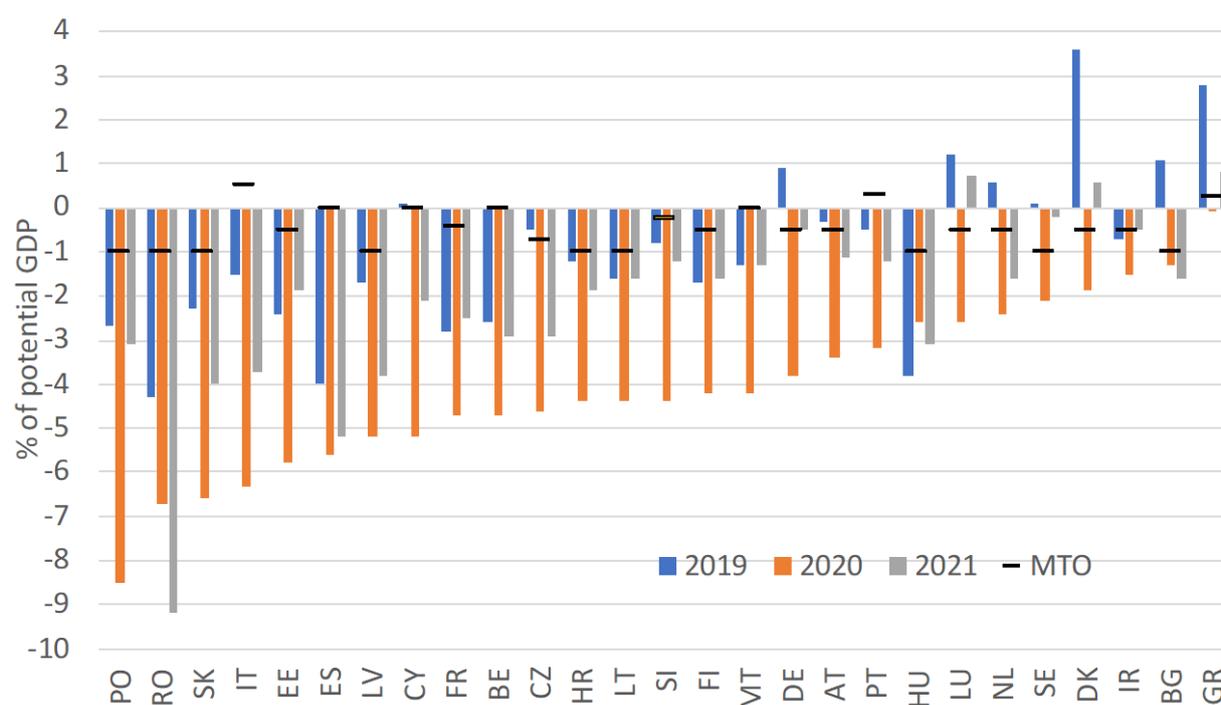
On the procedure, the methodology is discussed and agreed in the European Financial Committee (EFC). Member States present their MTO, underpinned by the agreed methodology, in their Stability and Convergence Programmes, to be examined by the Commission and the Council in the context of these Programmes. The MTOs should be revised every three years based on the Commission’s tri-annual Ageing Report, or if pension reform calls for a revised aging-provision.

Source: Code of Conduct and Vade Mecum on the Stability & Growth Pact, 2019 Edition (European Commission 2019c)

Alongside these benchmarks, the Code of Conduct requires that Member States comply with a more ambitious target for the structural balance position (“country-specific MTO”) under certain conditions, i.e. to the extent that:

- the “debt-stabilising” balance (the level of the structural balance as a per cent of potential GDP that is consistent with the debt ratio being stable at 60% of GDP) – for a given rate of potential economic growth and the real interest rate – is higher than the “minimum benchmark”;
- the actual debt ratio exceeds the reference value of 60%, the Member State concerned is required to run a structural balance that would close the gap between the actual debt ratio and the 60% mark within a twenty-year period; and
- the contingent liabilities stemming from ageing populations require the build-up of a fiscal buffer, fixed at one-third of the present value of the projected growth in age-related expenditure.

Figure 1: Structural balances and the Medium-Term Objective



Source: Stability and Convergence Programmes 2019.

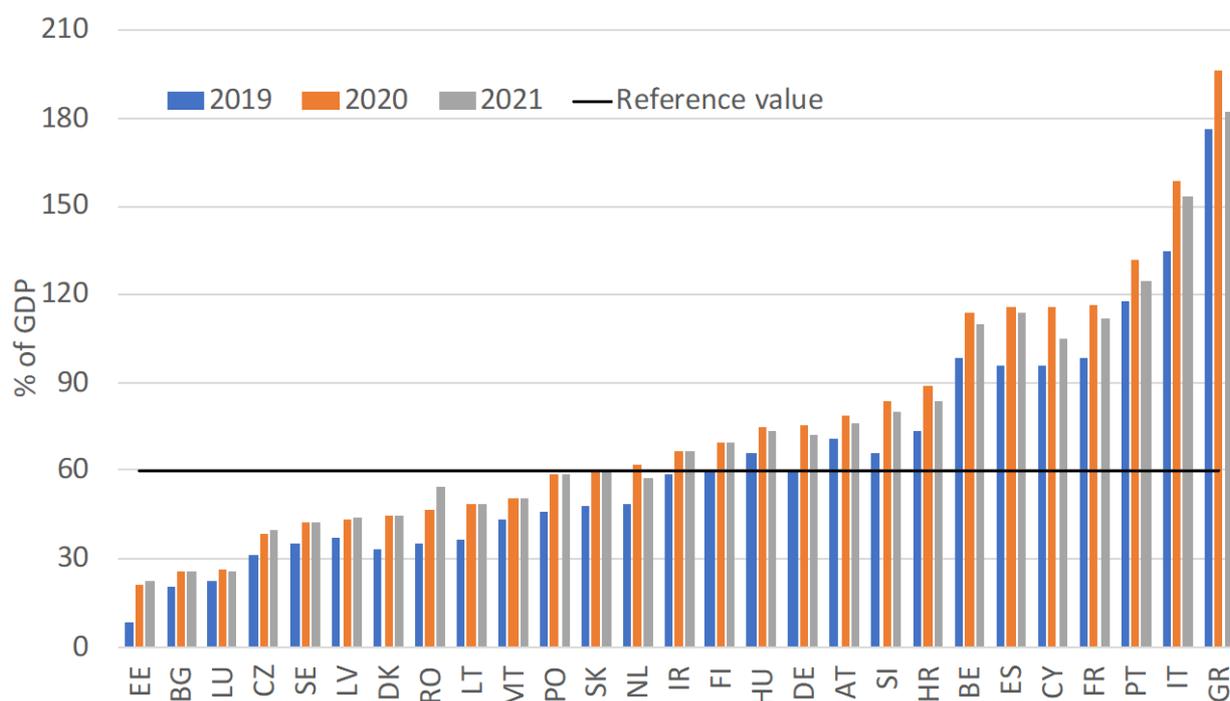
At present, nine Member States need to comply with the -1.0% benchmark, while seven are subject to the -0.5% benchmark (Figure 1). Aside from France, whose MTO is -0.4%, the other Member States are required to run a structural balance position (MTO = 0%) while five Member States need to run a structural surplus (these include Italy, Spain, Portugal and Greece). In practice countries overachieve or underachieve their MTO, this has consequences for the adjustment path to MTO (as discussed in section 3.2 below).

As depicted in Figure 1, the structural deficits are projected to soar this year due to the ongoing outbreak. However, owing to the General Escape Clause no action is required on the part of the Member States to correct this situation for now but – even if part of the increases in the structural deficits might be reversed next year as suggested by the official projections – at some point in the

future corrections will be called for if only to force Member States to either return to their MTO or their previous adjustment path to it. Moreover, aside from future reversals to (the adjustment paths toward) the MTO, the MTOs themselves are set to increase in the aftermath of the ongoing crisis for three reasons:

- First, in future resets of the MTO, countries that are presently bound by the -1.0% minimum benchmark may shift to the -0.5% benchmark as their debt ratio exceeds 60% of GDP due to the increases in public debt associated with the ongoing crisis (see Figure 2);
- Second, the country-specific MTOs – which will be recalculated after publication of the triannual Aging Report scheduled for 2021 – may be expected to be revised upwards due to the wider distances between the actual and debt-stabilising structural fiscal balances as government debt rises;
- Third, potential growth may be reassessed in a downward direction due not only to the adverse impact of climate constraints on output<sup>9</sup> but also as a result of the pandemic.<sup>10</sup> This could be reflected in higher levels of the debt-stabilising fiscal balances and hence the country-specific MTOs.

Figure 2: General government gross debt



Source: AMECO.

