

RRF 2.0:

A Permanent EU Investment Fund in the Context of the Energy Crisis, Climate Change and EU Fiscal Rules

Philipp Heimberger and Andreas Lichtenberger



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Abstract

While climate change has long called for a green shift in our economies, the current energy crisis leads to an increased urgency when it comes to transforming the energy and transportation systems. The Recovery and Resilience Facility (RRF), which was adopted to support recovery from the Covid-19 crisis, represents the first large-scale EU-wide investment initiative, including decarbonisation goals. Yet temporary RRF spending will not be sufficient to meet the climate targets in the coming decades, which will require additional public investment equivalent to at least 1% of EU economic output per year. Nor would the reform of EU fiscal rules under consideration enable a sufficient increase in public investment at the national level. What is needed is the establishment of a permanent EU climate and energy investment fund amounting to at least 1% of EU economic output to finance public investment, which could greatly enhance European sovereignty when it comes to ensuring strategic investment at the required scale. National budgets of EU member states would be substantially relieved, allowing governments to take an important step in the green transition while making it more realistic to comply with EU fiscal rules. Investment could also be increasingly directed toward genuinely European projects with EU added value. Such a permanent EU investment fund for climate and energy would not only strengthen the community of EU member states economically and politically from within, but also promote its geostrategic capacity to act.

Keywords: Investment, EU, Europe, climate change, energy crisis, financing, RRF 2.0

JEL classification: H54, H63, R42

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1. INTRODUCTION

The current energy crisis and the associated rise in energy prices increase the urgency of a green transition of European energy and transport systems. While both academic researchers and civil society communities have pointed to the need for a shift to a more environmentally sustainable economy, the Ukraine war now highlights the implications for security and macroeconomic developments of the EU's fossil fuel dependencies vis-à-vis Russia (e.g. Redeker and Jaeger 2022, Osvaldová 2022, CREA 2022).

Existing EU fiscal rules limit the scope for additional public investment to achieve climate and energy targets (e.g. Darvas and Wolff 2021; Pekanov and Schratzenstaller 2020). The orientations for reforming EU fiscal rules published by the European Commission imply a focus on reducing public debt ratios in the medium term (EC 2022). At the same time, the Commission's proposal does not include far-reaching exemptions for green investments. Hence, it is unlikely that the upcoming reform of the EU fiscal rules will enable the EU member states to implement the additional public investment in the energy and transport systems to the extent required, while they are supposed to advance the reduction of public debt ratios at the same time.

In the current situation, the challenges of climate change are coupled with supply problems of fossil fuels. How should the community of EU states respond to this? We argue that the energy crisis and the climate crisis are common European problems that also require common European solutions. Current climate plans envision climate-neutrality by 2050. However, an accelerated expansion of public investment is needed due to the geopolitical circumstances surrounding the war in Ukraine, the price increases caused by fossil fuels, and aggressive green industrial policies promoted by public spending in the US and other economic blocs.

This study discusses the benefits of a joint European investment drive that supports the achievement of climate and energy goals through the establishment of a permanent EU fiscal capacity. Key aspects of this new EU climate and energy investment fund could be based on the positive experience with the Recovery and Resilience Facility (RRF). The RRF was adopted during the Covid-19 crisis to support a steady economic recovery of EU member states from the Covid-19 crisis in tandem with the implementation of investments and reforms to better achieve climate and digital goals.

Our study discusses investment dimensions and economic as well as political benefits of a new permanent EU investment fund for climate and energy. The establishment of a permanent EU investment fund of at least 1% of annual EU economic output would greatly enhance European sovereignty when it comes to ensuring strategic investment at the required scale. The EU investment fund could significantly ease the burden on national budgets of EU member states. This would make it easier for governments to simultaneously promote the green transition and comply with the EU's fiscal rules.

2. HOW MUCH ADDITIONAL INVESTMENT IN THE EU?

The EU target of becoming climate neutral by 2050, and thus achieving net-zero greenhouse gas emissions, will require significant additional investment; estimates range from 2% to 6% of EU economic output per year. Based on the findings of a European Commission impact assessment report, meeting the 2030 climate target would require an expansion of existing green investments of about 2% of annual EU GDP for the energy and transport sectors (EC 2020; Cornago and Springford 2021). Meeting the 2050 target for net-zero greenhouse gas emissions requires even more investment (EC 2020).¹ This would cost an additional EUR 385 billion per year on average (at 2021 prices), an increase from the current EUR 740 billion of investment per year to EUR 1,125 billion per year. This would be an increase in emissions-reducing energy- and climate-related investments from 5.1% to 7.0% of EU economic output annually (EC 2020; own calculations).² Wildauer et al. (2020) criticise the additional investment requirements communicated by the European Commission as an underestimate. The necessary additional requirement would be at least two to three times as large, i.e. around 6% of EU GDP, since the energy-efficient expansion of buildings alone would cost almost EUR 500 billion per year.³

The investment requirements of the green transition are particularly comprehensive in the coming decade, although the investment needs to achieve climate neutrality in 2050 will remain substantial thereafter. To meet these investment needs, much of the investment will need to be launched by the public sector to attract further private investment. Investment must be pushed through reliable investment plans and regulations. Only improved infrastructure and planning security can spur innovation and help private companies also expand activities in line with achieving climate and energy goals (e.g., Mazzucato 2018).

The share of public funding for climate investments needs to be significant. Although some green investment is unprofitable for the private sector, public investment can mobilise private sector investment (e.g., Darvas and Wolff 2022; Deleidi et al. 2020). While some reports estimate the share of public money in green investments in the range of 17% to 25% (IRENA 2021, World Economic Forum 2013), other estimates indicate that the share is significantly higher, at 50% or even beyond (Campiglio 2016,

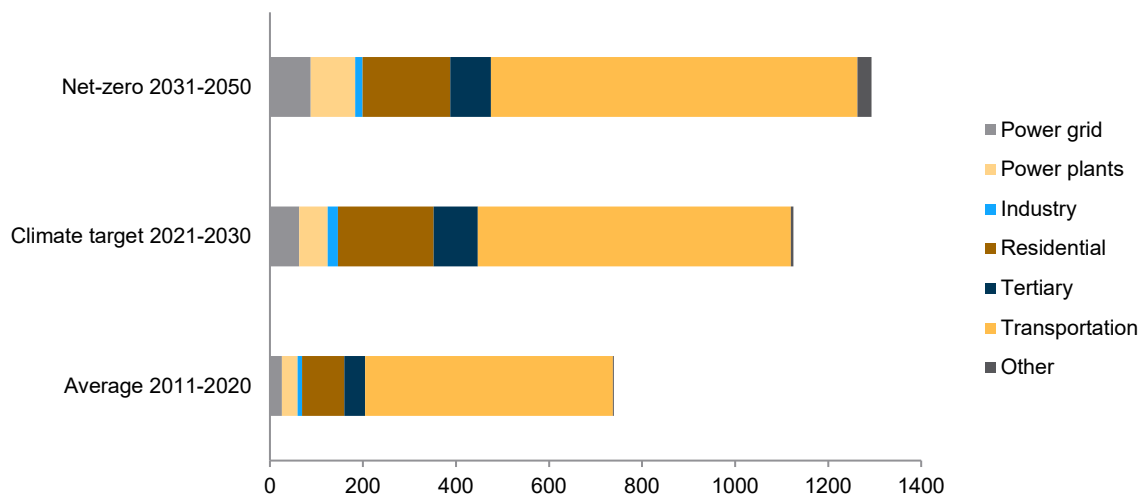
¹ The European Commission's estimate is based on a positive development of GDP. If one were to calculate the required investment on the basis of 2021 GDP at current prices, it would require an expansion of current investments by 2.7% to achieve the climate target by 2030 and by 3.8% to achieve the net-zero target by 2050 (own calculations). The 2% of EU economic output in additional total investment should therefore be considered as the lower limit.