In view of the possibility of higher MTOs – and hence the prospect of more limited leeway for debt financing – it is all the more important that sufficient flexibility be available to enable governments to fund their green investment bills with debt (to the extent this is appropriate, see section 2.3). As noted,

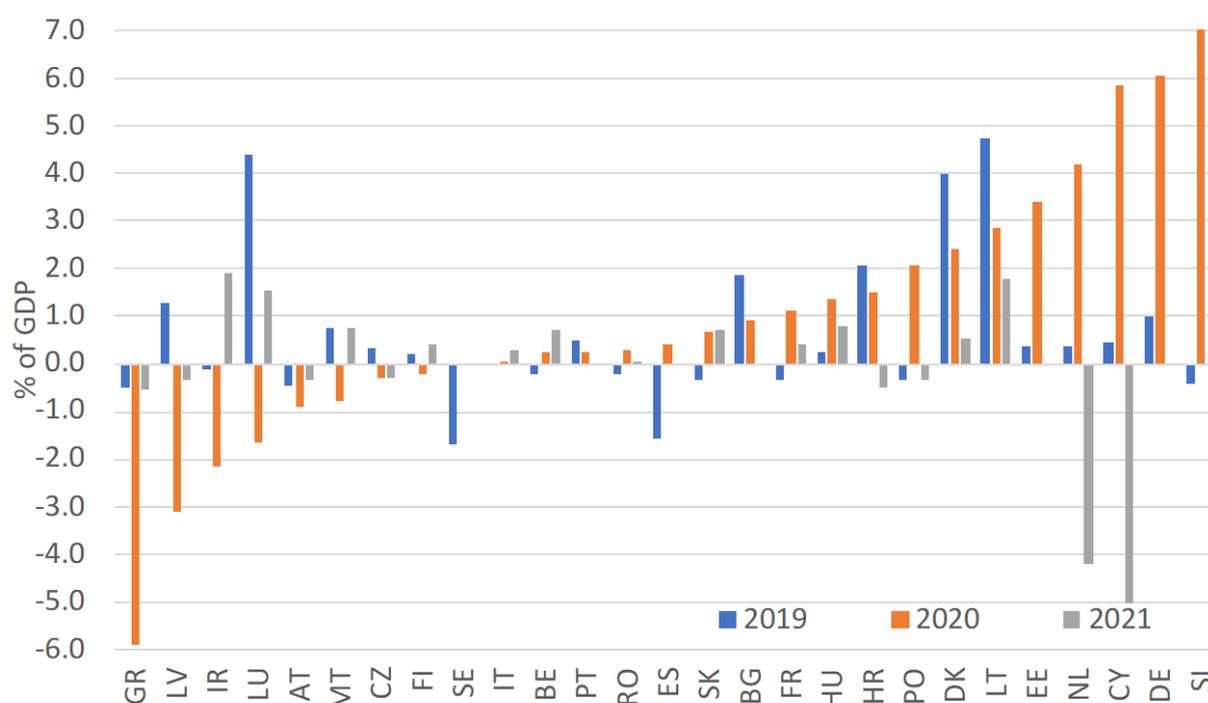
<sup>9</sup> See Dellink et al (2014), who estimate that climate change will cut global output in the range of 0.7% to 2.5% by 2060, attributable to inter alia land losses due to sea level rise, impacts on productivity stemming from deteriorating health and ecosystems, falling crop yields and fish catches, a shrinking tourism industry and energy scarcity. This estimate excludes some relevant impacts and risks, such as extreme weather events and the risk of crossing irreversible tipping points for large-scale disruptive events.

<sup>10</sup> Aside from the short-run impact on economic activity, there are possible long-term damages from a prolonged economic shutdown which fall under the heading of “hysteresis”. For instance, firms will be definitely out of business after the lockdowns are lifted, possibly disrupting supply chains of surviving firms, and unemployed workers could lose skills, see Boissay and Rungcharoenkitkul (2020).

there is no explicit flexibility clause for investment outlays embedded in the MTO formula that could be related to the green public investment bill. However, there are degrees of freedom available with regard to the computation of the debt-stabilising structural balance, as this depends *inter alia* on the assessment of potential economic growth (see Box 2), and this, in turn, may depend on the prospect of achieving the climate goals under the European Green Deal.

Specifically, the following basic approach would seem to be in line with the spirit (if not the letter) of the fiscal rules. As discussed in section 2.2, what matters for debt sustainability is the impact of fiscal action on government gross borrowing. This includes the government’s net lending position (ESA S.13), as well as “below-the-line” transactions to finance loans and equity injections (AF.4 and AF.5). The Member States are routinely reporting these transactions under the heading of “stock-flow adjustment” – a catch-all for the change in gross debt that cannot be attributed to the fiscal deficit – in their Stability and Convergence Programmes (see subsection 4.2). The Commission also makes projections for these stock-flow adjustment (see Figure 3 for their latest assessment included in the Spring 2020 economic forecast).

Figure 3: Stock-flow adjustment



Source: AMECO.

It would probably not be against the rules if Member States were required to convert their green investment bill into a medium-term objective for debt-stabilising structural gross borrowing (as a per cent of potential GDP). This gross borrowing objective would need to be fixed at a level that does not conflict with the requirement of debt sustainability at the 60% reference value. If properly done (that is, based on a consistent debt sustainability analysis, or DSA, along the lines of the model in the Annex), this gross borrowing requirement should be consistent with the underlying assumptions for baseline potential economic growth (excluding the impact of green investment), the potential growth multiplier of green investment, the sustainable debt reference (60% of GDP) and the green investment target (1½ % of GDP), according to the following formula (see the Annex for its derivation):

$$\begin{aligned} & \textit{debt stabilising structural gross borrowing position} \\ & = (\textit{baseline nominal potential growth rate} + \textit{multiplier} \times 1\frac{1}{2}\%) \times 60\% \end{aligned}$$

The computations in the Annex indicate that if baseline potential growth equals  $\frac{3}{4}\%$ , the inflation rate is  $1\frac{3}{4}\%$ , the green investment objective is  $1\frac{1}{2}\%$  of GDP and the objective for the level at which the debt ratio is stabilised is 60% of GDP, the government should be able to run a structural gross borrowing position – including the debt-financed green investment bill – of 1.64% of potential GDP, as opposed to a position of 1.5% in a scenario without green investment. In this calculation it is assumed that the potential growth multiplier is 0.15, broadly in line with the assessment by the OECD (2017). However, if a more ambitious multiplier of 0.25 is adopted, the debt stabilising structural gross borrowing position could be further eased to 1.73% of potential GDP.

As shown in the Annex, the debt stabilising gross borrowing position can be converted to a debt stabilising structural *net lending* position of the government (as a per cent GDP) based on an assumption for the fraction of the green public investment bill that is financed “below the line” and therefore ends up in the stock/flow adjustment. If this fraction is for instance 50%, the relevant formula reads:

$$\begin{aligned} & \textit{debt stabilising structural net lending position} \\ & = - \textit{debt stabilising structural gross borrowing position} + 50\% \\ & \times 1\frac{1}{2}\% / \textit{leverage ratio} \end{aligned}$$

Note that the debt-stabilising net lending position is more negative for higher leverage ratios, as this would result in a lower green public investment bill and hence a smaller stock/flow adjustment and more fiscal room above the line. The computations in the Annex indicate that adopting the same assumptions as above (potential real economic growth equals  $\frac{3}{4}\%$ , the inflation rate is  $1\frac{3}{4}\%$  and a long run growth multiplier of 0.15) the sustainable net lending position would be in the range of -0.89% to -1.49% of potential GDP for a leverage ratio in a range 1 to 5, as compared to -1.64% if all outlays are above the line.

This approach would imply a more complex procedure for computing the debt stabilising structural net lending position, as it would be fixed at a level where the *sum* of the debt-stabilising structural balance and the annual below the line finding (reflected in the stock-flow adjustment) would be consistent with debt sustainability at the reference value of 60%. This would in principle leave governments some freedom of choice as to how they distribute the part of the fiscal contribution to the green investment target (the green public investment bill) across “above-the-line” and “below-the-line” items).

The key take-away from these computations, based on tentative but plausible numerical assumptions, is that the “growth dividend” generated by green investment would make it possible for governments to run a permanently higher structural borrowing position without jeopardising debt sustainability at the 60% reference level. To the extent the emphasis is on “below the line” programmes (loans and equity injections) this would not need to require an equivalent increase in the debt stabilising budget deficit. It is important to underscore that the implied preference for loans and equity injections over “above the line” grants or subsidies is not primarily motivated by considerations of fairness or moral hazard, but is primarily motivated by the aim to fit the European Green Deal objectives in the fiscal rules – the point of departure for this study.

It is as yet unknown by how much the current set of country-specific MTOs will be tightened in the face of the increases in public debt ratios due to the outbreak and other ongoing developments once the General Escape Clause is lifted. But almost certainly the country specific MTOs will be tightened

(increased). This makes it all the more important that permanent leeway for green public investment be created within the requirement of debt being stable at 60% of GDP. The above analysis is aimed to provide guidance as to how this might be achieved.

To sum up, Member States would be required to target a suite of five (mutually consistent) country-specific reference values for:

- The assessed increase in potential economic growth as a result of this green investment effort;
- The fraction of green investment to be publicly financed (or its inverse the “leverage ratio”);
- The fraction of this green public investment bill to be debt-financed;
- The distribution of the bill across net lending/borrowing and the stock-flow adjustment; and
- The resulting country debt stabilising structural net lending/borrowing that feeds into the MTO.

### 3.2. Temporary deviations from (the adjustment path to) the MTO

Alongside the rules that determine the country-specific MTOs, the fiscal rules contain two additional sets of rules that apply in the short to medium run, one for Member States that have not yet attained a structural net lending position in line with their MTO and one for those that have. Specifically,

- Member States that have not attained their MTO receive recommendations on the required “fiscal effort” in the pursuit of their MTO. This fiscal effort is the necessary improvement in the structural balance of 0.5%-points of GDP per annum, achieved through expenditure cuts, sustained until MTO is reached. There is flexibility built in this fiscal effort rule, which takes into account the cyclical position of the economy and also the initial debt situation (see Table 4). In “exceptionally bad times” (defined as economic contraction or an output gap <-4%) – relevant at this juncture – the fiscal effort would be cut to nil regardless of the debt situation.
- As concerns the Member States that have attained their MTO, the recommendations indicate the maximum rate of growth of primary expenditure consistent with staying on the MTO, with the reference rate being the rate of potential economic growth, or, more specifically, its moving average for the past five years, the current year and the projection for the next four years. Expenditure growth then needs to follow this benchmark, which is converted into a nominal benchmark by adding (projected) inflation. Revenue windfalls relative to this benchmark should be used for debt reduction. In contrast, revenue shortfalls relative to the benchmark would be allowed to be debt-financed – again relevant at this juncture. The cyclical component of unemployment compensation and large fluctuations of gross fixed capital formation are filtered out from the expenditure benchmark to better identify its “structural” component.

Aside from purely cyclical considerations, the temporary deviation rules include a “public investment clause”, which states that an increase in public investment linked to or equivalent to major structural reforms may justify temporary deviations of the structural net lending position from the MTO, or from the adjustment path to it, if such reforms exert “positive, direct and verifiable long-term effects on growth and on the sustainability of public finances”.

This investment clause potentially provides leeway for frontloading some of the green investment bill of governments, as advocated earlier by Claeys (2019). However, there is some ambiguity as to whether the investment clause would apply only to government fixed capital formation (ESA code P.51) or could be extended to include government funding of green investment projects that are nominally carried out by the enterprises sector. While this certainly would need to be subject to deliberation in the

relevant forums, it seems reasonable to adopt this broader definition as this is not obviously conflicting with the spirit of the rules.

Table 2: The required “fiscal effort” embedded in the adjustment path to MTO

	Debt < 60% and no sustainability risk	Debt > 60% or sustainability risk
growth < 0% or output gap < -4% (“exceptionally bad times”)	0%	
-4% ≤ output gap < -3% (“very bad times”)	0%	0.25%
-3% ≤ output gap < -1.5% (“bad times”)	0% if growth < potential	
-1.5% ≤ output gap < 1.5% (“normal times”)	0.25% if growth > potential	0.25% if growth < potential, 0.5% if growth > potential
Output gap ≥ 1.5% (“good times”)	0.5%	> 0.5%

Source: Code of Conduct.

However, before the investment clause can be applied, several other conditions need to be met as stipulated in the Code of Conduct. Specifically:

- The economy must be in “bad times” or worse (see Table 2);
- The investments must be new and co-financed by the EU under the European Structural and Investment Funds, Trans-European Networks and the Connecting Europe Facility, or co-finance national projects that are co-financed by the European Funds for Strategic Investments;
- The deviation from (the adjustment path towards) the MTO should be temporary, not jeopardize the safety margin against the 3% deficit benchmark, not exceed a cumulative -0.75 percentage points and -0.50 percentage point in any single year, only granted once during the time path towards MTO (if that has not been reached), and offset by a deviation in the opposite direction within a four-year horizon.

At the moment there is no point in activating the investment clause given that the General Escape Clause – which has been invoked by the Council in response to the ongoing crisis – in combination with massive EU support<sup>11</sup> – provides the necessary flexibility with minimal risk to the sustainability of public finances (as required by the Clause). As a result, there is no impediment to temporarily raise public investment for the purposes of the European Green Deal if deemed necessary. However, when the General Escape Clause is lifted once the crisis has abated, impediments may kick in. It would be unfortunate if the lifting of the General Escape Clause jeopardised a frontloading of the green investment objectives and could not be used to support the economic recovery in a “green” direction.

<sup>11</sup> On 23th April 2020 the European Council endorsed an agreement reached earlier by the Eurogroup on a €540bn support package (around 5% of GDP), comprising €100bn for a European unemployment fund (“SURE”), €200bn worth of SME loans by the European Investment Bank (EIB) and a €240bn credit line made available by the European Stability Mechanism (ESM) for governments in distress. In addition, on 27th May the European Commission proposed a €750bn package (around 7% of GDP) to allocate funding to governments in distress due to the pandemic. Two-thirds of the package would consist of grants and one-third of soft loans, both geared to the financing of programs eligible to EU funding.

In fact, the pursuit of the green investment objective would help make the exit from General Escape Clause less painful owing to the potentially large short-run multiplier effects associated with this type of investment. Specifically, at this juncture the multiplier effects are likely to be particularly strong owing to:

- The sizable local labour content of investment in green public infrastructure in comparison with other sources of demand, amid abundant labour resources;
- The low risk that the demand impetus stemming from the green capital formation would squeeze other sources of demand given the considerable underutilised resources;
- The tight credit conditions the prospective owners of new green infrastructure would face in the absence of government co-funding or guarantees in a crisis environment;
- The temporary nature of the investment clause, and hence the limited impact on the sustainability of public finances and the associated risk premiums on sovereign bond yields;
- The expected easy stance of monetary policy in the wake of the outbreak and the associated low risk of green public investment boosting interest rates through that channel.

How large the multiplier effects will be cannot be determined with high precision. Still the literature on this subject does suggest that under the favourable conditions listed above, these could be of the order of double or triple the initial spending impulse (Baum et al. 2012, Batini et al. 2014). This means that if governments were allowed to temporarily increase public investment by up to an equivalent of 0.75 per cent of GDP (as permitted by the rules as long as “bad times” prevail) as a result of frontloading part of their green investment bill, this could boost output in the short run by a range of roughly 1½ to 2½ %, which is non-negligible. In addition, hysteresis effects on potential growth (by keeping supply chains intact and avoiding loss of skills) reinforce the case for such public investment-led stimulus (Mourougane et al 2016). So, to the extent the temporary deviations from (the adjustment path towards) MTO help front load green public investment, it could provide valuable support to the economic recovery while locking in positive climate effects.

### 3.3. The corrective arm

The corrective arm of the fiscal rules stipulates that if a Member State is found to run, or plan, a deficit exceeding 3% of GDP, or a debt ratio that is not converging to the 60% of GDP benchmark at the required speed (one-twentieth per annum either in the past three years or the next three years), unless this can be attributed to the cycle, action will be taken. The action to which is referred means that the Commission will “prepare a report”, the outcome of which may lead the Council to request a fiscal effort (contraction) of at least 0.5% of GDP per annum, either through tax increases or expenditure cuts.

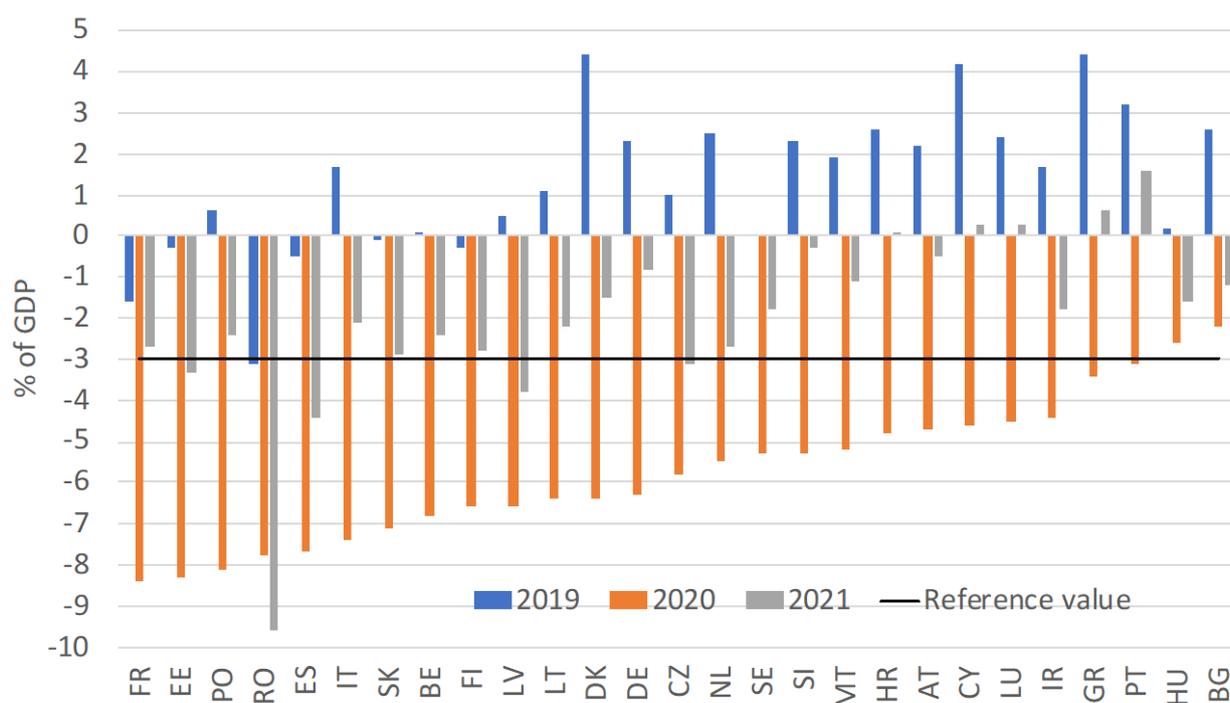
The initial deadline for effective action is six months after the adoption of the recommendation by the Council. Missing the deadline triggers a second Commission assessment and if then non-compliance is established the Excessive Deficit Procedure (EDP) will be activated. This may eventually result in financial sanctions for Member States of the euro area or a loss of eligibility for admission to the single currency area for the other EU Member States.