² According to IRENA (2021), meeting the 1.5°C climate target by 2050 requires an annual investment level of USD 4.4 trillion, which is roughly 5% of 2019 global GDP, double the 2019 investment level (USD 2.1 trillion). Of this, renewable energy and electrification of infrastructure and transportation account for 48%, or about 2.4% of 2019 GDP. According to IEA (2021), the net-zero climate goal would require an additional USD 2 trillion in global investment annually, for a total of USD 5 trillion annually by 2030 and USD 4.5 trillion by 2050. BloombergNEF (2021) estimates a total investment requirement of between USD 92 and USD 173 trillion over the next three decades, or between USD 3 and USD 5.8 trillion annually. This would require global annual investment to grow from USD 1.7 trillion to approximately USD 3.1 to USD 5.8 trillion per year.

³ To estimate additional investment needs, the authors cite additional costs of EUR 490 billion for energy-efficient building retrofits, EUR 84 billion for sustainable electricity infrastructure, EUR 80 billion for the industrial sector, and EUR 201 billion for research and development, adding up to EUR 855 billion (Wildauer et al. 2020). Investments for the transport sector are excluded by Wildauer et al. (2020). However, if one goes by Commission estimates, investment needs for the transport sector account for the largest share, EUR 673 billion of the EUR 1,125 billion (own calculations, see Figure 1; Cornago and Springford 2021). If the estimate of Wildauer et al. (2020) were extended to include the need for transport sector investment, the additional investment sum would be even greater.

EIB 2021, PIRC 2011, Deleidi et al. 2020).⁴ Due to this wide range of estimates and market-related uncertainties, we suggest that about half of the additional annual investment should come from the public side. With the lower limit of 2% of EU GDP in annual additional total investment, this means that public investment of at least 1% of EU economic output should be made annually for additional green investment.

Figure 1 / Average yearly requirements for green investment in the EU



Source: EC 2020; own calculations.

⁴ According to Campiglio (2016), who uses the UK Green Investment Bank as an example, between 2012 and 2014 the public share accounted for 37%. According to PIRC (2011), the public share of green investment in the UK was 53% in 2009-2010 (GBP 5.9 billion private, and GBP 6.7 billion public). An Allianz report estimates that a 1% increase in green public investment would result in a private sector mobilization of 0.51%; this would imply a public share of green additional investment of 66% (Jobst et al. 2022). According to an empirical analysis by Deleidi et al. (2020) on 17 selected OECD countries, an expansion of green public investment of USD 4.4 billion (in 2011 US Dollar) would mobilise about USD 0.8 billion to USD 1 billion in the private sector. This ratio would correspond to a public share of over 81%. Based on national energy and climate plans, EIB (2021) reports that the estimated share of additional public investment in the EU is highly country-specific, at 25% or below for NL, DE, ES, PT, SE, and DK, but above 60% for Central and Eastern European countries such as BG, CZ, PL, and LT; other countries fall in between.

3. WHAT COULD GUIDE A LONG-TERM GREEN INVESTMENT PROGRAM AT THE EUROPEAN LEVEL?

The Recovery and Resilience Facility (RRF) was a major step towards a stronger common European investment policy. To mitigate pandemic-related economic impacts, European decision-makers agreed on 'Next Generation EU' (NGEU) in summer 2020. This temporary fiscal capacity has a total size of EUR 807 billion (at current prices). The largest part of NGEU consists of the RRF, for which EUR 723.8 billion has been earmarked. Of this, EUR 385.8 billion is available in the form of repayable loans; and EUR 338 billion are grants which the individual member states do not have to repay directly themselves.⁵

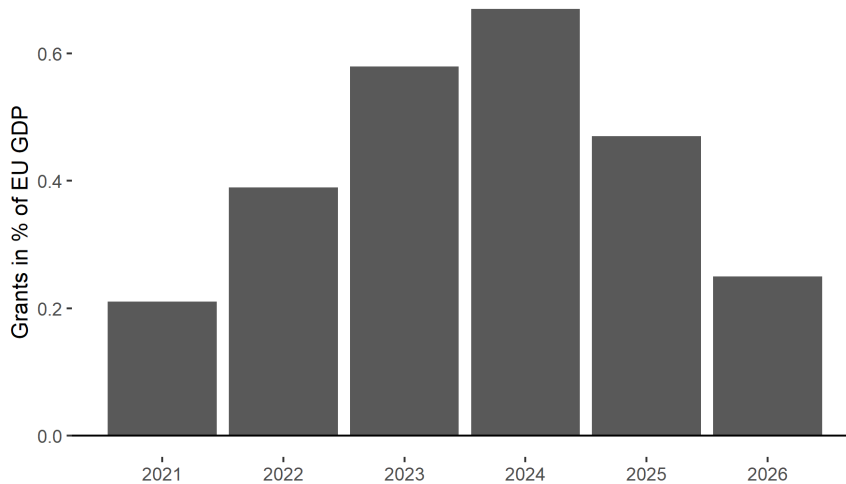
The RRF thus represents a large-scale temporary EU-wide investment initiative through the issuance of EU bonds. The EU Commission raises funds in the financial markets on behalf of all member states, where countries hit harder by the Covid-19 crisis are eligible to receive more funds than those affected less by the pandemic (Cornago and Springford 2021). RRF grants are allocated based on population (in 2019), GDP per capita (in 2019), average unemployment over the past five years relative to the EU average (between 2015 and 2019), and the decline in real GDP in 2020 and 2021 relative to 2019.⁶ While the RRF allows for important investments, the instrument will only be in place for the period from 2021 to 2026; from 2024 onward, grants will be gradually phased out (see Panel A in Figure 2).

Panel B in Figure 2 lists grants for each EU country as a percentage of their economic output in the year prior to the start of the pandemic for the entire 2021-2026 period, showing that Croatia is eligible to receive the most grants relative to the size of their economy (11.3% of 2019 GDP), followed by Bulgaria (10.2%), Greece (9.7%), Slovakia (6.7%), and Latvia (6.5%). Austria ranks in the bottom third at 0.9%, but is still ahead of Germany, Sweden, Denmark, Ireland and Luxembourg. A key point, however, is that undertaking RRF investments at the same time also produces positive cross-border economic effects, which are stronger for high-export countries such as Germany and Austria than for many of those countries that receive more grants directly (e.g., Picek 2020; Pfeiffer et al. 2021). An isolated focus on the allocation of subsidies to individual EU member states thus falls short because it neglects these positive spillover effects of investments made at the same time.