Akin to the preventive arm, the corrective arm embodies flexibility provisions. Specifically, before preparing its report, the Commission will consider a waiver if the excessive deficit is deemed “exceptional”, “temporary” and “likely to remain small”. Exceptionality can be granted if the excess deficit results from “an unusual event outside the control of the Member State” or from a “severe economic downturn” – defined as negative GDP growth or a large output gap. The numerical interpretation of this condition is less precise than the conditions for leeway on the annual “fiscal effort”

under the preventive arm, but the logic is similar. Note that this rule applies to the headline government deficit, as opposed to the structural deficit in the case of the preventive arm.

EDPs dating from the sovereign debt crisis – which in 2011 peaked at 24 Procedures – are closed. In June last year, the Commission adopted reports for Belgium, France, Italy and Cyprus while Hungary and Romania, since 2018 and 2017 respectively, have been subject to a Significant Deviation Procedure under the preventive arm so as to avoid opening an EDP. However, as in Romania, the excessive deficit has persisted (see Figure 4) the Council in April last year issued a recommendation on the time path to end the excessive deficit. This year all EU Member States are officially projected by the Commission to breach the 3% reference value for the general government deficit due to the outbreak (Figure 4), and this is also the thrust of the projections submitted by some Member States themselves through their Stability and Convergence Programmes (see subsection 4.2). However, due to the General Escape Clause invoked since March, a waiver for excessive deficits is automatically granted this year.

Figure 4: Net lending positions



Source: AMECO.

This situation could change when economies at least in part recover next year – as currently projected by the Commission. The sharp increases in fiscal deficits projected for this year will then have materialised and the risk of these deficits not being (entirely) reversed next year is high. Moreover, debt levels will have risen (well) beyond the 60% mark in a majority of Member States, which may trigger the preparation of reports by the Commission pertaining to the excessive deficit for a large number of Member States. This situation could impede progress with the European Green Deal in the sense that the corrective arm could overrule some of the leeway available for green public investment pursuant to the preventive arm (see the previous subsection) unless other sources of flexibility in the corrective arm can be invoked.

Fortunately, there is flexibility embodied in the corrective arm – relevant for achieving the green investment objectives of the European Green Deal – as well. Important for the European Green Deal is that – as explicitly stated in the Code of Conduct – “the Commission report pertaining to the excessive deficit shall also take into account whether the government deficit exceeds government investment

expenditure [and take into account all other relevant factors.]” The “other relevant factors” to be taken into account when activating the clause include whether the country makes budgetary efforts toward “achieving Union policy goals” or towards improving the “quality of public finances” (which generally refers to the degree to which public finances support long-term economic growth).

Arguably, the “government investment expenditure”, the “Union policy goals” as well as the “quality of public finance” clauses may be interpreted to include achieving the national objectives for green investment. Therefore, it is straightforward to use this flexibility to grant room for manoeuvre to Member States to escape the EDP, provided they use this room for manoeuvre to stimulate green public investment consistent with the European Green Deal. Again, at present there is no need to invoke these clauses because the General Escape Clause supersedes it. However, once the General Escape Clause is lifted, allowing Member States to boost green investment so as to qualify for the relevant exemptions in the EDP would be extremely welcome both from the perspective of the European Green Deal and to support the economic recovery – especially in view of the expected strong multiplier effects (see section 3.2).

## 4. REPERCUSSIONS FOR SURVEILLANCE AND ENFORCEMENT

Climate policies as well as fiscal policies are in the remit of the EU Member States, but subject to coordination at the supranational level, with the Commission playing a pivotal role in terms of providing the necessary platforms for guidance, information exchange and surveillance. However, the enforcement tools available to the European Institutions in the case of climate policies are considerably weaker than in the case of fiscal policies. In the case of fiscal policy a central role is played by the European Semester – the prime governance tool to enforce the fiscal framework – with input from a string of policy documents submitted by the Member States, notably the Draft Budgetary Plans, the National Reform Programmes, and the Stability and Convergence Programmes, which are ultimately vetted by the Council. In the case of climate policies, a central role is played by the National Energy and Climate Plans (NECPs). The NECPs *inter alia* report the details on Member States' plans for green investment, which the Commission assesses, but without an explicit mandate to request adjustment of the plans via the Council. This is somewhat at odds with the strong cross-border externalities associated with climate policies that would arguably call for stronger forms of EU governance.

At present these two processes for coordination, information exchange and surveillance – for climate policy on the one hand and fiscal policy on the other – are still separate and relying on different governance frameworks. What appears to be missing at this stage is a clear-cut link between these two processes. While the NECPs provide detailed information on planned climate policies and their impact on the physical environment, energy use and the climate, there is precious little in them on the fiscal implications (although attempts are made to spell out the broader macroeconomic impact). Similarly, while the documentation produced for the European Semester provides detailed information on government budgets and the sustainability of public finances, they lack information as to what part of the budgets should be qualified as “green” for the European Green Deal. Yet, this would be essential for the proper application of the flexibility clauses in the fiscal rules as discussed in Section 2. This section explores how this link could be established.

### 4.1. Upgrading the National Energy and Climate Plans (NECPs)

All EU Member States are required, under the Regulation on the Governance of the Energy Union and Climate Action in force since 24 December 2018<sup>12</sup>, to establish a National Energy and Climate Plan (NECP) spanning the period from 2021 to 2030. In their Plans, Member States report how they will reach the EU's climate and energy policy targets and estimate the associated green investment needs. They are also intended to feed into Member States' programming of funding and investments in the multi-annual financial framework 2021-2027. A first batch of draft Plans was meant to be submitted in December 2018 (see the official timetable in Figure 5). Although the timeline has slipped somewhat, these are all available and assessed by the Commission.<sup>13</sup>

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<sup>12</sup> See [https://ec.europa.eu/clima/policies/strategies/progress/governance\\_en](https://ec.europa.eu/clima/policies/strategies/progress/governance_en).

<sup>13</sup> See [https://ec.europa.eu/info/energy-climate-change-environment/overall-targets/national-energy-and-climate-plans-necps\\_en](https://ec.europa.eu/info/energy-climate-change-environment/overall-targets/national-energy-and-climate-plans-necps_en) and <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1565713062913&uri=CELEX:52019DC0285>.

Figure 5: The timetable for the National Energy and Climate Plans

2018	2019		2020
<i>December</i>	<i>June</i>	<i>December</i>	<i>June</i>
Member States submit draft NECPs	European Commission publishes assessment of the draft NECPs	Member States submit the final NECPs	European Commission is expected to publish evaluation of the final NECPs
2022	2024	2026	2029
<i>December</i>	<i>June</i>	<i>December</i>	<i>January</i>
Member states will submit progress reports	Member states will update their NECPs	Member states will submit progress reports	Member States will notify the next NECPs

Source: Schuman Associates.

The Commission’s assessment, which was published in June 2019, identified a significant need for improvement for most Member States. Overall, the draft plans were deemed to fall short of the targets in four out of the five assessed areas or “dimensions”: renewable energy, energy efficiency, greenhouse gas emission reduction and energy grid interconnections (the sixth dimension of research and innovation was not singled out as lacking progress). Specifically, the target of reaching 32% renewable energy by 2030 was missed in the draft NECPs by about 1.6%. The gap for energy efficiency was around 6%, while greenhouse gas saving also would need to increase by a further 2% in the final NECPs.

Importantly for the purposes of this study, the launch of this process predated the European Green Deal and is, in fact, a spin-off of the European Commission Communication on an Energy Union for Europe issued in December 2015.<sup>14</sup> Hence the design of the process was never geared towards the more ambitious targets enshrined in the European Green Deal, and even less were they designed to feed into the EU fiscal framework. So, the process will need to be adapted for both purposes. As concerns the former – the adoption of more ambitious climate goals as proposed by the European Green Deal – the European Green Deal has made a call on Member States to incorporate “ambitious national contributions to the EU-wide targets”. The Commission will assess the revised NECPs and the need for additional measures – possibly as initially scheduled in June 2020 (Figure 5). This will feed into the process of increasing climate ambition for 2030, for which the Commission will review and propose to revise relevant energy legislation by June 2021. However, as it stands, the next update of the NECPs is only scheduled for June 2024.

On the last-mentioned design aspect – establishing a link with the fiscal framework – the need for adaptation of the format of the NECPs looks vast. The reporting by the NECPs is rather diverse and – with a few exceptions – not easily transposable to items under the standard national accounting framework (ESA 2010) that are central to the EU fiscal framework, such as government deficits and debt.

<sup>14</sup> See [https://ec.europa.eu/info/energy-climate-change-environment/overall-targets/2030-targets/energy-union\\_en](https://ec.europa.eu/info/energy-climate-change-environment/overall-targets/2030-targets/energy-union_en).