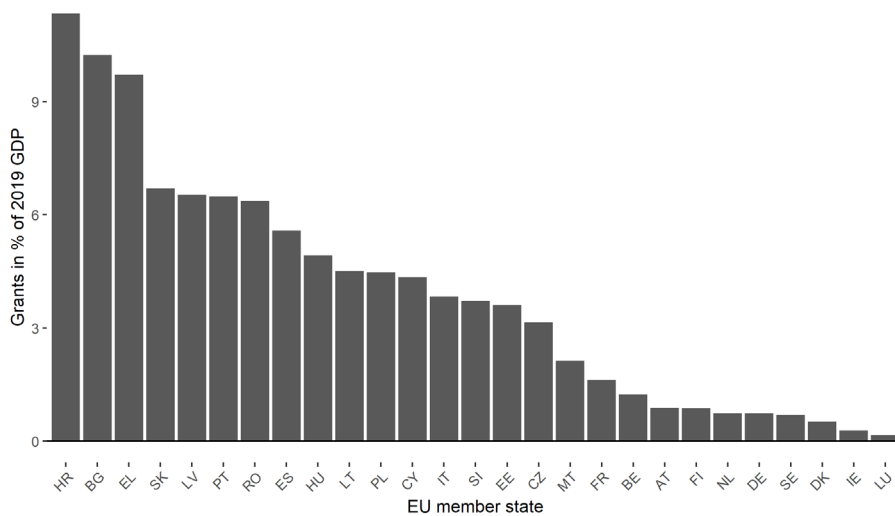
The main characteristics of the RRF are the conditions attached to the funds and the disbursement that can be expected to promote macroeconomic stabilisation. For the RRF, EU member states have decided that continuous disbursement must be accompanied by compliance with EU targets. Funds are thus disbursed gradually on the basis of evidence of investments and reforms implemented. In addition to meeting agreed milestones, investments and reforms must be consistent with long-term structural goals (such as climate neutrality and geostrategic independence). For example, at least 37% of total RRF spending must go to 'green transition' projects, and 20% must go to digitisation (Cornago and Springford 2021). Using RRF money for additional investments can have a substantial stabilising effect on the economy (e.g., Picek 2020). It is important that the instrument is set up in such a way that funds are not cut and can flow regardless of potential downswings in the business cycle.

⁵ For a more detailed breakdown of RRF expenditures for individual EU countries, see Darvas et al. (2022).

⁶ Details on the calculation of RRF payments are published in EU Regulation 2021/241.

Figure 2 / RRF grants**A) RRF grants for the whole EU between 2021 and 2026****B) Maximum allocation of grants in the context of the RRF for individual EU countries**

Maximum allocation of grants in the context of the RRF for individual EU countries



Source: European Commission; own calculations.

While the RRF represents an innovative European investment model, the instrument is still not nearly large enough to sufficiently address the investment demands due to climate change and the energy crisis, especially since the grants only flow until 2026 and already lose weight from 2024 onwards (see panel A of Figure 2). 37% of RRF funds are to be spent on climate investments, equivalent to about EUR 45 billion per year or 0.8% of annual EU GDP. However, achieving the EU climate target by 2030, which calls for a 55% reduction in CO₂ emissions compared to 1990 levels, would require an expansion of public investment on the order of 10 times the green investment share of the RRF, equivalent to about EUR 460 billion per year (Cornago and Springford 2021).⁷

⁷ Green investment areas include sustainable transportation and charging stations (EUR 75 billion), followed by renewable energy systems (EUR 47 billion) and energy-efficient building projects (EUR 42 billion) (Cornago and Springford 2021).

4. WHY A JOINT EU INVESTMENT OFFENSIVE?

When it comes to coping with existing investment requirements that go far beyond the RRF, a joint EU investment offensive is more promising than national initiatives. Individual initiatives are limited by pre-existing climate change impacts, which are more prevalent in some EU countries than others, and by cross-border emissions that continue to occur (e.g., Arnold et al. 2022). In addition, coordinated investments also show stronger positive network effects in the area of new technologies. Coordinating investment efforts and securing their financing to achieve climate and energy goals is also more efficiently achieved at the EU level than at the nation-state level. A joint credit-financed effort with cost-sharing between generations also reduces pressure for tax increases in the present.⁸ The European Commission argues that climate change as a transnational problem requires a coordinated EU initiative and that policies to address climate change are legitimate and necessary under Articles 191 to 193 of the Treaty on the Functioning of the European Union (EC 2020).

Tackling the climate and energy crisis is also relevant to ensure a politically united and thus geopolitically well-positioned EU for the future. Other large economic blocs currently pursue an aggressive industrial policy when it comes to green technologies to secure competitiveness and higher global market shares. In particular, the US passed the Inflation Reduction Act (IRA) in August 2022. The IRA is not only supposed to help achieve reductions in greenhouse gas emissions via significant additional public spending on climate. It also intends to secure America's supremacy as the largest energy producer in the long term (e.g. Tucker and Malhotra 2022). The US strives for international technology leadership, and additional climate spending is seen as an instrument to ensure that geopolitical ambitions can be met. In this context, the establishment of a sizeable EU investment fund could enhance the ability of the community of EU member states to undertake strategic investment projects in climate and energy to mobilise private investments and promote the competitiveness in industries that are key for the future, so that European companies can properly compete with their peers in the US and elsewhere, where sovereign governments promote aggressive industrial policy based on sizeable additional public spending.

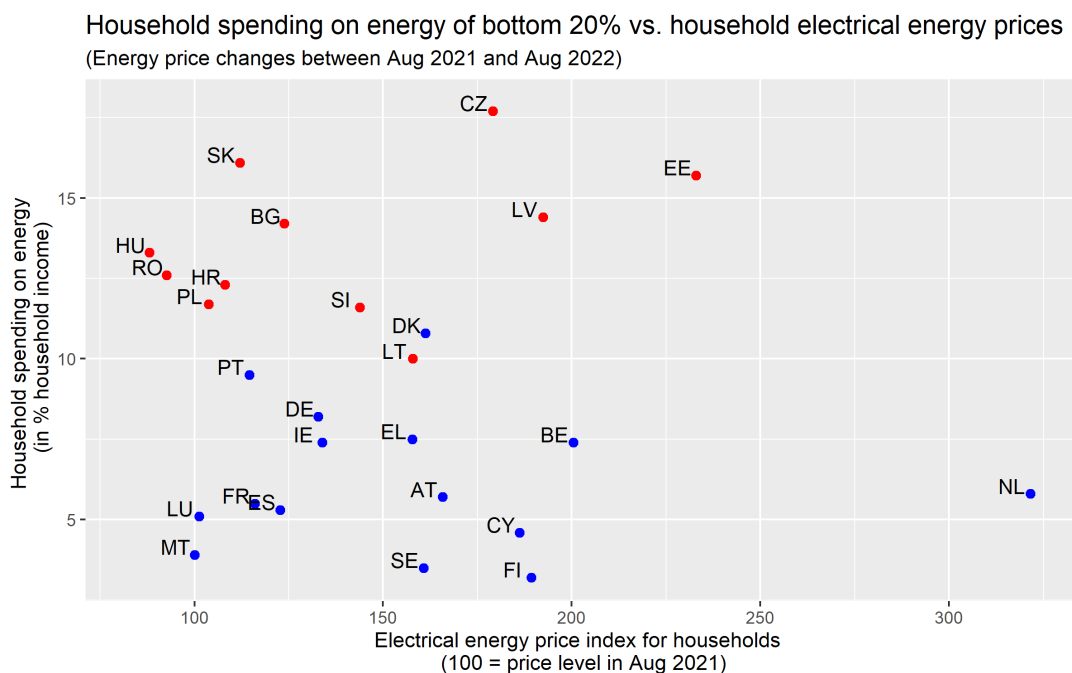
Furthermore, joint European decisions and initiatives require a distribution of economic burdens. Populations in EU countries are affected to different degrees by the consequences of the energy and climate crisis (e.g., Lenaerts et al. 2022). This makes policy implementations through coordination of nation-state initiatives increasingly difficult and requires joint EU solutions based on solidarity (Redeker and Jaeger 2022).

Figure 3 suggests that households with lower incomes in Eastern European and Baltic states are particularly exposed to high risks from energy price increases because of the high share of household expenditure on energy in the bottom 20%. The more that poor households are affected by energy cost increases, the more governments in the respective countries must spend to protect them from energy poverty and economic hardship. Although household energy expenditures also increased markedly in other EU countries compared with the previous year, Figure 3 illustrates that particularly great efforts are needed in some EU member states to cushion the effects of the huge swings in energy markets. European solidarity is also needed in the area of investments to accelerate the reduction of dependence

⁸ For a further discussion of the link between environmental and fiscal policies, see Semmler et al. (2021).

on imports of fossil fuels from Russia. In the end, all EU member states would benefit collectively through greater future geostrategic independence.

Figure 3 / Expenditure of vulnerable households on energy and rises of household electricity prices in different EU countries.



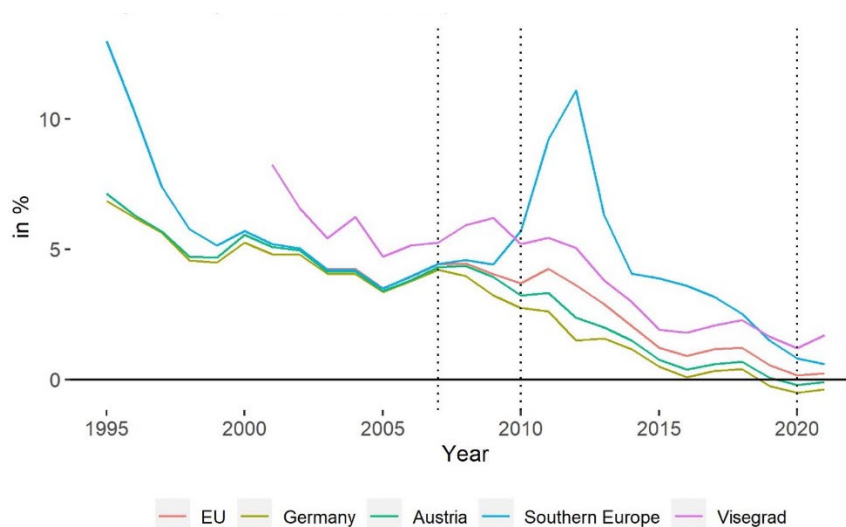
Source: Eurostat and energypriceindex.com; own calculations.

5. THE ARCHITECTURE OF THE EURO AREA AND EU FISCAL RULES HAVE AN IMPACT ON FISCAL SPACE FOR INVESTMENT

The current institutional architecture of the European Economic and Monetary Union makes public investment for several member states more difficult, especially when fiscal consolidation pressures increase during and after crises. A central problem with regard to the euro area's institutional architecture is that interest rate differentials (spreads) worsen the financing conditions of some member countries to a greater extent and inhibit their investments in the aftermath of a crisis (e.g., De Grauwe and Ji 2013). In the aftermath of the Covid-19 crisis and energy crisis, fiscal consolidation pressures will tend to put downward pressure on public investment, especially in countries with higher public debt ratios and higher interest burdens. In the absence of political countermeasures at the European level, there is a risk of developments similar to those during the euro crisis. At that time, interest rates on government bonds rose sharply, especially for Southern European countries, due to panic- and speculation-driven market sentiments (see Figure 4), which greatly increased the interest burden on public budgets and thus fiscal consolidation pressure (e.g., Bianchi and Mondragon 2022). Against this background, it is hardly surprising that public investment, which can be cut more easily than other government spending components when the pressure to pursue fiscal consolidation increases (Jacques 2021), fell sharply in Southern European countries after the start of the euro crisis, causing investment ratios to drop by around 50%. In Austria and some other EU countries, the decline in public investment after the financial crisis was less severe against a backdrop of lower budget consolidation pressures

(see panel A in Figure 5). However, in a future environment of potentially higher long-term interest rates, undertaking public investment projects will also become more difficult in Austria and Northern European EU countries.

Figure 4 / Long-term government bond yields



Source: AMECO (Spring 2022).

Overall, the EU fiscal rules exhibit a high degree of complexity (e.g. Blanchard et al. 2021). The rules have failed to prevent rising government debt ratios, even as austerity programs that were actually implemented put downward pressure on public investment. Overall, the design of the EU fiscal rulebook prior to the Covid-19 pandemic, when the rules were suspended, contributed to procyclical fiscal policy; thus, fiscal policy tended to amplify economic developments rather than to counteract them (e.g., Heimberger and Kapeller 2017; Dullien et al. 2021).

Pursuing sustainable public finances and achieving employment and climate targets requires reforming the EU fiscal framework. Reform has become even more urgent in the current energy crisis because the ECB is making future government bond purchases for individual member states through its new bond purchase program ('Transmission Protection Instrument,' or TPI) conditional on compliance with EU fiscal rules. Countries with high public debt ratios and more vulnerability to panic-driven increases in government bond yields in times of crisis thus currently face the risk that the ECB will withdraw their access to the bond purchase program TPI (Redeker 2022). This would cause interest rates and fiscal consolidation pressures to rise more sharply for these countries and in turn have a negative impact on the implementation of their investment plans.⁹

In principle, the upcoming reform of EU fiscal rules could increase the scope for public investment at the national level. However, based on the European Commission's recently published orientations, individual EU member states would only be able to submit plans for investments and reforms if they are consistent with sustainable government finances in the medium term based on a debt sustainability analysis. If the investments are accepted, the fiscal consolidation path can be extended by up to three