The ongoing development of environmental accounting to identify resource use and the impact of economic activity on the environment is of some use in this regard, but what is sorely missing is a systematic treatment of the nexus between green investment and its fiscal implications (see section 2). There is clearly a need to harmonise the reporting in the NECPs to determine if and when a programme qualifies as “green public investment” that counts against the EU fiscal rules (net lending of government, stock-flow adjustments and the underlying revenue and outlay aggregates, as defined in ESA 2010).

There are other “loose ends” as well in that the definition of green investment employed at the various strands of EU economic governance (NECPs, the EU budget, the EU fiscal framework) overlap but do not necessarily fully coincide. Moreover, since the physical investment which embodies energy saving or other climate-friendly technologies may be needed regardless of the climate goals, only part of the bill should be labelled “green”. The degree to which this is made transparent varies strongly across the Plans, which creates the risk of “greenwashing” of existing or planned projects.

Hence the NECPs as currently set up are hard to reconcile with the key annual documents, such as the Draft Budgetary Plans, the National Reform Programmes and the Stability and Convergence Programmes, that are crucial for EU fiscal governance (see the next subsection). This design gap needs to be tackled with urgency; otherwise it will never be possible to integrate the climate and fiscal governance processes – as elaborated in the next section. Specifically, it is strongly recommended to include in the NECPs a set of standard tables – akin to the format of the Stability and Convergence Programmes – that translate the projections/targets for green public investment into relevant aggregates in the general government account according to standard national accounting practices.

## **4.2. Connecting the NECPs to EU fiscal governance**

The European Semester was codified in the Regulation on the preventive arm, as amended by the “Six-Pack” in 2011, as an annual cycle of economic and fiscal policy coordination in the Monetary Union (see Figure 6). A preliminary version of the Semester was tested in 2010, as part of the initial response to the European sovereign debt crisis. Some elements of the Semester are mandatory for the EU Member States that have not adopted the single currency – most prominently the submission of Convergence Programmes which have a similar scope and format as the Stability Programmes submitted by the Eurozone members (see below).

The European Semester runs from November to June/July. It is followed in each country by a “national semester” running from July to October in which the recommendations by the Commission as discussed, possibly amended, in the Council during previous European Semesters are to be incorporated in the Draft Budgetary Plans. The next European Semester then starts with the submission by the euro area Member States of their Draft Budgetary Plans in November, which are assessed by the Commission before the budget of each Member State is debated in its national parliament. Next, the Council adopts recommendations based on the Commission's recommendations along with conclusions on the “Alert Mechanism Report” (which relates to the “Macroeconomic Imbalances Procedure” and on the “Annual Growth Survey” (pertaining to the “Europe 2020” targets).

Figure 6: The European Semester cycle



Source: Code of Conduct.

At the end of February, the Commission publishes its Country Reports which cover for each Member State the macroeconomic situation and forecasts, the progress regarding the implementation of the country-specific economic recommendations addressed by the Council in the previous years, the reform priorities that the country needs to endorse, as well as a summary of issues emerging from the Alert Mechanism Report. The country reports are an important input for the preparation of Member States' National Reform Programmes and their Stability or Convergence Programmes, submitted in April.

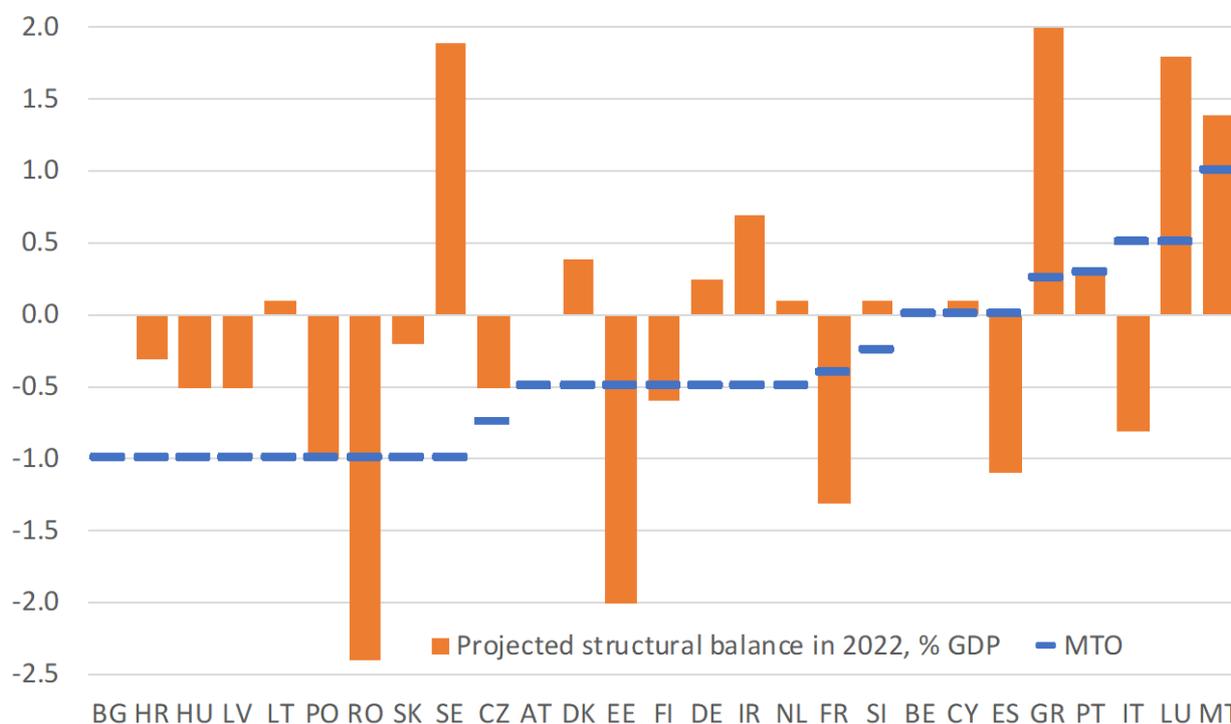
The National Reform Programmes give a detailed review of structural reforms that each country has taken and will take, including those to address the country-specific recommendations of the previous years. Furthermore, the programme gives an overview of the "strategic investments" and the use of the structural funds made. In the Stability Programme (for euro area countries) and the Convergence Programme (for non-euro area countries) each Member State documents the orientation and the objectives of its budgetary policies for the coming three years. For instance, the Stability and Convergence Programmes submitted in April 2019 set objectives for the structural fiscal balances up to 2022 and the implied path for reaching or maintaining its Medium-Term Objective (MTO), see Figure 7.

For the first time since their inception, the 2020 vintage of Stability and Convergence Programmes are much less elaborate than usual – and in some cases severely out of date – pursuant to a Commission guideline on a "streamlined format" given the vast uncertainties associated with the ongoing outbreak.<sup>15</sup> The projections for some fiscal indicators – such as the structural and actual balances and debt – are reported for 2020 and in a few cases for later years, and in some cases with dramatic changes

<sup>15</sup> See [https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/european-semester/european-semester-timeline/national-reform-programmes-and-stability-convergence-programmes/2020-european-semester\\_en](https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/european-semester/european-semester-timeline/national-reform-programmes-and-stability-convergence-programmes/2020-european-semester_en).

relative to the 2019 Programmes again illustrating the extent of the fiscal challenges ahead (see Table 3 for the four largest EU Member States by GDP). Therefore, the Programmes are far from complete. The assessment of the NECPs by the Commission was planned to feed into the 2020 European Semester. However, this has left no traces in the Stability and Growth Programmes as yet, undoubtedly also due to the emergency.

Figure 7: Stability and Convergence Programmes 2019 – projected structural fiscal balances



Source: Stability and Convergence Programmes April 2019.

Going forward, to facilitate the necessary integration of the two processes at hand on a systematic basis – the NECPs and the European Semester and in particular the Stability and Convergence Programmes – two major issues need to be tackled:

- **The timing.** While the European Semester is run as an annual cycle, the NECPs are intended to be run on a ten-year cycle – although with various intermediate stages (see subsection 4.1). However, as mentioned earlier, the next batch of updates of the NECPs is only scheduled for June 2024, which is late in the day. Therefore, it would be recommendable to include in the NECP timetable more frequent updates on achievements against the goals embedded in the Plans. These would not need to be very elaborate, but as a minimum should contain a set of standard tables on the fiscal implications of the planned climate policies, as noted in the previous subsection;
- **The format.** According to the Guidelines on the Stability and Convergence Programmes enshrined in the Code of Conduct, the Programmes should provide information on the measures to achieve long-term sustainability of public finances, including the budgetary targets for the general government balance in relation to the MTO as well as the debt ratio. The Programmes describe the budgetary and other economic policy measures taken, envisaged or assumed in the next year to achieve the objectives of the Programmes and where appropriate their impact on the general government balance. So, the Stability and Convergence Programmes are the natural landing ground for the fiscal implications of the NECPs. Still, as it

stands, these implications are not made explicit in the Programmes. This should be remedied, for instance by separating out in each standard table, whenever appropriate for each budget item the part that can be attributed to the NECPs and addressing the green investment gap as identified by the European Green Deal, to be validated by the national Fiscal Councils, for instance. As a minimum, the Programmes should report – for the time period covered in them – the parts of the actual and structural net lending positions and the stock-flow adjustments to public debt that can be related to the government’s green investment bill as defined in the previous sections.