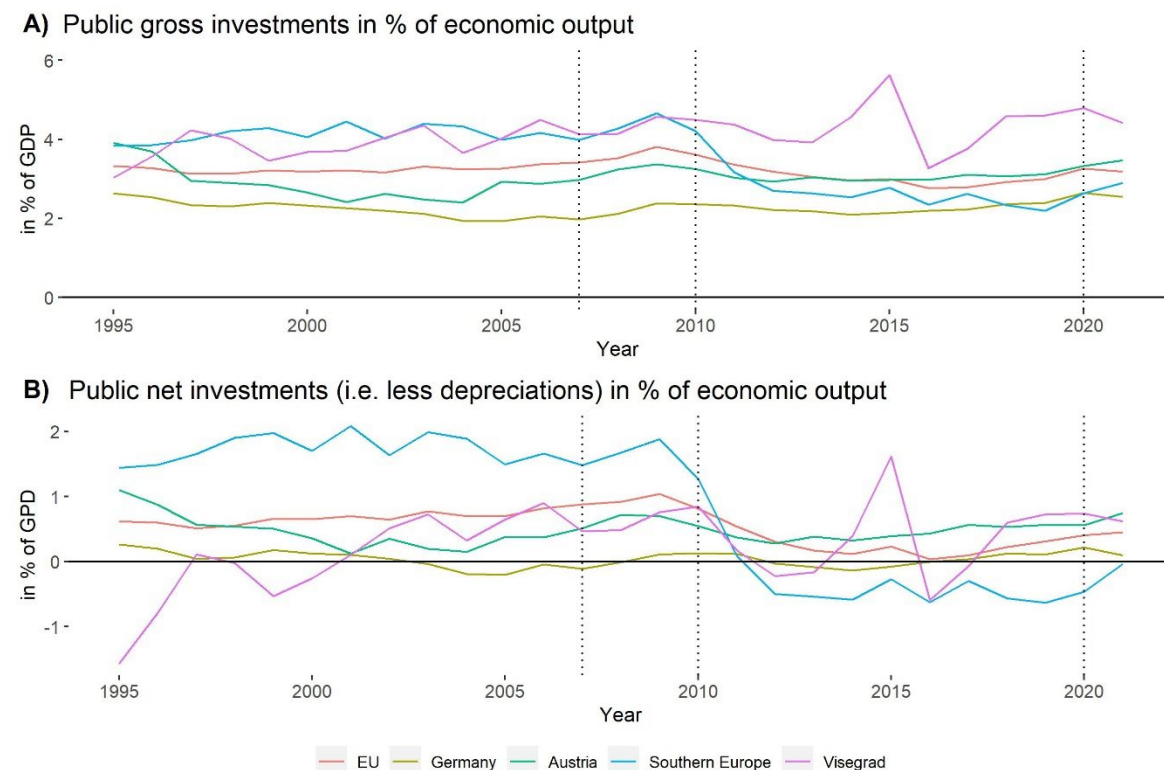
⁹ The IMF also argues that stabilising the euro area requires reforming EU fiscal rules (Arnold et al. 2022).

years (EC 2022). The Commission's proposals thus envisage that selected public investments should be subject to lower fiscal consolidation pressures. While it is unclear how to decide at the technical level which investments are accepted for national plans and which are not, the European Commission's proposals in any case fall far short of existing proposals for broad exemptions of (green) public investments in deficit and debt calculations (e.g., Truger 2016; Pekanov and Schratzenstaller 2020).

Although the European Commission mentions the need for public investment to address current challenges such as climate change, digitalisation and energy security, implementing its proposals on reforming EU fiscal rules (EC 2022) would not provide sufficient scope for the needed climate and energy investments of the public sector. National governments will find it hard to meet the investment requirements outlined in Chapter 2, given the fiscal consolidation pressures from the negative fiscal consequences of the crises of recent years. In any case, the European Commission's orientations for reforming EU fiscal rules do not include far-reaching exemptions for green investments (EC 2022). Thus, the idea of implementing a 'golden' rule for public investment that allows debt financing of net investment without including it in the relevant deficit measures of the EU fiscal rules (e.g., Truger 2016; Pekanov and Schratzenstaller 2020) is not part of the European Commission's proposals.¹⁰ However, it would be necessary to finance a large part of climate investments through public borrowing. On the one hand, the urgency of energy and climate crises creates immediate pressure to act, which would overwhelm a private sector left to its own devices; on the other hand, future generations will benefit substantially from these investments and the associated net public wealth creation and should thus be involved in the financing.

A permanent EU investment fund could not only largely compensate for the lack of investment incentives in EU fiscal rules, but additionally bring further improvements such as more coherent and effective targeting and stronger positive multiplier effects through pan-European coordination of investments. Through coordinated investments based on a supranational financing instrument, public goods can be planned on a large scale without efficiency losses (Creel et al. 2020). Therefore, in addition to the pending reform of the existing EU fiscal rules, there is a need to establish a permanent EU fiscal capacity with a strong climate and energy focus. While the European Commission's orientations paper does not take a clear stance in this regard, advantages and potential implications of a permanent central EU fiscal capacity are at least mentioned. This openness should be used for further public debate, whereby existing experiences with the RRF should also be taken into account.

¹⁰ A common counterargument to such fiscal exemptions in the past has been that it is unclear what exactly constitutes an investment with positive future returns (e.g., recording current expenditures as capital investments). In comparison, however, green investments provide a clearer framework through the climate goal (Darvas and Wolff 2021).

Figure 5 / Investment rates

Source: AMECO (Spring 2022); own calculations.

6. A PERMANENT INVESTMENT FUND AND FURTHER MACROECONOMIC STABILISATION REFORMS: FINANCING AND BENEFITS

A permanent EU fiscal capacity would, on the one hand, improve macroeconomic stabilisation in Europe; on the other hand, it would promote the long-term financing of necessary green infrastructure. Because the euro was established as a monetary union without a fiscal union, no means were foreseen to respond at the European level to investment needs beyond the long-term EU budget, which leads to difficulties in achieving common goals such as climate action, shortening and dampening economic downturns, or preventing economic divergence between regions. The RRF was a novelty because it was a response to all three challenges - climate change, economic downturns, and divergence - and quickly overcame high and strong political hurdles in establishing a sizeable new temporary EU fiscal capacity in the face of the Covid-19 crisis.

It is important to build on this experience. A recent International Monetary Fund (IMF) paper also argues that the EU fiscal rules framework needs to be reformed and complemented by a permanent EU fiscal capacity (Arnold et al. 2022).¹¹ First, there is a need for a permanent investment fund that promotes net asset accumulation with regard to desired public infrastructure. Currently, the focus here is on climate protection and energy-related infrastructure. Second, ideally, an additional countercyclical component should be integrated to enable a strong and coordinated fiscal policy response in times of crisis. Both

¹¹ See also Watt (2022) for proposals to establish a permanent EU fiscal capacity along the lines of the RRF.

components need to take into account structural differences between member states in order to avoid economic divergence and a deepening of macroeconomic imbalances across Europe - and thus instability in the euro area that negatively affects all member states. The direct interaction with EU fiscal rules also needs to be considered: the more the fiscal space of national governments is restricted by the rules, the larger a fiscal capacity at the EU or euro area level must be to ensure the necessary public spending. The focus on a medium-term reduction of public debt ratios in the current EU Commission proposal combined with insufficient (green) investment incentives calls for the establishment of a permanent EU investment fund; otherwise, the large investment needs of the coming decades will be almost impossible for individual governments to meet, which could lead to higher future economic costs due to climate damages, thus exacerbating long-term problems for fiscal sustainability (e.g., Catalano et al. 2020).

For countercyclical purposes, a European 'rainy day fund' (RDF) could be introduced, which would finance expenditures during economic downturns in particularly affected countries by funds accumulated during boom periods (e.g., Lenarcic and Korhonen 2018). To build needed public infrastructure and achieve climate and energy goals, a permanent 'EU Climate and Energy Investment Fund' (CEIF) could be established as an integral part of the permanent European fiscal capacity. In this way, expenditures of the RDF for macroeconomic stabilisation could be combined with the necessary long-term green transition of the economy through the CEIF (see also Figure 6).

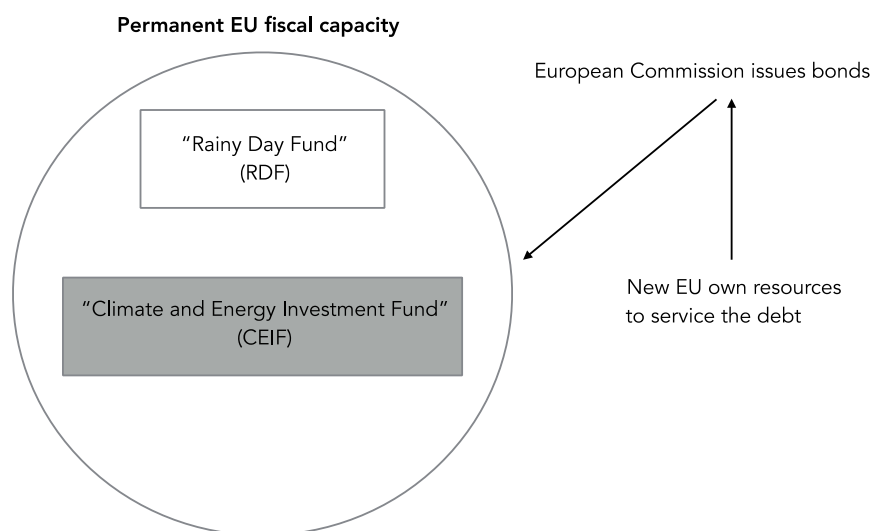
The proposal for an EU fiscal capacity thus ideally consists of two components - the Rainy Day Fund (RDF) and the Climate and Energy Investment Fund (CEIF). However, the CEIF could also be implemented on its own, although a substantial RDF would promote countercyclical macroeconomic stabilisation in future crises. For example, the IMF (2018) discusses a concept for the euro area whereby euro area countries pay 0.35% of their economic output annually into an RDF to build up assets in good economic times that would be used to stabilise the euro area in the event of crises. This also includes mechanisms to avoid permanent fiscal transfers (Arnold et al. 2018). The European Stability Mechanism (ESM) has also presented a recent proposal for a European RDF (Misch and Rey 2022).

In the following, however, we do not elaborate further on a possible RDF, but focus on key aspects of an EU Climate and Energy Investment Fund (CEIF), as our focus is on investment requirements in the context of the climate and energy crisis in the context of the EU's institutional framework. The CEIF would support public investments that are tied to targets for achieving climate and energy goals and would only be disbursed if the conditions are met. The size of the CEIF should allow for public investment of at least 1% of EU economic output annually to meet increased investment demands even during periods of political and economic stress (see Chapter 2). Indeed, an EU investment fund would help avoid procyclical cuts in public investment during recessions so that the negative investment developments in the aftermath of the financial crisis would not be repeated (see Figure 5).

Investments financed by the CEIF could focus more on genuinely European projects in the field of energy and transport system transformation to create EU added value. For example, Creel et al. (2020) propose investments in a European high-speed train system that could reduce CO₂ emissions in the transport sector in the long term. In addition, in the area of energy and decarbonisation, they recommend the realisation of an integrated electricity grid for the transmission of 100% renewable energy and support for complementary battery and green hydrogen projects.

A European investment fund would help achieve higher public investment ratios than in the past (see panel A in Figure 5) and provide relief at a time when countries with high public debt ratios in particular face fiscal limitations, while some member states with lower debt ratios nevertheless do not always make full use of their fiscal space. In the case of Germany, for example, this has manifested itself over the past twenty years in a sometimes even negative net public investment ratio, indicating a decaying public capital stock (see panel B in Figure 5). In Southern European countries, public investment fell particularly strongly after the financial crisis and has so far not fully recovered due to fiscal consolidation pressures since the euro crisis. This is a problem not least because the countries of Southern Europe are already particularly affected by the negative consequences of climate change (e.g., Lenaerts et al. 2022). A permanent EU investment fund would help ensure that all EU countries can implement the necessary amount of public investment to achieve energy and climate goals in the coming decades, regardless of their exposure to economic crises.

Figure 6 / EU fiscal capacity with EU investment fund for climate and energy



Source: own depiction.

An EU investment fund with green conditions would help to achieve climate and energy targets. A fund for investment in common public goods would guarantee a continuous form of investment, which is independent of the situation of public finances in individual states and eases the burden for national budgets. As funding criteria, the already existing EU climate coefficient method could be adapted, which is used for existing green investments of the RRF funds, which should account for an expenditure share of at least 37% (EC 2021).¹² According to assumed contributions to the green transition, this method assigns weighting coefficients with regard to the eligibility of project expenditures. In the current situation, expenditures for projects to improve the energy efficiency of residential buildings or to expand solar energy parks are weighted with a climate coefficient of 100%, while energy efficiency projects by large companies only receive a climate coefficient of 40%, or digitisation initiatives by companies have a climate coefficient of 0%. Applying an adapted method would allow for a consistent pursuit of climate and energy goals that is

¹² Details on the EU climate coefficients can be found in the document 'Annex: EU Climate Coefficients'; see: https://ec.europa.eu/info/sites/default/files/about_the_european_commission/eu_budget/nextgenerationeu_green_bond_frame_work_-_annex_climate_coefficients.pdf (last downloaded 24.11. 2022).

also not threatened by cyclical circumstances. While loans taken out by individual countries have a direct impact on the national debt ratio, subsidies financed via EU bonds would not pass through to the national public debt ratio. This would make it easier for EU member states to comply with EU fiscal rules, which could then be enforced more strictly even after their prospective reform (EC 2022). A permanent EU investment fund would also have the advantage that national green investments accepted by the European Commission and European Council would be able to draw on a common taxonomy of which investments should be classified as 'green'.

In financing the permanent EU investment fund CEIF, Next Generation EU could also serve as a model. The European Commission, following the model of the RRF in the context of Next Generation EU (see Chapter 3), would issue bonds on behalf of the EU to raise the investment funds in financial markets. Member states would not be individually liable for the EU bonds issued; the liability would remain with the EU, which would act in the financial markets backed by the guarantees of future contributions to the EU budget by EU member states. The agreement on Next Generation EU provides for the establishment of new EU own resources that generate a revenue stream from which EU bonds can be serviced over a long period of time. A key advantage of establishing EU own resources to service EU bonds for the permanent EU investment fund would be that individual EU member states' contributions to the EU budget would not need to be increased.