Table 3: Stability and Convergence Programmes – projections for 2020 compared

	Net lending		Structural balance		Gross debt	
	SP 2019	SP 2020	SP 2019	SP 2020	SP 2019	SP 2020
Germany	¾	-7 ¼	½	na	56 ½	na
France	-2.0	-9.0	-1.9	-2.0	98.7	115.2
Italy	-2.1	-7.1	-1.4	-3.6	131.3	155.7
Spain	-1.1	-10.3	-2.2	na	94.0	115.5

Source: Stability and Convergence Programmes 2019 and 2020.

## 5. CONCLUSIONS AND RECOMMENDATIONS

The COVID-19 outbreak will leave a legacy of high levels of public debt, in many cases exceeding the 60% reference value by wide margins, in addition to as yet unknown contingent liabilities. This makes for an extremely challenging backdrop for achieving the objectives for green investment set by the European Green Deal insofar as these involve government budgets. However, the Green Deal may also prove to be an opportunity to help spur the economic recovery in the aftermath of the outbreak while preparing the ground for a more sustainable, climate-friendly, economy in the longer run.

Against this backdrop, this study has examined how the fiscal framework could be mobilised in the pursuit of national climate objectives while securing sustainable public finances. Specifically, the study has tried to tackle three practical questions: (i) How would the European Green Deal affect government budgets, deficits and debt? (ii) What flexibility is on offer in the EU fiscal rules to accommodate these demands? And (iii) how should the process of coordination, surveillance and enforcement of the European Green Deal be connected to that of the EU fiscal framework?

An overarching conclusion emerges from this study. In principle, the available flexibility in the fiscal rules looks sufficient to accommodate the call on government budgets from the European Green Deal while safeguarding the sustainability of public finances – even in the very challenging fiscal landscape that is currently unfolding. However, for this conclusion to hold in practice, action is needed in each of the three domains that pertain to the questions raised above: (i) the fiscal implications of the European Green Deal; (ii) the flexibility embedded in the fiscal rules; and (iii) the implications for governance.

On the fiscal implications of the European Green Deal the following recommendations appear to be in order:

- The expectation is that the “growth dividend” generated by green investment makes it possible for governments to run a permanently higher structural deficit without jeopardising debt sustainability. This would be even more the case if the emphasis of government support would be on “below the line” loans, guarantees and equity injections, as opposed to “above the line” items like grants and subsidies. This makes a strong call on the Member States to gear their climate policies towards easing the climate constraints on potential economic growth and to put the emphasis on loans, equity injections and guarantees, as opposed to e.g. grants and subsidies;
- The part of the green public investment bill for which financing through (socially costly) tax increases or spending cuts cannot be avoided should be kept as small as possible. To achieve this, the “leverage ratio” – the amount of green investment in the economy as a whole that is triggered by government support – must be as high as possible. Additionally, maximising the “growth dividend” from green investment – through a focus on reducing the climate impact of economic activities (as opposed to putting a break on those activities) when possible – will also help reduce the need for socially costly tax increases and spending cuts;
- The plans developed under the European Green Deal should clearly specify to what extent programmes are vetted for EU co-funding, given that access to EU funding of green investment projects is a qualifying condition for the relevant flexibility clauses in the fiscal framework. This may require that the currently developed EU “Taxonomy for green investment”, that will be used to assess project proposals for eligibility to EU co-financing, also to feed into the National Energy and Climate Plans (NECPs);
- The plans developed under the European Green Deal must clearly indicate what part would be funded by the national governments (the “green public investment bill”), and where these

would appear in the general government account. This reporting should include a distinction between “above-the-line” (grants, subsidies, real fixed capital formation) and “below-the-line” or contingent instruments (loans, guarantees and equity injections) as this is crucial for the proper assessment of the repercussions of green investment for public finances within the fiscal framework.

On the use of flexibility embedded in the fiscal rules, the following is recommended:

- Assuming the recommendations above are fully embraced, Member States would be able to adopt a suite of five (mutually consistent) country-specific objectives for (i) the assessed increase in potential economic growth as a result of the green investment effort; (ii) the fraction of green investment to be publicly financed; (iii) the sustainable fraction of the green public investment bill to be debt-financed; (iv) its allocation across “above the line” and “below the line” parts of the budget; and (v) the resulting debt stabilising net lending/borrowing position that feeds into the country-specific MTOs. These objectives aim to create more fiscal space to help offset the expected tightening of the MTOs after the rapid increases of public debt associated with the outbreak.
- The clauses on the temporary deviations from (the adjustment path towards) MTO should be used to frontload green public investment, which would provide extremely valuable support to the economic recovery while locking in positive climate effects. Owing to the large expected short-run demand multiplier effects of green investment on output – possibly of the order of double or triple the initial demand impulse – governments should be allowed to frontload their green investment bill by up to an equivalent of 0.75 per cent of GDP. This would be permitted under the preventive arm of the fiscal rules pertaining to temporary deviations from (the adjustment path to) MTO as long as “bad times” prevail and the deviation is intended to finance investment needs (“investment clause”).
- The sharp increases in public debt following the outbreak may trigger Excessive Deficit Procedures under the corrective arm once the General Escape Clause is lifted. This situation could impede progress with the European Green Deal in the sense that the corrective arm could overrule the leeway available for green public investment under the preventive arm. Encouraging Member States to boost green investment so as to comply with the escape clauses on “government investment expenditure”, policies in the pursuit of “Union policy goals” and the “quality of public finances” under the Excessive Deficit Procedure would be welcome both from the perspective of the European Green Deal and to support the economic recovery – especially in view of the expected strong multiplier effects (see above).

Finally, for governance purposes, the processes for coordination, surveillance and enforcement – for climate policy on the one hand and fiscal policy on the other – must be linked. Specifically:

- The NEPCs mentioned above as currently set up are hard to reconcile with the key documents – such as the Draft Budgetary Plans, the National Reform Programmes and the Stability and Convergence Programmes – produced for the purposes for EU fiscal governance. This may reflect that the Commission’s assessments of the NEPCs do not feed into the Council governance processes. This coordination gap within the EU Institutions needs to be tackled with urgency, lest it will never be possible to integrate the climate and fiscal governance processes properly at the level of the Council;
- While the European Semester, around which EU fiscal governance revolves, is run as an annual cycle, the NEPCs are run on a ten-year cycle – although with intermediate stages. It would be recommendable to adapt the NECP timetable to include a higher (ideally annual) frequency of

updates of achievements of the Plans. These would not need to be very elaborate, but as a minimum should – as indicated above – contain a set of standard tables on the fiscal implications of the planned climate policies;

- The Stability and Convergence Programmes, which are the natural landing ground for the fiscal implications of the NECPs, need to be more explicit on the fiscal and economic impact of the European Green Deal as mentioned above. This should allow the Commission, and ultimately the Council, to assess the consistency of the NECPs and the Stability and Convergence Programmes and take action if deemed necessary.

Once the ongoing crisis has abated the exit from fiscal stimulus ought not to jeopardise achieving the goals for green public investment. In fact, the pursuit of these goals should be seen as an opportunity to facilitate the exit from the crisis by providing new demand impetus while helping to reshape the EU economy in a sustainable direction. It is hoped that this study makes a contribution in this regard.

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## ANNEX: GREEN INVESTMENT AND DEBT SUSTAINABILITY

While the principal objective of green investment is to achieve climate and other environmental goals, it is likely to affect the long-run performance of economies in terms of potential output, employment and productivity as well. Moreover, to the extent it is financed by the government, green investment necessarily enters its long-term dynamic budget constraint. Using the methodology proposed by Padoan, Sila and Van den Noord (2012), this Annex develops a new stylised economic model to address the nexus between green investment, potential economic growth and debt sustainability.

### Assumptions

It is assumed that the government faces an upper limit to its (structural) primary deficit but can deviate from this constraint to fund green public investment. This is reflected in the following dynamic budget constraint for the government:

$$(1) \quad \dot{D}/D = r + \rho(D/Y - \overline{D/Y}) + [(\delta I_{GP} - P)/Y]/(D/Y); \quad \rho > 0 \text{ if } D/Y > \overline{D/Y}$$

where  $D$  is government gross debt,  $r$  is the “risk-free” rate of interest,  $\rho$  is the impact of the public debt ratio on the interest risk premium (which is assumed to take the value zero as long as the debt ratio stays below a given critical level  $\overline{D/Y}$  but turns positive if the debt ratio exceeds this critical level),  $I_{GP}$  is the green public investment bill of the government,  $\delta$  is the fraction of it that is allowed to be debt-financed,  $P$  is the (structural) primary balance of the government in the absence of green public investment,  $Y$  is (potential) nominal GDP and a dot above a variable denotes its change through time such that  $\dot{X} \equiv dX/dt$ . The consistency of the dynamic budget constraint (1) can be easily checked by multiplying both sides by  $D$ , which yields the more familiar-looking expression  $\dot{D} = [r + \rho(D/Y - \overline{D/Y})]D + (\delta I_{GP} - P)$ .

For the dynamic budget constraint it does not matter whether or not the part of the green public investment bill that is debt-financed  $\delta I_{GP}$  appears in the government account “above the line”, “below the line” or is “contingent”: either way it will add to gross public debt (in the case of contingent liabilities only if the guarantee is called). The public green investment bill  $I_{GP}$  is assumed to be net of interest receipts on “green” loans. This is the logical consequence of including *gross* debt in the government’s dynamic budget constraint (1). For simplicity it is assumed that the government does not hold any financial assets in the baseline (before adopting a green investment plan).