The European Commission presented concrete proposals for EU own resources in July 2021 and December 2021, respectively, based on a revised EU Emissions Trading System and a newly introduced CO₂ border adjustment mechanism as well as for the reallocation of taxation rights for profits of large multinational corporations. Schratzenstaller et al. (2022) analyse these options for new EU own resources and present further possibilities, e.g. with regard to the taxation of wealth and top incomes at the EU level.¹³ The financing of a permanent EU investment fund could be based on a combination of different instruments.¹⁴ Another option is not to service the EU bonds (entirely) with EU own resources and to allow the build-up of an EU debt stock.

Establishing a permanent common fiscal capacity at the EU level could be an effective, low-cost and politically feasible initiative. Collectively providing funds through an EU investment fund along the lines of the RRF would be a more attractive investment option for many EU countries than if they had to borrow individually on their own (Cornago and Springford 2021). An EU investment fund would make it easier for governments to undertake additional green investments beyond existing public investment quotas while complying with EU fiscal rules.

The experience of debt-based financing at the EU level through the RRF can be used to expand the thinking about financing options for an EU fiscal capacity. The introduction of a common European debt agency could circumvent the debt difficulties of individual countries, provide more funding space with lower funding costs, help stabilise government bond markets, and offer advantages in the issuance of highly demanded safe assets that are considered particularly safe and liquid (Saraceno et al. 2022). Institutional investors in particular, such as insurance companies and pension funds, show great

¹³ Kapeller et al. (2021) show that an EU-wide wealth tax to finance green investments could result in tax revenue of 1.5% of EU GDP annually, with other models generating between 3% and 11% in additional tax revenue.

¹⁴ Financing ideas mentioned in the IMF report include using reformed corporate tax revenues, collecting country contributions similar to EU contributions that are proportional to country incomes, or using a portion of EU emissions trading revenues, which would, however, be reduced as the climate target is approached (Arnold et al. 2022).

demand for safe assets, the supply of which would be expanded by the increased and planned issuance of EU bonds over a longer period of time, thus contributing to the stability of bond and financial markets (e.g. Alogoskoufis et al. 2020).

7. CONCLUSIONS

There are economic policy levers to make the economy more stable, more autonomous and more environmentally responsible. In addition to regulatory changes such as better incentive schemes for sustainable energy, a reduction in fossil fuel subsidies and the reform of current EU fiscal rules, there would need to be a targeted long-term expansion of existing EU financing instruments for public investment. The Recovery and Resilience Facility (RRF) adopted during the Covid-19 crisis was a major step forward for a common European investment initiative. But a forward-looking European economic policy requires additional annual public investment of at least 1% of EU economic output in the coming decades to achieve ambitious climate and energy targets, far beyond the RRF's estimated green investments.

An upcoming reform of the EU's fiscal rules along the lines of the EU Commission's current proposals (EC 2022) will in all likelihood not enable national governments to undertake additional green public investment projects on the scale required. In view of the foreseeable increase in fiscal consolidation pressure and the lack of space for additional investment, national budgets should be relieved by the establishment of a permanent EU investment fund for climate and energy. A permanent EU fiscal capacity with an EU investment fund for climate and energy would not only strengthen the community of EU member states economically and politically, but also promote their future geostrategic capacity to act in uncertain times. Providing a common financing scheme to undertake strategic investment projects in climate and energy should be prioritised to mobilise private investments and promote the competitiveness of European industries. Other large economic blocs such as the US have recently used their sovereignty for aggressive green industrial policies to ensure technological advantages.

The rapid energy price increases in the context of the Russian invasion of Ukraine and the resulting unequal burdens in EU member states increase the urgency of a swift transition to a greener and more independent energy system. The energy and climate crises are common European challenges that can best be addressed through common European solutions.

LITERATURE

- Alogoskoufis, S., Giuzio, M., Kostka, T., Levels, A., Vivar, L., Wedow, M. (2020). How could a common safe asset contribute to financial stability and financial integration in the banking union? Financial Integration and Structure in the Euro Area, ECB-Publication, March 2020.
- Arnold, N., Barkbu, Ture, E., Wang, H., Yao, J. (2018). A central fiscal stabilization capacity for the euro area. IMF Staff Discussion Note, No. 18/03.
- Arnold, N., Balakrishnan, R., Barkbu, B., Davoodi, H., Lagerborg, A., Lam, W., Medas, P., Otten, J., Rabier, L., Roehler, C., Shahmoradi, A., Spector, M., Weber, S., Zettelmeyer, J. (2022). Reforming the EU Fiscal Framework: Strengthening the Fiscal Rules and Institutions. IMF Departmental Papers, No. 2022/014.
- Bianchi, J., Mondragon, J. (2022). Monetary independence and rollover crises. Quarterly Journal of Economics, 137(1), 435-491.
- Blanchard, P., Leandro, A., Zettelmeyer, J. (2021). Redesigning EU fiscal rules: from rules to standards. Economic Policy, 36(106), 195-236.
- BloombergNEF (2021). New Energy Outlook 2021. NEO21, July 2021, BloombergNEF. <https://about.bnef.com/new-energy-outlook/> [last downloaded on September 21st 2022].
- Campiglio, E. (2016). Beyond carbon pricing: The role of banking and monetary policy in financing the transition to a low-carbon economy. Ecological Economics, 121, 220-230.
- Catalano, M., Forni, L., Pezzola, E. (2020). Climate-change adaption: The role of fiscal policy. Resource and Energy Economics, 59, 101111.
- Cornago, E., Springford, J. (2021). Why the EU's recovery fund should be permanent. Policy Brief, July 14, Centre for European Reform (CER), <https://www.cer.eu/publications/archive/policy-brief/2021/why-eus-recovery-fund> [last downloaded on September 21st 2022].
- CREA (2022). Financing Putin's war: Fossil fuel imports from Russia during the invasion of Ukraine. Centre for Research on Energy and Clean Air Website, <https://energyandcleanair.org/financing-putins-war/> [last downloaded on September 21st 2022].
- Creel, J., Holzner, M., Saraceno, F., Watt, A., Wittwer, J. (2020). How to spend it: a proposal for a European Covid-19 recovery programme. wiiw Policy Report, No. 38.
- Darvas, Z., Wolff, G. (2021). A green fiscal pact: climate investment in times of budget consolidation. Bruegel Policy Contribution, 18/2021.
- Darvas, Z., Wolff, G. (2022). How to reconcile increased green public investment needs with fiscal consolidation. VoxEU.org, 7.3.2022, <https://cepr.org/voxeu/columns/how-reconcile-increased-green-public-investment-needs-fiscal-consolidation> [last downloaded on November 10th 2022].
- Darvas, Z., Dominguez-Jimenez, M., Devins, A., Grzegorzczak, M., Guetta-Jeanrenaud, L., Hendry, S., Hoffmann, M., Lenaerts, K., Tzaras, A., Vorsatz, V., Weil, P. (2022). European Union countries' recovery and resilience plans, Bruegel dataset (last update on June 10th 2022), <https://www.bruegel.org/dataset/european-union-countries-recovery-and-resilience-plans> [last downloaded on October 5th 2022].
- Deleidi, M., Mazzucato, M., Semieniuk, G. (2020). Neither crowding in nor out: Public direct investment mobilising private investment into renewable electricity projects. Energy Policy, 140, 111195.
- De Grauwe, P., Ji, Y. (2013). From panic-driven austerity to symmetric macroeconomic policies in the Eurozone. Journal of Common Market Studies, 51(S1), 31-41.
- Dullien, S., Repasi, R., Paety, C., Watt, A., Watzka, S. (2021). EU-Fiskalregeln: Sinnvolle Reformen innerhalb des Maastricht Vertrages. IMK-Kommentar, Nr. 5 October 2021.

- European Commission [EC] (2020). Commission Staff Working Document. Impact Assessment - Stepping up Europe's 2030 Climate Ambition. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52020SC0176> [last downloaded on September 21st 2022].
- European Commission [EC] (2021). Commission Staff Working Document. Next Generation EU – Green Bond Framework. https://ec.europa.eu/info/strategy/eu-budget/eu-borrower-investor-relations/legal-texts_en#nextgenerationeu-green-bond-framework [last downloaded on September 21st 2022].
- European Commission [EC] (2022). Communication on orientations for a reform of the EU economic governance framework. COM(2022) 583 final.
- European Investment Bank [EIB] (2021). EIB Investment Report 2020/2021: Building a smart and green Europe in the COVID-19 era. EIB publication.
- Heimberger, P., Kapeller, J. (2017). The performativity of potential output: Pro-cyclicality and path dependency in coordinating European fiscal policies. *Review of International Political Economy*, 24(5), 904-928.
- IEA (2021). Net Zero by 2050. A Roadmap for the Global Energy Sector. International Energy Agency, Paris, <https://www.iea.org/reports/net-zero-by-2050> [last downloaded on September 21st 2022].
- IRENA (2021). World Energy Transitions Outlook: 1.5°C Pathway, International Renewable Energy Agency, Abu Dhabi, <https://www.irena.org/publications/2021/Jun/World-Energy-Transitions-Outlook> [last downloaded 21.9.2022].
- Jacques, O. (2021). Austerity and the path of least resistance: how fiscal consolidations crowd out long-term investments. *Journal of European Public Policy*, 28(4), 551-570.
- Jobst, A., Uriel, P. E., Zimmer, M. (2022). Green infrastructure investment: The public sector can't do it alone. Allianz Research, 30.8.2022, https://www.allianz-trade.com/en_global/news-insights/economic-insights/green-infrastructure-investment.html [last downloaded on November 10th 2022]
- Kapeller, J., Wildauer, R., Leitch, S. (2021). A European wealth tax for a fair and green recovery - Foundation for European Progressive Studies. Policy Paper Foundation of European Progressive Studies / Karl-Renner Institute, March 2021.
- Lenaerts, K., Tagliapietra, S., Wolff, G. (2022). How can the European Union adapt to climate change while avoiding a new fault line? Bruegel Policy Contribution, 11/2022.
- Lenarcic, A., Korhonen, K. (2018). A case for a European rainy day fund. ESM Discussion paper 5, European Stability Mechanism (ESM).
- Mazzucato, M. (2018). Mission-oriented research and innovation in the European Union. Study requested by the European Commission (February 2018).
- Misch, F., Rey, M. (2022): The case for a loan-based euro area stability fund. ESM Discussion Paper Series, No. 20.
- Osvaldová, D. (2022). The climate crisis and the war in Ukraine's common denominator: fossil fuels dependence. Heinrich Böll Stiftung Kommentar No. 14, <https://eu.boell.org/en/2022/04/14/slovakia-fossil-fuels-dependence> [last downloaded on September 21st 2022].
- Pekanov, A., Schratzenstaller, M. (2020). The role of fiscal rules in relation with the green economy. Study requested by the ECON committee (September 2020).
- Picek, O. (2020). Spillover effects from Next Generation EU. *Intereconomics*, 55, 325-331.
- PIRC (2011). Green Investment Gap. An Audit for Green Investment in the UK. Public Interest Research Centre, March 2011, <https://publicinterest.org.uk/project/archive/green-investment-gap> [last downloaded on November 10th 2022].

Pfeiffer, P., Varga, J., in 't Veld, J. (2021). Quantifying spillovers of Next Generation EU investment. European Economy Discussion Paper, No. 144.

Redeker, N. (2022). Wielding the big gun. What the ECB's new bond purchasing program means for EU governance. Hertie School Jacques Delors Centre Policy Brief, August 2022.

Redeker, N., Jäger, P. (2022). New needs, new prices, same money - Why the EU must raise its game to combat the war's economic fallout. Jacques Delors Centre Policy Brief, June 2022.

Saraceno, F., Gobbi, L., Belloni, E., Favero, C. A., Amato, M. (2022). Creating a safe asset without debt mutualisation: The opportunity of a European Debt Agency. VoxEU.org, April 22nd 2022, <https://cepr.org/voxeu/columns/creating-safe-asset-without-debt-mutualisation-opportunity-european-debt-agency> [last downloaded on November 22nd 2022]

Schratzenstaller, M., Nerudova, D., Solilova, V., Holzner, M., Heimberger, P., Korpar, N., Maucorps, A., Moshhammer, B. (2022). New EU own resources: possibilities and limitations of steering effects and sectoral policy co-benefits. Study requested by the BUDG committee of the European Parliament (March 2022).

Semmler, W., Braga, J., Lichtenberger, A., Toure, M., Hayde, E. (2021). Fiscal Policies for a Low-Carbon Economy. World Bank Report 2021-06.

Truger, A. (2016). Implementing the golden rule of for public investment in Europe. Safeguarding public investment and supporting the recovery. Materialien zu Wirtschaft und Gesellschaft, No. 138.

Tucker, T., Malhotra, S. (2022): The unprecedented green industrial policy wins in the Inflation Reduction Act, Roosevelt Institute (August 5th 2022), <https://rooseveltinstitute.org/2022/08/05/unprecedented-green-industrial-policy-wins-in-the-inflation-reduction-act/> [last downloaded on December 2nd 2022].

Watt, A. (2022). Recovery and Resilience: stop-gap or sea-change? Social Europe (May 30th 2022), <https://socialeurope.eu/recovery-and-resilience-stop-gap-or-sea-change> [last downloaded on September 21st 2022].

Wildauer, R., Leitch, S., Kapeller, J. (2020). How to boost the European Green Deal's scale and ambition. Policy Paper, Foundation of European Progressive Studies / Karl-Renner Institute / Austrian Federal Chamber of Labour, June 2020.

World Economic Forum (2013). Green Investment Report: The ways and means to unlock private finance for green growth. Geneva, Switzerland.

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