Climate policies that secure sustainable use of natural resources form a precondition for economic growth in the long run – without it, potential economic growth would hit severe climate constraints. Potential economic growth is therefore assumed to be a positive function of total green investment  $I_G$ :

$$(2) \quad \dot{Y}/Y = m(I_G/Y) + g + \pi$$

where  $g$  denotes the “counterfactual” (low) rate of economic growth that would be achieved in the absence of green investment and  $\pi$  is the long-term rate of inflation (or the inflation objective of the central bank). The parameter  $m$  can be interpreted as the marginal productivity of “green capital”, or its long-run growth “multiplier”, which for simplicity is assumed to be constant, both over time and across green investment projects (which is a gross simplification but could be relaxed in practical applications).

Total green investment depends on the amount of public co-funding of green investment, such that:

$$(3) \quad I_G = \ell I_{GP}$$

where  $\ell$  stands for the “leverageratio”, i.e. the total amount of green investment (public, EU and private combined) that can be generated with one unit of public co-funding. The underlying assumption is

that green investment projects will only be carried out if supported by public co-funding as they would otherwise not be profitable.

**Steady state solution**

The dynamic system consisting of equations (1)-(3) will under certain conditions tend to an equilibrium (or steady state) in which the debt ratio  $D/Y$  is constant. Hence analytically this equilibrium should satisfy the requirement that the right-hand sides of equations (1) and (2) are equalised which – after incorporating equation (3) – gives:

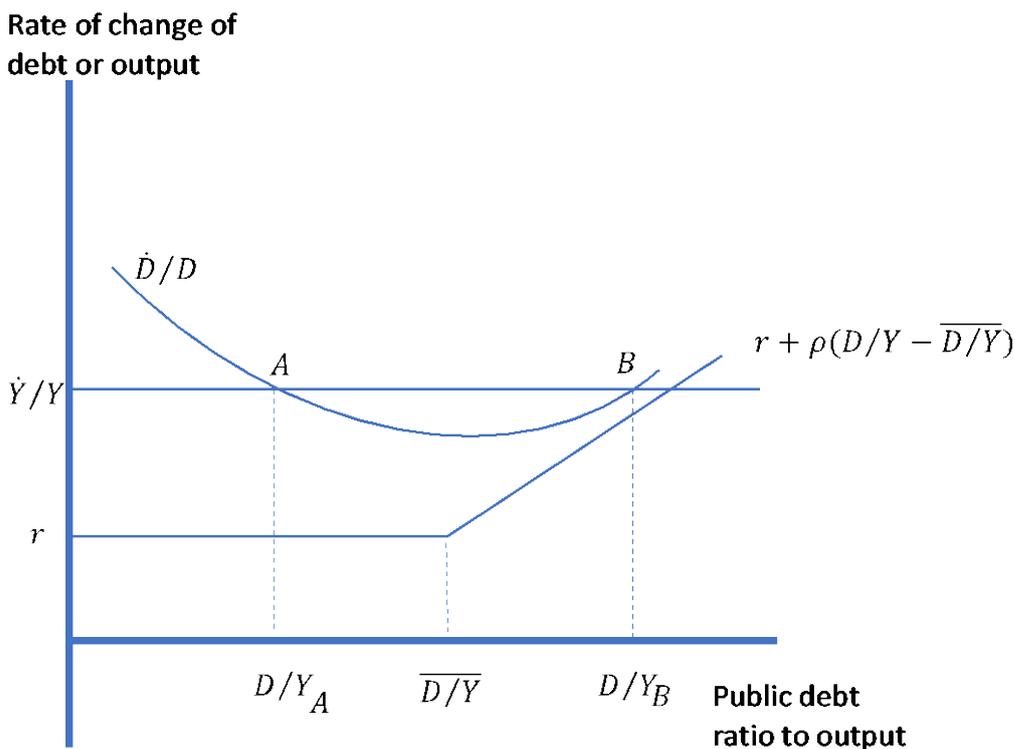
$$(4) \quad r + \rho(D/Y - \overline{D/Y}) + [(\ell^{-1}\delta I_G - P)/Y]/(D/Y) = m(I_G/Y) + g + \pi$$

Re-arranging gives:

$$(5) \quad \rho(D/Y)^2 + [(r - \pi) - m(I_G/Y) - g - \rho \overline{D/Y}](D/Y) + [(\ell^{-1}\delta I_G - P)/Y] = 0$$

This is a parabolic relationship which has two solutions for the debt ratio  $D/Y$ , as depicted in the phase diagram in Figure 8 as the intersections between the debt growth  $\dot{D}/D$  and economic growth  $\dot{Y}/Y$  relationships (1) and (2), marked  $A$  and  $B$ . As illustrated by the phase diagram, solution  $A$  is stable in the sense that if the debt ratio  $D/Y$  exceeds this equilibrium level (but stays in its neighbourhood), it will automatically reverse to equilibrium as  $\dot{D}/D < \dot{Y}/Y$ . Similarly, if the debt ratio falls below this equilibrium it will automatically reverse to equilibrium as  $\dot{D}/D > \dot{Y}/Y$ . By contrast, solution  $B$  is unstable because if the ratio exceeds it, the debt ratio will snowball up indefinitely as  $\dot{D}/D > \dot{Y}/Y$ . Similarly, if it is smaller than the level corresponding to solution  $B$  it will drift down further towards solution  $A$  as  $\dot{D}/D < \dot{Y}/Y$ . Hence the best way to describe solutions  $A$  and  $B$  are as the solutions that represent, respectively, the sustainable level of the debt ratio and the threshold above which the debt ratio becomes explosive.

Figure 8: Phase diagram for public debt and economic growth



It is possible to solve these two debt ratios analytically. Starting with solution  $B$ , we find:

$$(6) \quad (D/Y)_B = \frac{1}{2}\rho^{-1} \left\{ [g - (r - \pi) + m(I_G/Y) + \rho \overline{D/Y}] + \sqrt{[(r - \pi) - g - m(I_G/Y) - \rho \overline{D/Y}]^2 - 4\rho[(\ell^{-1}\delta I_G - P)/Y]} \right\}$$

From this we can infer that the risk of a given debt ratio becoming explosive will be higher if the rate of interest  $r$  is high, the baseline growth rate of the economic  $g$  is low, the baseline primary balance  $P/Y$  is low and the sensitivity of the interest rate to debt  $\rho$  is high. These are plausible results, and the relationship also allows the impact of green public investment on debt sustainability to be assessed. Specifically, if the growth multiplier on green public investment  $m$  is high enough, green public investment will diminish the risk of explosive debt. The same holds for the assumed leverage ratio  $\ell$ : the higher it is, the lower will be the risk of unsustainable debt. The upshot is that governments, to limit the risk of unsustainable debt, should select green investment projects that carry high multiplier effects on economic growth or that create high leverage on private green investment.

This takes us to the other solution  $A$ , which according to equation (4) – under the (plausible) assumption that  $\rho = 0$  as the debt ratio is at its long-run sustainable level – reads:

$$(7) \quad (D/Y)_A = [(\ell^{-1}\delta I_G - P)/Y]/[g - (r - \pi) + m(I_G/Y)]$$

This solution shows that the stable equilibrium debt ratio  $(D/Y)_A$  is lower for higher levels of the initial primary balance position  $P/Y$ , a lower fraction of green investment that is publicly financed through debt issuance  $\delta$ , a lower real interest rate  $(r - \pi)$  and a higher counterfactual growth rate of the economy in the absence of green investment  $g$ , for a given multiplier  $m$  and a given leverage ratio  $\ell$ . The impact of the ratio of green investment to GDP  $I_G/Y$  on the stable equilibrium debt ratio again depends on the leverage factor (the higher it is the lower will be the stable equilibrium debt ratio for a given amount of green investment), and on the multiplier (the higher it is the more likely it is that green investment will reduce the equilibrium debt ratio).

In what follows the key formulas that are quoted in the main text are derived.

### The fraction of green public investment that may be debt-financed

To derive a rule for the green public investment bill to be financed by debt,  $\delta$ , equation (7) should be inverted, which gives:

$$(8) \quad \delta = \ell \{ [(g - (r - \pi)) + m(I_G/Y)](D/Y)_A + P/Y \} / (I_G/Y)$$

This result shows that the fraction of green public investment to be debt-financed  $\delta$  will be higher if the leverage factor  $\ell$ , the baseline growth rate of the economy  $g$ , the multiplier on green investment  $m$ , the equilibrium debt ratio  $(D/Y)_A$  that is targeted or the baseline quasi-primary balance  $P/Y$  are higher, and if the real interest rate  $(r - \pi)$  is lower. The impact of the target for the green investment ratio to GDP  $I_G/Y$  on the debt-funding fraction  $\delta$  is, however, ambiguous and depends on the multiplier  $m$  and the leverage ratio  $\ell$ : the higher these are, the higher would be the fraction of green public investment that is financed by debt, consistent with debt sustainability.

It is assumed that in the “baseline”, that is in a situation without green investment, the primary balance has been set to ensure that debt is sustainable at its targeted level  $(D/Y)_A$ . This implies that:

$$(9) \quad P/Y = [(r - \pi) - g](D/Y)_A$$

Inserting this condition in equation (8) yields:

$$(10) \quad \delta = \ell m (D/Y)_A$$

Hence the fraction of green public investment that can be debt-financed without jeopardizing debt sustainability  $\delta$  would solely depend on the leverage ratio  $\ell$ , the growth multiplier  $m$  and the sustainable debt ratio that is targeted  $(D/Y)_A$ . Table 4 below reports the computed fractions  $\delta$  for a range of values of the multiplier  $m$  and the leverage ratio  $\ell$  assuming this debt target is 60% of GDP. For instance, if the long-run multiplier is 0.15 and the leverage ratio is 3, just over one-quarter of the government’s green investment bill could be debt-financed. However, if the multiplier is 0.25 and the leverage ratio lifted to 5, three-quarters of the green investment bill could be debt-financed (though the green public investment bill would be accordingly lower).

Table 4: The fraction of green public investment that can be debt-financed

Leverage ratio \ Multiplier	Multiplier				
	$m = 0.05$	$m = 0.10$	$m = 0.15$	$m = 0.20$	$m = 0.25$
$\ell = 1$	0.03	0.06	0.09	0.12	0.15
$\ell = 2$	0.06	0.12	0.18	0.24	0.30
$\ell = 3$	0.09	0.18	0.27	0.36	0.45
$\ell = 4$	0.12	0.24	0.36	0.48	0.60
$\ell = 5$	0.15	0.30	0.45	0.60	0.75

Note: Computed with equation (10) under the assumptions that the sustainable debt ratio  $(D/Y)_A$  equals 60% of GDP. Source: author’s computations.

The results reported in Table 4 should be qualified in the sense that when the leverage ratio  $\ell$  increases, the green public investment bill would – for a given total green investment objective – make a smaller call on the government deficit. Multiplying condition (10) by the green public investment bill  $I_{GP}$  – after incorporating definition (3) – yields:

$$(11) \quad \delta(I_{GP}/Y) = m(I_G/Y)(D/Y)_A$$

Hence the total debt-financed component of the green public investment bill  $\delta I_{GP}$  solely depends on the size of the green investment objective  $I_G$ , the multiplier  $m$  and the debt reference value  $(D/Y)_A$ . The leverage ratio plays no role. Table 5 gives numerical examples for a range of objectives for green investment  $I_G/Y$  and the multiplier  $m$ .

Table 5: The amount of green public investment that can be debt-financed

Green investment \ Multiplier	Multiplier				
	$m = 0.05$	$m = 0.10$	$m = 0.15$	$m = 0.20$	$m = 0.25$
$I_G/Y = 0.0\%$	0.00	0.00	0.00	0.00	0.00
$I_G/Y = 0.5\%$	0.02	0.03	0.05	0.06	0.08
$I_G/Y = 1.0\%$	0.03	0.06	0.09	0.12	0.15
$I_G/Y = 1.5\%$	0.05	0.09	0.14	0.18	0.23
$I_G/Y = 2.0\%$	0.06	0.12	0.18	0.24	0.30

Note: As a percent of GDP, computed with equation (11) under the assumptions that the sustainable debt ratio  $(D/Y)_A$  equals 60% of GDP. Source: author’s computations.

### The impact of green public investment on other parts of the budget

It is important to examine what part of the green public investment bill would *not* be debt-financed, as this would squeeze other parts of the budget or entail socially costly tax increases. This can be derived from equations (3) and (10), which yields:

$$(12) \quad (1 - \delta)(I_{GP}/Y) = \ell^{-1}[1 - \ell m(D/Y)_A](I_G/Y)$$

This indicates that the leverage ratio  $\ell$  is crucial for the impact of the green investment objective on the non-debt financed part of the budget – the higher it is, the less will the budget be squeezed. Table 5 gives numerical examples for a green investment objective 1½ % of potential GDP indicating a high sensitivity of the budget squeeze to the leverage ratio and the long-run growth multiplier.

Table 6: The amount of green public investment that *cannot* be debt-financed

Multiplier Leverage ratio	$m = 0.05$	$m = 0.10$	$m = 0.15$	$m = 0.20$	$m = 0.25$
$\ell = 1$	1.46	1.41	1.37	1.32	1.28
$\ell = 2$	0.71	0.66	0.62	0.57	0.53
$\ell = 3$	0.46	0.41	0.37	0.32	0.28
$\ell = 4$	0.33	0.29	0.24	0.20	0.15
$\ell = 5$	0.26	0.21	0.17	0.12	0.08

Note: As a percent of GDP, computed with equation (12) under the assumptions that the sustainable debt ratio  $(D/Y)_A$  equals 60% of GDP and green investment  $I_G/Y$  is sustained at 1½ % of GDP.

Source: author's computations.

### The debt-stabilising gross lending/borrowing position

Equation (7) can be converted to a formula for debt stabilising structural gross lending (primary balance less interest payments), which reads:

$$(13) \quad (P - \ell^{-1}\delta I_G)/Y - r(D/Y)_A = -[g + \pi + m(I_G/Y)](D/Y)_A$$

whereby  $\delta$  is determined by condition (10). Computations on the basis of this formula are reported in Table 7. They indicate that if baseline potential growth  $g$  is ¾ %, the inflation rate  $\pi$  is 1¾ %, the green investment objective  $I_G/Y$  is 1½ % and the objective for the stable debt ratio is  $(D/Y)_A$  is 60%, then the government would be able to run a structural gross borrowing position – including the debt-financed green investment bill – of close to -1.64%, which is 0.14 percentage point more negative than in the baseline without green investment. Importantly, the sustainable gross borrowing position increases for higher long-run multipliers. For instance, keeping all other assumptions the same, if the multiplier is fixed at 0.25, sustainable gross borrowing would be 1.73%.

### The debt stabilising *net* lending position

As explained in the main text, it is possible to convert the outcomes for *gross* lending to *net* lending  $N/Y$  as a share of potential GDP – in line with the “debt-stabilising MTO” concept incorporated in the fiscal rules – by removing the fraction  $b$  of the green public investment bill that appears below the line:

$$(14) \quad N/Y = [P - \ell^{-1}(\delta - b)I_G]/Y - r(D/Y)_A$$

Inserting conditions (9) and (10) in (14) gives:

$$(15) \quad N/Y = -[g + \pi + m(I_G/Y)](D/Y)_A + b\ell^{-1}(I_G/Y)$$

Table 7: The debt-stabilising *gross* lending position

Multiplier Green investment	$m = 0.05$	$m = 0.10$	$m = 0.15$	$m = 0.20$	$m = 0.25$
$I_G/Y = 0.0\%$	-1.50	-1.50	-1.50	-1.50	-1.50
$I_G/Y = 0.5\%$	-1.52	-1.53	-1.55	-1.56	-1.58
$I_G/Y = 1.0\%$	-1.53	-1.56	-1.59	-1.62	-1.65
$I_G/Y = 1.5\%$	-1.55	-1.59	-1.64	-1.68	-1.73
$I_G/Y = 2.0\%$	-1.56	-1.62	-1.68	-1.74	-1.80

Note: As a percent of GDP, computed with equation (13) under the assumptions that the sustainable debt ratio  $(D/Y)_A$  equals 60% of GDP, the baseline potential real growth of the economy  $g$  is 0.75% and the inflation rate  $\pi$  is 1.75%.  
Source: author's computations.

The computations on the basis of this formula, reported in Table 8 below, indicate that if it is assumed that the debt-financed green public investment bill is distributed equally across above-the-line and below-the-line items ( $b = 0.5$ ), and if the long-run multiplier  $m$  is 0.15, the debt-stabilising structural *net* lending position of the government would be in the range of -0.89% to -1.49% of potential GDP depending on the leverage ratio, as compared to -1.64% if all outlays are above the line (see Table 7).

 Table 8: The debt-stabilising *net* lending position

Multiplier Leverage ratio	$m = 0.05$	$m = 0.10$	$m = 0.15$	$m = 0.20$	$m = 0.25$
$\ell = 1$	-0.80	-0.84	-0.89	-0.93	-0.98
$\ell = 2$	-1.17	-1.22	-1.26	-1.31	-1.35
$\ell = 3$	-1.30	-1.34	-1.39	-1.43	-1.48
$\ell = 4$	-1.36	-1.40	-1.45	-1.49	-1.54
$\ell = 5$	-1.40	-1.44	-1.49	-1.53	-1.58

Note: As a percent of GDP, computed with equation (15) under the assumptions that the sustainable debt ratio  $(D/Y)_A$  equals 60% of GDP, green investment  $I_G/Y$  is 1½ % of GDP and the part of the green public investment bill that is financed below the line  $b$  is 50%.  
Source: author's computations.

The upshot of these computations is that the government's structural net deficit position consistent with sustainability of debt at the 60% reference value can be raised by increasing the potential growth multiplier on green investment, by raising the leverage ratio and by shifting the emphasis to below the line funding such as loans, equity injections and guarantees (to the extent these are claimed and converted into loans or equity).

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According to this study the fiscal framework in principle provides sufficient flexibility to accommodate the call on government budgets from the European Green Deal –even in the very challenging fiscal landscape that is currently unfolding. However, it also observes that for this to hold in practice a number of conditions must be met, including a strong design of policies, a careful assessment of their budgetary impact and the integration of the relevant governance processes.

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